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Designing Customer Communications

Design and Production Documentation

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Chapter 1: Getting Started Designing in Exstream

If you are new to the Exstream design environment, you can use this chapter as an introduction to Exstream terms and concepts, as well as the design process involved in creating an application using the design and production capabilities of Exstream. You can also use this chapter as a reference resource to help you plan your application development strategy and then implement those plans. In this chapter, you can find introductory-level information designed to help you become familiar with the concept of an Exstream application and a guide for the best way to create an application that will meet your current and future requirements.

For general information about the Exstream solution and what it can do for your business, as well as some basics of designing, see *Getting Started* in the Exstream Design and Production documentation. It is recommended you review this guide before reading the "Designing in Exstream" guide and starting the design process.

This chapter discusses the following topics:

- “[Tips for New Exstream Developers](#)” below
- “[What Makes Up an Application?](#)” on the next page
- “[Overview of the Application Development Process](#)” on page 21
- “[Roles in the Application Development Cycle](#)” on page 22
- “[Application Planning Considerations](#)” on page 24

1.1 Tips for New Exstream Developers

When you invest in Exstream as your document composition solution, you receive access to a variety of resources that can help you employ the best design principles as you design and test your applications. By taking advantage of these resources, you can create applications that meet all the requirements of your current project, while still maintaining the flexibility to meet future requirements for the application. The following resources are available through Exstream to help you get the most out of your investment:

- **Classroom training**—A wide variety of classroom training offerings are available to help you become familiar with the design and production environment and learn how to apply that basic knowledge as you design applications that will meet your organization's requirements. For information about these services, contact your account manager.
- **Professional services**—The Exstream Professional Services consultants can help you through every phase of your transition to Exstream, from requirements definitions, to

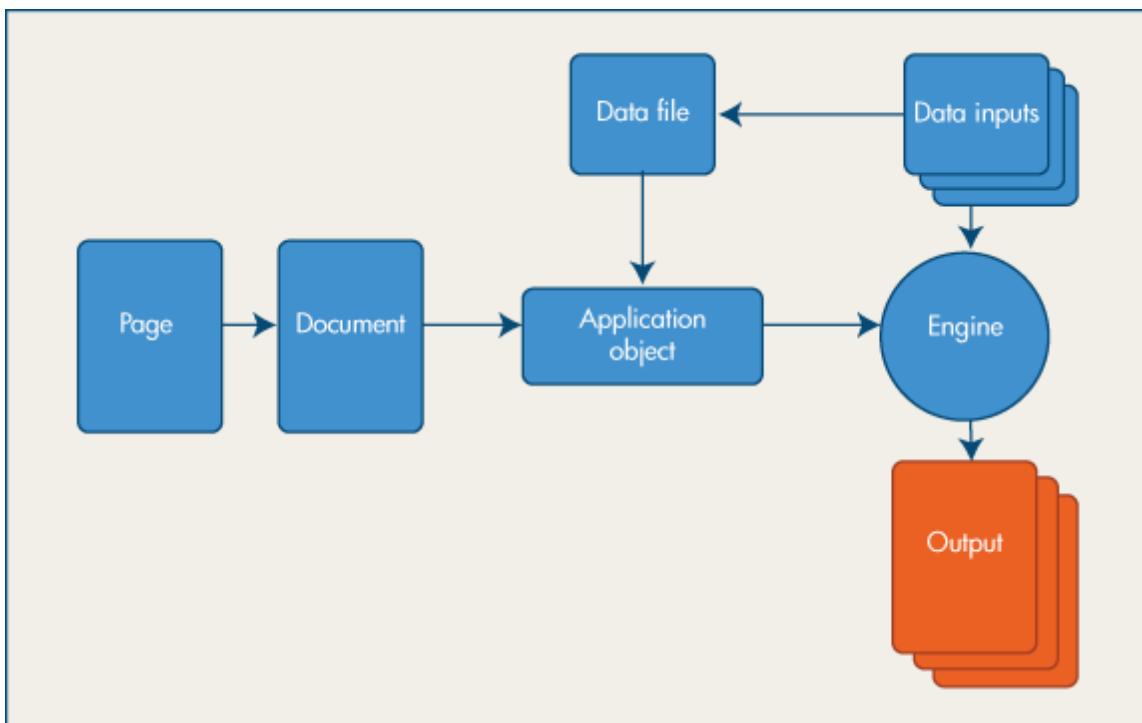
implementation, to ongoing mentoring. For information about these services, contact your account manager.

- **Self-Solve knowledgebase**—This online knowledgebase includes tips, workarounds, best practices, and prerequisite environment information. For information about this service, visit the OpenText Customer Support website at <http://support.opentext.com>.
- **Documentation**—The robust Exstream documentation set provides comprehensive information about setting up all the components of your Exstream solution, detailed information to help you understand complex concepts, and reference materials you can use as handy job aids.

1.2 What Makes Up an Application?

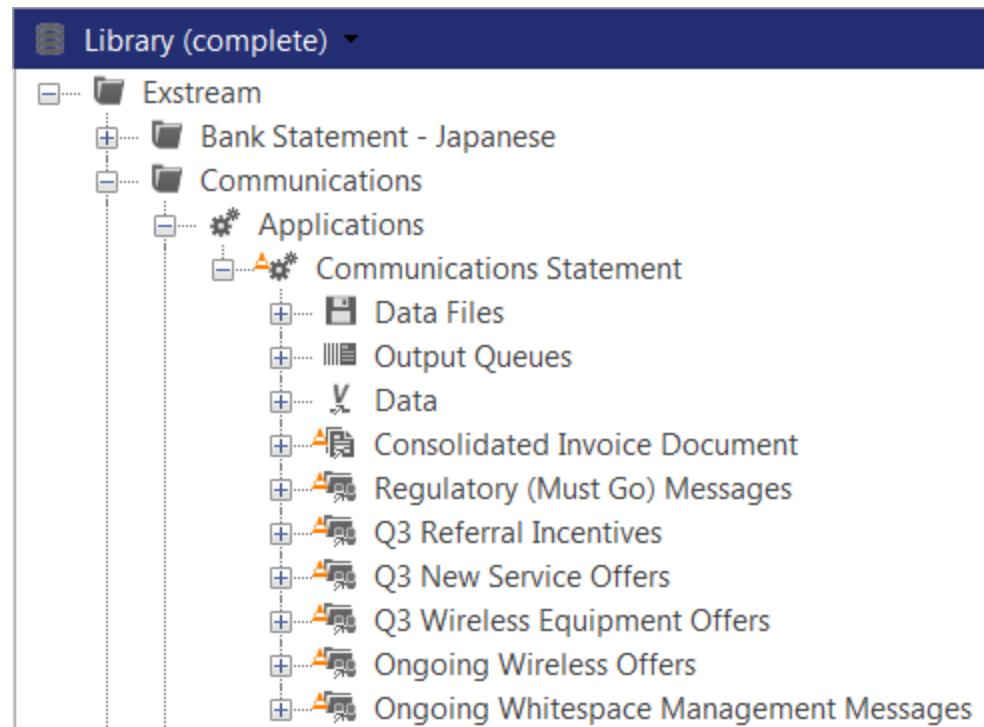
In the Exstream environment, the term "application" refers to all of the design objects and their property settings in Exstream that make up your statement, letter, invoice, bill, or other customer communication. An application is the central hub that connects your content creation processes and your data repository with your delivery systems. For example, in the following simple illustration, notice how the application organizes the data and design elements so they can be processed by the engine.

Illustration of role of the application in the Exstream environment



The more specific use of the term "application" refers to an application object in the Design Manager Library. This object serves as a container for all of the related objects that make up the application. You reference the objects, such as the data files, output queues, and customer documents, to the application object so you can see a visual representation of the objects that make up the application. You also use the application object to specify settings that pertain to all of the objects in the application (for example, how the paper weights and the number of pages will affect the content that is included in the final customers' documents).

Example of an application in the Library



Tip: You can use folders to help organize applications in the Library. Multiple applications can reside in one folder, so you can group them by functionality. For example, you might use three different folders to contain applications for correspondence, statements, and prospectuses. Within a single design database, applications in different folders can reference the same design objects, regardless of the folder in which they are located.

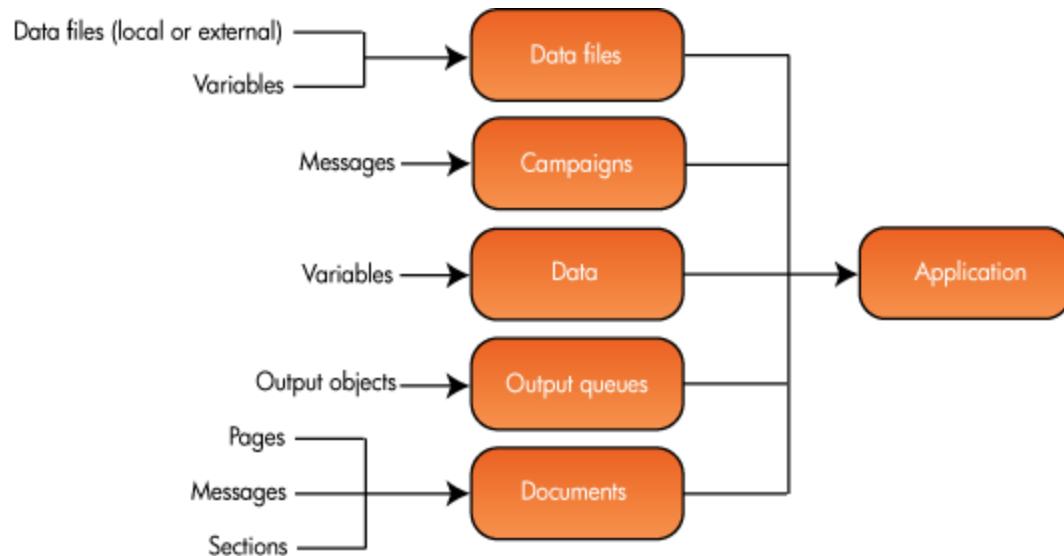
For more information about using folders to organize the Library, see *Getting Started* in the Exstream Design and Production documentation.

An application object can contain five different types of objects, and each of those objects can contain other objects. This hierarchical system of organizing the components in an application allows you to quickly see the objects that will make up a customer's document and to make high-level changes to the application makeup (such as removing documents or adding an additional output queue). While most of the objects an application can contain are optional, each application must have at least one document, containing at least one page, and one customer driver data file. These three objects represent the design and the data portion of the output. You

do not have to include output-related objects, such as output objects and output queues, because they are not required when testing an application. However, it is good practice to add output-related objects during the application development cycle to make sure the design will appear correctly when it is put into production.

The following illustration demonstrates the objects that can be referenced in an application and how those objects help organize and control the lower-level components and settings that make up the application.

Objects that are referenced in an application



For more information about assembling an application, see [“Adding Objects to an Application” on page 653](#).

The following table describes all of the objects that can be referenced in an application:

Application objects

Object	Required	Description
Campaign	No	Campaigns are containers for marketing materials. Campaigns are used to target customers and to track responses. These types of objects are available only if you have licensed the Campaign Management module and the Advanced Campaign Management module.
Data File	Yes	Data files contain or report information about a customer and are used to drive the production process. At least one customer driver file (a specific type of data file) is required for each application to provide information about the recipients of the application.
Document	Yes	Documents are containers for all the objects required for the design of a personalized communication. A document must contain at least one page, but it can optionally include messages and sections.
Message	No	Messages are marketing materials that are used to fill extra blank space in a communication. They can also represent pre-printed materials inserted at print time.

Application objects, continued

Object	Required	Description
Page	Yes	Pages usually correspond to a sheet of paper and are used to design the content a customer sees. They contain both static content as well as the content that can change based on customer data. In most applications, pages are the most basic object you will use to contain content.
Section	No	Sections are groups of paragraphs, and optionally, other sections. They are used to create a hierarchy of content similar to headings and subheadings in a book. Sections and paragraphs are ideally suited to help you design long documents.
Paragraph	No	Paragraphs are blocks of communication that usually correspond to text paragraphs. One or more paragraphs must be included in each section object. Paragraph objects are not the same as textual paragraphs. Paragraph objects exist in the Library as reusable objects, whereas textual paragraphs are part of a body of text.
Output Queue	No	Output queues control the devices and processes used for final output production. These objects control the properties of both print and electronic output.
Variable	No	Variables represent data that change during production. Variables make communication personalized for each customer.

1.3 Overview of the Application Development Process

In general, you will use the following process to design and create an application:

1. **Identify the application requirements and develop a plan**—Using the specifications for the project, determine how the project requirements or specifications translate into the Exstream environment. For example, suppose one of the project requirements is to be able to follow up with customers and send them updates about areas they might be interested in, based on other campaigns they received previously. To achieve this goal, you can use the tracking abilities available with the Advanced Campaign Management module to monitor customers' responses to campaigns and target them with communications accordingly. This stage of the application development process is important because it helps you identify the features you must use to achieve the desired output. From this information, you can create a detailed development strategy for designing the application. The more detailed, comprehensive information you include in your planning, the fewer issues you are likely to encounter during development. In addition, this stage of the process is also a good time to start planning the templates and components you will use throughout all your applications

For more information about planning an application before beginning the design process, see [“Application Planning Considerations” on page 24](#).

2. **Create the application**—The various tasks related to [creating an application](#) are

discussed in this guide. As you begin to create the objects that will make up the application, it is important to continually be aware of how the different components of the application will interact with each other. For example, the variables used to map the data affect which variables are used in text boxes, tables, and so on.

3. **Test the application**—As you develop, it is important that you test the application frequently as you add more components and complexity. By testing as you develop, you will find it easier to identify and correct issues as they are introduced, rather than making far-reaching or costly fixes at the end of the development process. In addition to packaging an application and verifying the output, Exstream provides many testing tools you can use to validate different parts of the application. For example, you can use the Rule Analyzer module to check for flawed logic in the rules you employ in an application.

For more information about the testing tools available in Exstream, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

1.4 Roles in the Application Development Cycle

Depending on your organization's structure, many different people might be involved in designing the various components of the application, or you might be the sole developer, responsible for creating the application and putting it into production. Whether you work by yourself or in a large group to design an application, you might find it helpful to think about the tasks associated with the application development in terms of various roles. By associating the tasks required to produce an application with different roles, you can compartmentalize the tasks and responsibilities required to successfully implement an Exstream application and help track their completion.

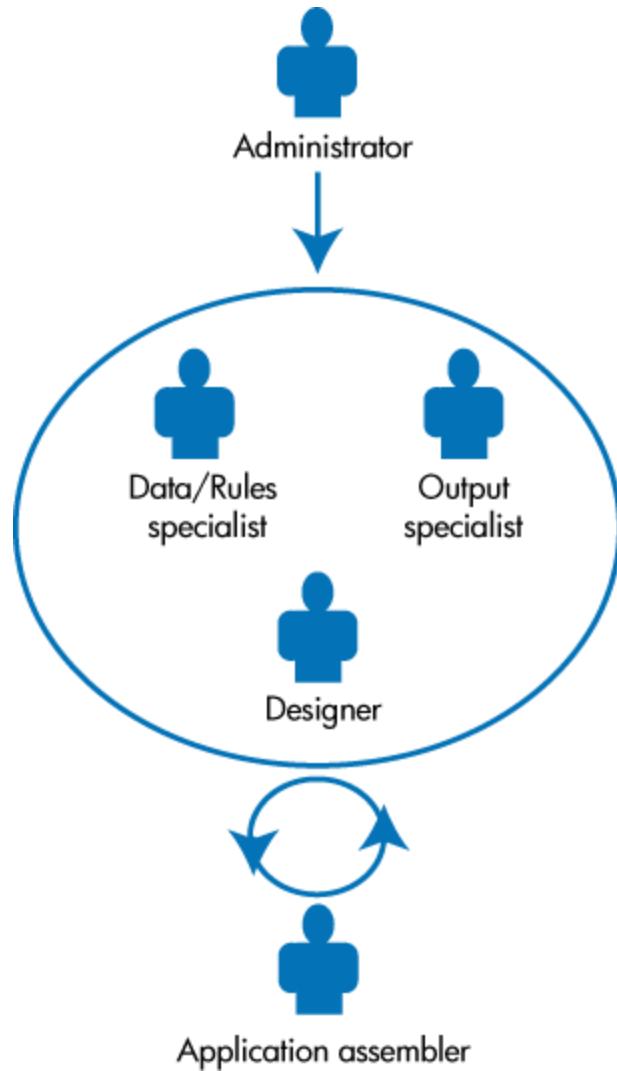
Although you might find it helpful to organize by different roles for your particular organization or project, the following roles are a good starting point to divide tasks:

- **Administrator**—The tasks performed by this user are typically the first tasks carried out in a new Exstream implementation. An administrator sets up the Exstream environment and makes sure that the various settings will support the other users and the application requirements.
- **Data/Rules specialist**—This user is very familiar with the data that will be used in an application, and might be a database administrator or business manager familiar with the variable document requirements. He or she might also have programming experience, particularly if you will be creating logic to help target content to specific customers. A data/rules specialist often carries out the initial work in an application by creating variables, mapping data, and working with the designer to understand the role the data will play in the final output.
- **Designer**—Often a user with business analyst or graphic design experience, the designer carries out the tasks involved in recreating mockups using the Exstream design tools. A

designer might take on many different responsibilities, from planning page layout, to designing marketing campaigns and messages. A designer might also use external tools to import content, as well as features in Designer to create the visual components of the application. Designers typically work closely with the data/rules specialist to use variables and logic appropriately in the design, and with the output specialist to make sure the design is optimized for the chosen output devices.

- **Output specialist**—This user is very familiar with the output devices you will use to publish an application. If you are printing and mailing documents to customers, the output specialist will likely be in charge of planning the required post-production steps and then setting up the necessary objects in Design Manager to support those processes. If you will integrate the application into existing enterprise systems, the output specialist might also lead the integration activities.
- **Application assembler**—One user, possibly a project manager, might serve as the liaison between the other contributors. This application assembler works with the various users to gather the finished components and add them to an application object. This process is often iterative, since users will likely test each finished component before moving on to the next component.

Illustration of application development roles



As you tweak the application development process and roles to suit your unique organization's needs, you might find it helpful to maintain notes on the processes and divisions of responsibility that work well. Then, you can build on the process and methodology in future projects, making your Exstream design process even more efficient.

1.5 Application Planning Considerations

The topics in the following sections discuss some of the long-term implications of the decisions you make during the design phase of creating an application. They also provide best practice information to consider to help you create the most efficient, versatile design possible. In general, it is recommended that after you set up the development environment, you start the

application design by analyzing the data, so the recommendations listed in this section reflect that order.

In this section

- “[Consider the Development Environment](#)” below
- “[Consider the Data](#)” on the next page
- “[Consider the Output](#)” on the next page
- “[Consider the Document Appearance](#)” on page 27
- “[Consider the Integration](#)” on page 28

1.5.1 Consider the Development Environment

If you are working as a system administrator, you might have already established the best practices as they relate to your specific development environment. However, if you are beginning a new project, review the following questions and incorporate the recommendations into your application planning as needed:

Development environment planning questions

Planning question	Recommendation
Will multiple users contribute to the development process?	<p>If so, make sure the database type you use supports enterprise-level interaction.</p> <p>You can also use several Exstream features to help prevent problems from arising when multiple developers are making changes to the design database at the same time. You can use one or more of the following features:</p> <ul style="list-style-type: none">• Check in/check out—Prevents different users from making changes to the same object at the same time• Approval process—Allows specific users to verify the changes other users have made to specific objects• Version histories—Allows you to track changes made to objects and to restore previous versions of objects• Design group and folder restrictions—Allows you to restrict the permissions for specific users and the folders to which users have access
How should folders be structured?	Plan the best folder organization and storage system for the database. One storage method is create a folder for each project and use the root folder to store objects that are used in all projects (such as a components or globally used messages).
Which objects and design options should be available to designers?	You can use the System Settings in Design Manager to limit the features available to Exstream users. You can customize the interface of your implementation to make it easier for designers to work and to help limit the types of objects or settings they can use.
Will objects be reused in multiple applications throughout the enterprise?	You can pre-create components that will be reused throughout an application or in multiple applications. Components are Library objects that are managed from a central location but can be added to designs by all users. For example, you can create a component for your corporate logo image so that it can be easily added to all correspondence documents.

1.5.2 Consider the Data

One of the most inflexible components of an application is likely to be the customer data that will drive the output or that must be presented in the final documents. Exstream is designed to accept and access data in almost any format; however, you must consider the format and location of the data and design the application to accommodate your unique requirements.

Review the following questions and incorporate the recommendations into your application planning as needed:

Data planning questions

Planning question	Recommendation
Where is the data located?	If the data is located in a system or database that is part of your enterprise infrastructure, you can use Dynamic Data Access module to access the data using one of the existing Exstream connectors or by writing your own routines to act as connectors. If you will produce output in scheduled batch jobs, or if your database data does not change dynamically, consider extracting the required data from the database before the engine run to improve the engine performance. If the data is not stored locally, consider making a copy so you can easily test with the data locally.
How will the data be used in the application?	Identify which parts of the data will appear on the page and which parts of the data will be used to drive conditional processing. Make sure that data used in conditional processing is mapped, as well as the data that appears in the content.
How should the data be presented on the page?	You can control how data will appear in a design using several different formatting methods. For example, you can apply text formatting to a variable placed on a page to make the data appear on the page in the same font and color as the other content on the page. You can also use the data mapping formatting features to control how the data is presented. For example, if the data is a date, you can specify that it appear as 12/31/10, rather than its stored format of 12312010.
Will the data be used to dictate whether specific content should be included or excluded?	If so, use rules on the objects or content to control their inclusion or exclusion.
Will the data be needed in a report?	If so, consider whether the data needs to be formatted in a specific way for archival or review purposes.

1.5.3 Consider the Output

Because Exstream supports many different output channels, you can send the same application to multiple delivery channels to accommodate your delivery requirements. For example, the same output can be produced in PDF, HTML, and AFP format, simply by adding multiple output queues to an application.

Each output type supported by Exstream is designed to provide different advantages. For example, PDF allows you to send a document electronically to virtually any customer. On the other hand, an output type such as AFP allows you to easily print and archive customers' documents. After you have identified the required output types for an application, review the following planning questions and make accommodations in your design as needed:

Output planning questions

Planning question	Recommendation
What is the intended destination of the output?	Consider the requirements of the audience when deciding which output types you need to set up for a particular application. For example, if you are creating output for internal customers, you might consider setting up a black-and-white output object to reduce printing costs. On the other hand, external customers might require higher quality output, which will require you to set up outputs with limited spot color or full color.
Will the output be sent to a vendor for printing?	Work with the print provider to determine the ideal resolution to use for pages and images. Test the output throughout the development process to make sure the design decisions you are making support the output requirements.
What type of downstream processing will be carried out on the output?	Will you use post-production processes to enhance or modify the customers' documents before they are mailed? If so, determine whether you must set up and use objects such as barcodes and insert messages to accomplish the final document you require.
Will the data be used to dictate whether specific content should be included or excluded?	If so, use rules on the objects or content to control their inclusion or exclusion.
Does the output require encryption or other protection, such as password protection?	Select an output type that provides the level of security you need. PDF output provides many types of security options; however, other Exstream output types offer encryption, as well.

1.5.4 Consider the Document Appearance

Before you start the process of creating the design in Exstream, it is recommended that you create a mock-up of the final design and map the areas of the page to the design objects you will use to create them. By developing a design mock-up before starting the design phase, you can identify which parts of the design require other input and how each object should be designed so it interacts correctly with surrounding content.

Review the following planning questions and make accommodations in your design as needed:

Document appearance planning questions

Planning question	Recommendation
Do you need to enforce specific font styles, color usage, and so on, in order to comply with corporate standards?	<p>Exstream provides several features you can use to help ensure that a design complies with a set of standards:</p> <ul style="list-style-type: none">• Styles and style sheets—Use the style and style sheet tools in Design Manager to control the formatting choices available to designers.• Templates—You can create templates for pages and messages to enforce the size and other physical properties of areas in the design.• Font restrictions—You can limit the font types, sizes, and styles that are available in Designer.• Color families—These objects allow you to create custom color palettes from which designers can quickly select approved colors.• Spot colors—These color objects allow you to identify pre-mixed marketing or corporate colors that are stored in the printer (usually in the form of an individual ink cartridge) so that designers can utilize these colors throughout their design. <p>In addition to these features, you can also use the approval processes in Design Manager to make sure that designs are manually checked for adherence to standards before production.</p>
Which parts of the design will grow or move during the engine run?	Use the properties of each design object to accommodate its growth and the growth of objects around it. For content that flows to other pages, design flow frames as needed.
Which parts of the design will be imported into the Exstream environment, rather than be recreated using the Designer tools?	<p>Make sure the content or objects that you want to import are in a supported format. If they are not, use an external tool, such as one the Exstream converters, to convert them to one of the many formats Exstream supports. Or you might license the Dynamic Content Import module so you can include images and other content in the design in their original format without converting them.</p> <p>Also, decide whether the content or objects should be imported as static design objects or included dynamically during an engine run. There are advantages and disadvantages to each approach. For example, importing objects as static design objects can provide additional formatting options, while dynamically importing object can decrease the file size of the final output.</p>
Which parts of the design must be excluded or included for specific customers?	Plan the logic you must create in order to include or exclude specific objects from the final output.

1.5.5 Consider the Integration

An important aspect of your Exstream solution is the way in which the application will integrate with your existing external systems.

Review the following planning questions and make accommodations in your design as needed:

Integration planning questions

Planning question	Recommendation
Will the application need to communicate with other systems to access data?	If the data is located in a system or database that is part of your enterprise infrastructure, you can use Dynamic Data Access module to access the data either by using one of the existing Exstream connectors or using a routine you write yourself.

Integration planning questions, continued

Planning question	Recommendation
Will the output be integrated into archival systems?	<p>Use the properties of each design object to accommodate its growth and the growth of objects around it. For content that flows to other pages, design flow frames as needed.</p>
Which parts of the design will be imported into the Exstream environment, rather than be recreated using the Designer tools?	<p>If you must archive the application output, you can leverage specific output options to make the content easier to catalog, search, and retrieve in the future. For example, you can customize the TLEs and NOPs added to an AFP print stream to make the integration into an archival system consistent with other archived content.</p> <p>In addition, consider the best way to store resources that are referenced from the design. For example, make sure that the resources can be accessed as needed when the application is updated or re-published.</p>
Do you need to retain output for reporting or auditing purposes?	<p>If you must archive the output of an application, decide whether the resources of the output are embedded in the output stream or are referenced and stored separately from the output stream. Embedding resources might be required for some solutions but can also increase the file size of the output.</p>

Chapter 2: Creating and Setting Up Pages in the Library

In Exstream, pages contain your design. Pages in the design environment often correspond to a physical sheet of paper, but not always. For example, if you create output in an electronic format, such as HTML, a page in the design environment does not have an equivalent in the output format. You can also set up your design so that a sheet of paper holds multiple pages (called multiple-ups), which is often the case in large-scale print jobs. Pages are stored in the Library and then edited in Designer.

Because Exstream allows you to create one design that is then customized for each customer with that person's data, the way you design a page reflects this flexibility. For example, if you want to include a table that lists each of the customer's calls during the month, you design one table on the page. Then, when the engine runs and populates the table with the customer's unique data, the table can grow and change to reflect the data. Therefore, when you design a page, it is important to keep in mind that the page will change during engine processing, based on the inclusion or exclusion of objects on the page and the data available for the customer.

Page objects in Exstream include two different types of designs: a fixed dimension layout called a standard design, and relative dimension layouts, called [container designs](#). While standard designs let you create communications for print output, container designs let you design communications for electronic outputs—including adding responsive features that make your communications easily readable on any device. While each design can differ based on output needs, you can easily reuse objects between layouts.

In this section

[“Creating a Page” on the next page](#)

[“Setting Basic Appearance Options for a Page” on page 32](#)

[“Setting Printing Options for the Page” on page 33](#)

[“Defining How Duplex Pages Are Counted” on page 34](#)

[“Including or Excluding a Page Based on Rule Logic” on page 34](#)

[“Changing the Order in Which Pages Are Placed in a Document” on page 35](#)

[“Using Dynamic Paper Types to Accommodate Different Production Requirements” on page 36](#)

[“Setting the Languages in Which a Page Can Be Delivered” on page 37](#)

[“Controlling How the Page is Included for Customers in Different Locations” on page 37](#)

[“Using Design Layers to Accommodate Non-Printing or Output-Specific Objects” on page 38](#)

2.1 Creating a Page

You can create a new page in either Design Manager or Designer. You can create a page in Design Manager to add a page directly to an existing document, or you can easily create a page while you are working in Designer if you find you must create an additional page to contain content. This task describes how to create a page in Design Manager, after which you can define its properties.

When you create a page, you are prompted to select a paper type or a page template. These objects must be set up before you can create a page. (Often, a system administrator defines these objects.) The physical properties of a page, and sometimes, the fonts and styles you can use on the page, are controlled by paper types or page templates. Before creating a page, review the following table, and if necessary, consult with your system administrator about the appropriate object to use.

Paper types versus page templates

Object	Description
Paper type	<p>Page types define the physical properties of the sheet or sheets of paper that correspond to the page (for example, they define the paper dimensions and paper weight). They can also control output-specific options, such as copygroup names and formdef options for AFP output.</p> <p>Paper types do not control the styles, fonts, or design capabilities that you have for the page.</p>
Page template	<p>Page templates use a paper type and additional settings to enforce design consistency. In addition to the physical properties of the output sheet, a page template defines the default settings for a page, such as the default style and color and bulleting style. In addition, a page template can restrict certain design activities, such as the variables you can use or whether you can move page objects.</p>

For information about setting up paper types and page templates, see *System Administration* in the Exstream Design and Production documentation

For information about using page template objects in container designs, see “[Adding objects from a template to container designs](#)” on page 57.

To create a page:

1. In the Library, right-click the **Pages** heading or an existing page and select **New Page**.
The **New Page** dialog box opens.
2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. Click **Next**.
New options appear.
4. Use the **Page Template** or **Paper type** option to specify whether you want to use a paper type or page template to control the appearance and physical properties of the page.

5. Click **Finish**.

The page opens in the Property Panel for you to define.

2.2 Setting Basic Appearance Options for a Page

When you create a page, you select either a page type or a paper template. These objects control many of the appearance options for the page. Settings defined by these options might appear as inactive on the page properties. Therefore, keep in mind that although this task discusses how to set the basic appearance options for the page, all the options might not be available to you. In addition, some options might be unavailable due to the system configuration options set by the system administrator.

Use the properties on the **Basic** tab to set basic appearance options for the page:

To	Do this
Change the paper type and/or select a page template after you have already created the page. Keep in mind that if the new paper type or page template is smaller than the original one, and you have placed objects on the page, some objects might extend past the page boundaries.	Select a new paper type from the Paper type box or select a new page template from the Template box.
Specify a design resolution for the page. It is recommended that you set the design resolution to be the same resolution as that of the target output device. By using the same resolution as the output device, you can help prevent the output from appearing differently from the design (for example, bold text can be overprinted).	In the Design resolution box, enter the resolution at which you want to design the page. This option is available only if the Multiple design resolutions check box is selected on the Content tab of the System Configuration dialog box. For information about using the System Configuration dialog box to set up a design environment, see <i>System Administration</i> in the Exstream Design and Production documentation.
Set a minimum bottom margin for the page objects on the page are set to grow	In the Page flow margin box, enter the margin you want to preserve at the bottom of a page. This option is available only if the Multiple flow margins check box is selected on the Content tab of the System Configuration dialog box. For information about using the System Configuration dialog box to set up a design environment, see <i>System Administration</i> in the Exstream Design and Production documentation. For information about setting up objects to flow, see “Accommodating Objects That Flow” on page 401 .

2.3 Setting Printing Options for the Page

Use options on the **Basic** tab to specify the print settings for the page:

To	Do this
Change the rotation of the page in relation to the design's default	<p>From the Orientation drop-down list, select how you want the page to print in relation to the printer's normal output page orientation. Select one of the following options:</p> <ul style="list-style-type: none">• Portrait—Rotated zero degrees• Landscape—Rotated 90 degrees• Portrait reversed—Rotated 180 degrees• Landscape reversed—Rotated 280 degrees
<p>Set duplex print settings. If you are creating a duplex design, Exstream allows you to contain the design for both sides of the sheet under one page object. When you open the page in Designer, you can design both sides of the sheet in the same design window.</p> <p>If you are creating a single page (simplex) design that will be printed on both sides of a sheet (duplex), you can also specify how the printer should treat that page.</p>	<ol style="list-style-type: none">1. To specify a page as duplex, select the Duplex check box.2. If the page is simplex but will print on a duplex printer, select one of the following options from the How to print simplex page on duplex outputs drop-down list to specify how the page should be printed:<ul style="list-style-type: none">• Starts on front or back—must match paper type—The page can be placed on the front or back of any sheet of paper, as long as the paper types match.• Starts on front, matching paper type allowed on back—The page is always on the front of a sheet of paper. Anything, as long as it uses the same paper type, can be placed on the back.• Starts on front, nothing on back—The page is always on the front of a sheet of paper. Nothing can be placed on the back of the sheet.• Starts on front or back, different paper types allowed—The page can be placed on the front or back of a sheet of paper, and can use any available paper type.• Starts on front, different paper types allowed—The page can be placed only on the front of a sheet of paper and can use any available paper type.

2.4 Defining How Duplex Pages Are Counted

If you include duplex pages in an application, you can use the application properties to specify how the duplex pages in an application are counted. This setting affects all page numbering variables.

For information about setting up pages to be duplex, see [“Setting Printing Options for the Page” on the previous page](#).

For information about page numbering variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To define the page counting method:

1. In Design Manager, from the Library, drag the application for which you want to define duplex settings to the Property Panel.
2. Click the **Documents** tab.
3. From the **Duplex page counting method** drop-down list, select one of the following options to define how the duplex pages are counted:
 - **Normal, fronts and backs**—All pages are counted, whether empty or not.
 - **Fronts only**—Only fronts are counted, whether the backs are empty or not.
 - **Fronts and used backs**—Empty back pages are not included in the count.
 - **Fronts and allowed backs**—Front pages and duplex back pages are counted. Simplex back pages are not counted. For pages defined as duplex, both sides are counted. For pages defined as simplex, fronts are counted. The backs are counted for a specific page only if **Starts on front, different paper types allowed** is selected from the **How to print simplex page on duplex** drop-down list on the page properties. You can select this option only when the application will be printing on a duplex printer.

Note: If you select **Fronts and allowed backs** and the 'SYS_PageInDocument' variable is used in the application, the variable counts the front and back of the pages.

2.5 Including or Excluding a Page Based on Rule Logic

Rules allow you tie pages to customer data or to perform advanced calculations that allow you to specify whether the page is included in the generated output, based on the customer data. For

example, suppose you need to include a page only for customers who are between 20 and 35 years old. You can use a rule to exclude the page for specific customers if they do not meet the age criteria.

Keep in mind that pages can also be excluded from an application if they are part of a document that is excluded. Make sure that the inclusion/exclusion logic is placed on the appropriate objects so that the right amount of content appears in the final output.

To send a page to customers based on rule logic:

1. In Design Manager, from the Library, drag the page to the Property Panel.
2. Click the **Targeting** tab.
3. Use the **Rule** box to define the rule that controls when the document is included.

For information about creating rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

2.6 Changing the Order in Which Pages Are Placed in a Document

By default, pages are placed in a document in the order in which they appear in the document in the Library.

To change the order in which pages are placed in a document:

1. In Design Manager, from the Library, drag the document to the Edit Panel.
A graphical representation of the document appears.
2. Double-click in the right column of the page whose order you want to change.
The **Document Page Properties** dialog box opens.
3. From the **Position of page in document** drop-down list, select **Specified Page Number** from the **Position of page in document** drop-down list.
4. In the box adjacent to the **Position of page in document** drop-down list, enter the position in the document in which you want the page to be placed.
5. Click **OK**.

The **Document Page Properties** dialog box closes.

The page does not move in the Library, but when the engine runs, it is placed according to the order you specified.

2.7 Using Dynamic Paper Types to Accommodate Different Production Requirements

You can specify more than one paper type for a single page to accommodate multiple production requirements. You specify multiple paper types for a page by using paper types that are dynamic (that is, they change at run time based on the value of a specified variable). For example, if one page will be printed on two different printers that use different paper stocks, you can design the page one time. You can then use dynamic paper types to define the paper properties for each printer so that the postage calculations are correct for each paper stock.

If you use dynamic paper types, the width and height of the dynamic paper type must match the width and height of the default paper type defined for the page. If they do not match, you receive an error message and the default paper type is used to create the output.

Before setting up dynamic paper types, you must have completed the following tasks

- Assigned a default paper type to the page
- Set up a non-array string variable that is mapped to the name of the paper types that will be used

For information about assigning a paper type, see “[Setting Basic Appearance Options for a Page](#)” on page 32.

For information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To use dynamic paper types to accommodate different production requirements:

1. In Design Manager, from the Library, drag the page to the Property Panel.
2. Click the **Basic** tab.
3. In the **Dynamic paper type** box, click  .

The **Select Variable** dialog box opens.

4. Select the variable you created to control the paper type and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Dynamic paper type** box.

5. From the Library, drag the application that contains the page to the Property Panel.
6. Click the **Dynamic Objects** tab.

7. Below the **Paper types allowed for dynamic selection** box, click  .
The **Select Paper Type** dialog box opens.
8. Select the paper types that can be used dynamically and click **OK**.

The **Select Paper Type** dialog box closes and the paper type(s) you selected appears in the **Paper types allowed for dynamic selection** box.

When the application is processed by the engine, the variable you specified will be used to apply different paper types as applicable for the page.

2.8 Setting the Languages in Which a Page Can Be Delivered

Language layers allow you take a single object and create separate design layers which can be delivered to different customers depending on their language preferences. These separate language layers give you the ability to create completely different language versions of the same object. For example, suppose you are creating a design to promote a new product from your company. The design is part of a larger application that will be sent to German-, Spanish-, and English-speaking customers. On your promotional design, you can include three language layers: one for each language. The design is still contained in one object, such as a page or text message, but the appropriate language is included for each customer when the design is generated as output.

For information about setting the languages in which a page can be delivered, see “[Designing for Multiple Languages](#)” on page 506.

2.9 Controlling How the Page is Included for Customers in Different Locations

If you have licensed the Compliance Support module, you can use the **Regulatory** tab of the page properties to control how content is distributed to customers based on their location and the production dates you are using. The **Regulatory** tab allows you to select jurisdictions and effectivity dates, which instruct the engine to select specific versions of the object based on geographical locations (such as a customer’s state or country/region) or virtual locations (such as a customer’s office or home). Jurisdictions target specific information for specific customers while reducing processing time and the number of messages and rules in an application.

For information about using effectivity and jurisdictions, see “[Targeting a Design for Multiple Dates and Locations](#)” on page 461.

2.10 Using Design Layers to Accommodate Non-Printing or Output-Specific Objects

Design layers are Exstream objects that you can use to view static design components as you work on other objects within a page, section, paragraph, message, or template. The objects on a design layer can either appear in the final output, or you can suppress them so that they are used during the design phase only. For example, you might place a representation of a pre-printed letterhead on a design layer. Then, when you design a page that will be printed on paper with the letterhead, you can make sure that text or other objects will not overlap the letterhead. You might also use design layers to represent print margin marks, pre-printed form areas, or other components that can affect the layout of the page but should not appear in the final output. On the other hand, because design layers can be suppressed for specific output, if you will send one design to both printed and electronic outputs, you can use a design layer to contain objects that should appear for only a certain type of output. For example, you might place barcodes on a design layer so that they appear only for printed output, such as APF or PostScript.

Note: Keep in mind that design layers within a multiple-up (MUP) sheet are processed by the engine before the engine processes any customer data. This timing difference means that customer data is not available to the engine when the engine processes the design layer content. Therefore, for best results, do not use rules on design layers to control the inclusion or exclusion of objects from customers within a MUP sheet. If you want to use customer data to include or exclude objects from customers within a MUP sheet design, you must place those objects directly into your design and use Library rules to control the inclusion or exclusion of those objects.

Keep in mind that design layers are not the same as language layers. Design layers allow you to create a named grouping of design components that can be kept static as you work on other objects within a complex design. Language layers allow you to create different layers to accommodate different languages.

For information about language layers, see “[Designing for Multiple Languages](#)” on page 506.

To use design layers to accommodate non-printing objects, you must first create a design layer and then add objects to it. Then, as you work in a design that uses a design layer, you can hide or view the design layer as needed.

2.10.1 Creating Design Layers

1. In Design Manager, in the Library, browse to the **Environment > Design > Design Layers** heading.
2. Right-click the **Design Layers** heading and select **New Design Layer**.

The **New Design Layer** dialog box opens.

3. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
4. Click **Finish**.

The design layer opens in the Property Panel for you to define.

5. From the **Use** drop-down list, select one of the following options to specify how the design layer can be used:
 - **Always**—This layer can appear both in the design and in any output.
 - **Design Only**—This layer can appear only as you design the page, section, paragraph, message, or template.
 - **Output Inclusion**—This layer can appear both in the design and in the specified output or outputs.
 - **Output Exclusion**—This layer can appear in the design, but does not appear in the specified output or outputs. For example, you might select this option if you use a pre-printed letterhead loaded into a certain printer.
6. If you selected **Output Inclusion** or **Output Exclusion**, use the **Outputs** box to specify the output for which the design layer either appears or is suppressed

- a. Under the **Output** box, click .

The **Select Output** dialog box opens.

- b. Select the output to include or exclude for the current design layer.
- c. Click **OK**.

The **Select Output** dialog box closes and the output you selected appears in the **Outputs** box.

- d. Repeat step a through step c to add as many outputs as needed.

7. If you want to use rule to control when the design layer is included, use the **Rule** box.

For information about creating rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

2.10.2 Adding Objects to a Design Layer

After you have created a design layer, you can add objects to it using Designer. To add objects to a design layer, you first place objects directly on the design (in other words, you place objects on the default layer). Then, you move those objects to the design layer on which you want them to reside. For example, if you want to add objects to represent the pre-printed letterhead, you

can create shapes or text to represent the letterhead, and then move them to the Letterhead design layer.

To add objects to a design layer:

1. In Designer, open the page in which you want to add design layer objects.
2. Use the Designer tools to add the objects you want to appear on the design layer the page. Adjust their size and placement as necessary.
3. Select the object you want to add to a design layer.
4. Right-click and select **Change layer**.

The **Change Design Layer** dialog box opens.

5. Select the design layer to which you want to move the object and click **OK**.

The **Change Design Layer** dialog box closes and the object is moved from the default layer to the specified design layer.

2.10.3 Hiding and Viewing Design Layers

As you work in an object that uses design layers, you might find it helpful to "turn off" specific design layers so you can easily see the content that will appear in the output or that you have personally designed. If you need to edit objects in a specific design layer, that layer must be visible in order for you to edit objects on it.

To hide and view design layers:

1. In Designer, open the page in which you want to hide or view design objects.
2. From the View menu, select **Design Layers > View Layer Palette**.
3. The **Design Layers** palette opens and displays a list of the layers used in that object.

Design Layers palette



4. Select the check box of each layer you want to view. Clear the check boxes of the layers you want to hide.

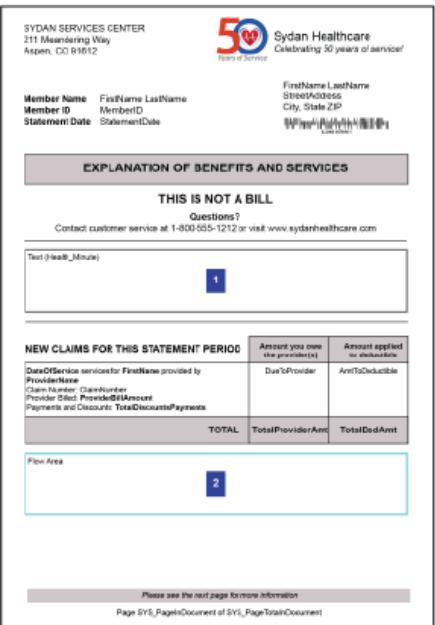
Chapter 3: Designing for HTML and HTML (Email) Output

Page objects and graphic message objects in Exstream include two different types of designs: fixed dimension layouts called standard designs, and relative dimension layouts, called container designs.

Fixed dimension layouts are well suited for print-based output, but often do not translate well to electronic output. For example, it's difficult to view a PDF on a smartphone—your customers will likely need to zoom in and scroll back and forth horizontally and vertically to read it.

How a standard design might appear on different screen sizes and devices

Standard Design in Designer



How the PDF Output Appears on Various Devices



Container designs use a relative dimension layout, so they are not bound by the same measurement and positioning constraints as standard designs. When you produce output from a container design, the content can automatically adjust and reflow based on the screen size and orientation of the viewing device.

How a container design might appear on different screen sizes and devices

The image shows a comparison between a "Container Design in Designer" and "How the HTML Output Appears on Various Devices".

Container Design in Designer: This section shows a screenshot of a web page from a desktop browser. It features a header with the Sydan Healthcare logo and a "Celebrating 50 years of service!" message. Below the header is a table with columns for Provider Name, Claim Number, Date of Service, Date Received, and Status. To the right of the table is a pie chart titled "Your Responsibility" with segments for "Provider Bill Amount" and "Your Plan Paid After Deductible". A text box provides information about the Explanation of Benefits (EOB). At the bottom is a footer with social media icons for Facebook, Twitter, and LinkedIn.

How the HTML Output Appears on Various Devices: This section shows the same content displayed on three different devices: a laptop, a tablet, and a smartphone. The layout and content are scaled down and adjusted for smaller screens, demonstrating responsive design principles.

In the container design example above, the primary container is a grid layout with 9 rows and 5 columns. Note that some of the rows and columns have been merged to create the layout, and a spacer added to add distance between various elements of the design. In the page footer, a horizontal span container has been embedded to contain some social media icons. These icons, as well as the company logo and the chart, have been set to scale automatically, and a few of the grid cells have been set to hide based on screen size.

In a full-screen browser window, the HTML output resembles the container design (keep in mind that is not always the case). On tablet screens, the HTML output appears differently in a few different ways: a few of the grid cells are hidden, which simplifies the information presentation; the images scale to better fit the screen; and the text reflows. On smartphone screens, the HTML output is dramatically scaled back, so that only the vital information is shown on-screen; in this case, how to log in to get more information about the communication.

Each page or graphic message in your application includes one standard design and one container design by default, but you can add more than one container design to a page or graphic message. Because standard and container designs exist on the same page or graphic message, they share all of the objects that you place on that page or graphic message. Most of the object properties that you apply to an object from one design also apply to any other design where that object is used. This ability lets you add container designs to your pages and graphic messages without sacrificing the content and customer data that you have already included in your existing designs. You can also add design elements and set object properties that are unique to each container design.

You can use objects from your standard design in your container designs, or you can use a combination of objects from your standard design and others that are specific to the container design. You can also apply formatting that is specific to containers to make content easier to read on smaller screens, or add responsive design features and CSS to the container design to allow content to reflow, scale, or otherwise appear differently in the output based on the screen size of the viewing device.

You must build the standard design and all container designs associated with the page or graphic message separately.

Container designs are supported in HTML, HTML (email), and Multi-Channel XML output.

In this section

- [“The container design environment” below](#)
- [“Formatting options for containers” on page 69](#)
- [“Responsive design features” on page 80](#)
- [“CSS styling in container designs” on page 88](#)
- [“Previewing and testing container designs ” on page 99](#)

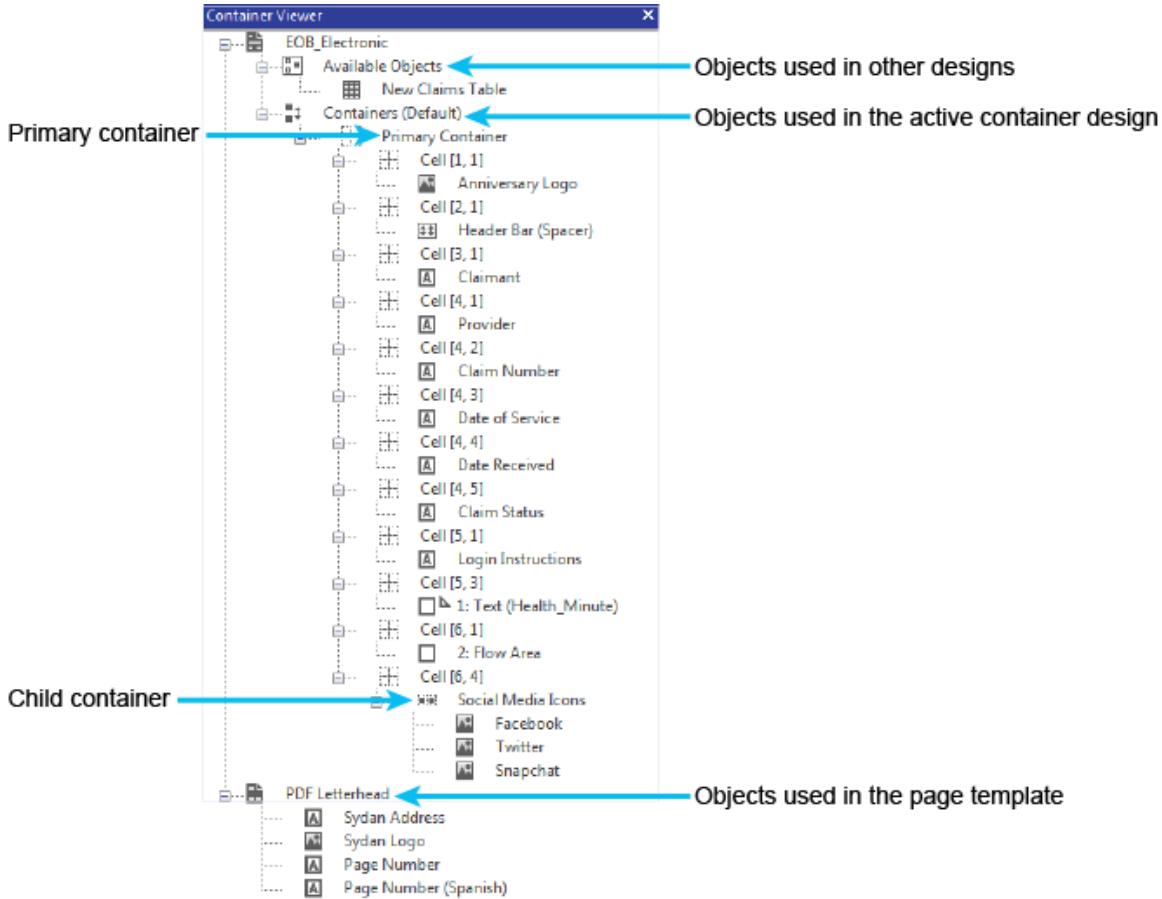
3.1 The container design environment

The container design environment is built into Designer, which means that you can use most of the same techniques that you use in standard designs to add design elements and set object properties.

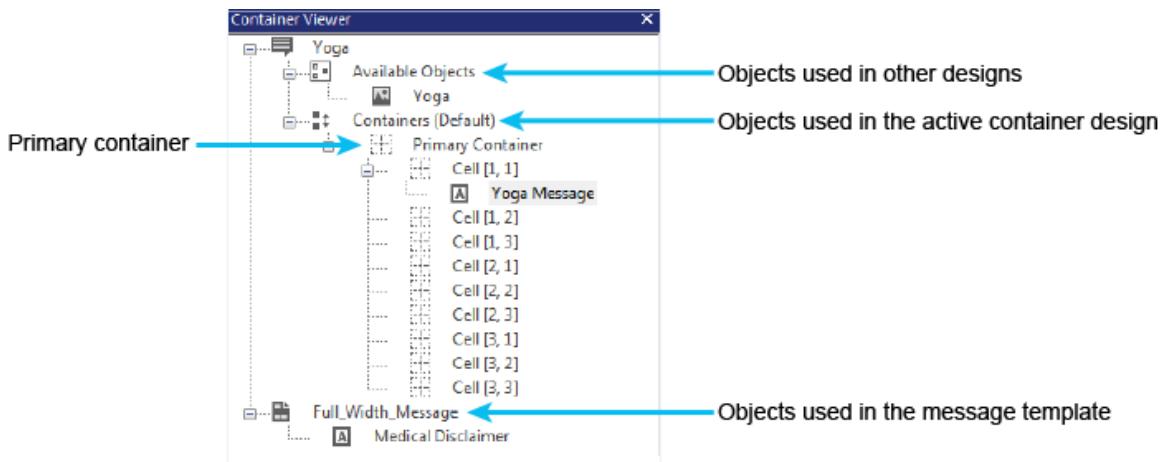
Since each page and graphic message includes a standard design and at least one container design, you use different views to access the design window for each design. In addition to the Standard View and the Container View, the Dual View lets you see the design windows for the standard and container designs side-by-side, which is helpful for comparison between the two designs. You can switch between these views using the Design Views toolbar. You can also use the Design Views toolbar to switch between different container designs on the same page or graphic message.

As you work in the Container View, the primary way to organize and configure the elements of your design is by manipulating objects using the Container Viewer panel.

A page in the Container Viewer



A graphic message in the Container Viewer



Similar to the Outline Viewer, the Container Viewer lets you view a hierarchy of the objects in the container design. The Container Viewer is separated into two main areas that let you

customize your design: **Available Objects** and **Containers**. If the page has a template associated with it, you will see a heading for the template, with the [objects used on that template](#) listed under it. Graphic messages require you to use a message template, so they will always appear in this way in the Container Viewer.

When you add a new object to the standard design, that object is automatically added to the **Available Objects** list. If you want to use the same object in the container design or a [language layer](#) associated with the design, you can drag and drop it from the **Available Objects** section of the Container Viewer into the design window. You can also drag and drop objects (while holding down CTRL for grid cells or child containers) into the **Containers** list within the Container Viewer.

Next to the **Containers** heading, you can see the name of the [container design label](#) associated with the container design that is currently active in the design window, and listed under it are all of the objects used in that container design. The first object in that list is the primary container, which contains all of the objects used in the design, including child containers (which can contain other objects).

Just as you can move objects into your design by dragging and dropping them from the **Available Objects** list to a location in the **Containers** list, you can also move objects out of your container design (but keep them available to use) using the Container Viewer. You can drag and drop them from their placement in the container to the **Available Objects** list.

Tip: If the Container Viewer or Design Views toolbar is not visible when you open a container design, you can turn it on from the **View** menu.

If you want to [add objects to the container design](#) that are not in the standard design or another container design on the same page or graphic message, select the container or grid cell in the Container Viewer or the design window. Then, use the Drawing Objects toolbar or the **Insert** menu to choose the object.

To save time, you can [reuse existing container designs](#), either with or without the design objects included in the layout.

Related information

[“Working with grid layout containers” on page 51](#)

[“Positioning objects within container designs” on page 59](#)

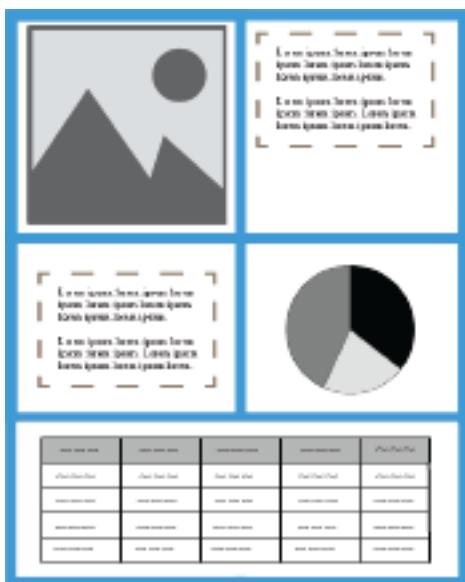
3.1.1 Container types

Containers control the way objects flow and determine the placement of content in the final design. You can use different types of containers to arrange objects automatically in rows, columns, or tile patterns, or to arrange objects manually in a grid layout or in absolute positions. You can also embed containers within other containers.

Grid layout containers

Important: You must use a grid layout container as the primary container for designs intended for HTML (email) output. Otherwise, email clients might render the HTML incorrectly.

Though it is not required, OpenText recommends that you use a grid layout container as the primary container for all container designs, since it is the only container type that supports [responsive design features](#). Grid layout containers are the only supported container type for graphic messages.



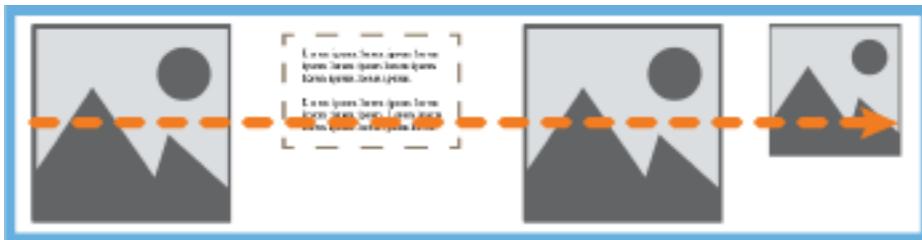
A grid layout container lets you manually arrange objects within a defined grid using rows and columns. A 3 x 3 grid layout container is the default container type, but you can add and remove rows and columns, merge cells, or embed child containers to create the layout that you want.

Each cell of a grid layout container can hold only one child object. However, if you want to place multiple objects within a cell, you can add a container to the cell. Then, you can place multiple objects into that container.

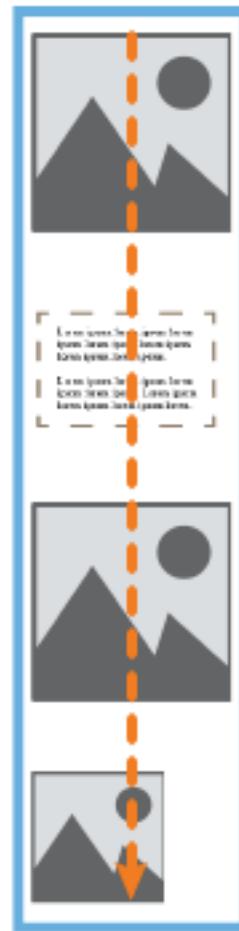
When you add objects to a grid layout container, the cells can [automatically resize](#) to accommodate the objects in the container.

Span containers

A span container automatically arranges objects in a straight line. There are two types of span containers: vertical and horizontal. The only difference between the two is how the objects in the container are



Horizontal Span Container



Vertical Span Container

automatically arranged.

A horizontal span container arranges objects in a single horizontal row.

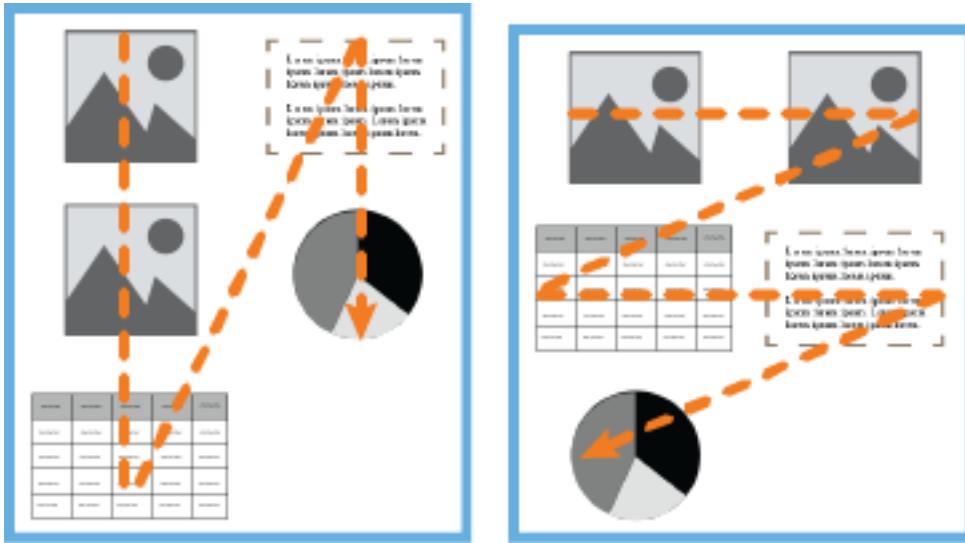
A vertical span container arranges objects in a single vertical column.

If one or more objects in a span container are excluded from the output for a specific customer, the remaining objects automatically reflow to fill the gap left by the excluded object. Any child containers within a vertical span expand to the full width of the parent container unless the maximum width of the child container is less than that of the parent container.

Tile containers

A tile container automatically arranges objects in a tile, or a series of rows and columns. There

are two types of tile



Horizontal Tile Container

Vertical Tile Container

containers: vertical and horizontal. The only difference between the two is how the objects in the container are automatically arranged.

A horizontal tile container automatically arranges objects in rows and columns to form a tile pattern that expands horizontally (top-to-bottom, left-to-right).

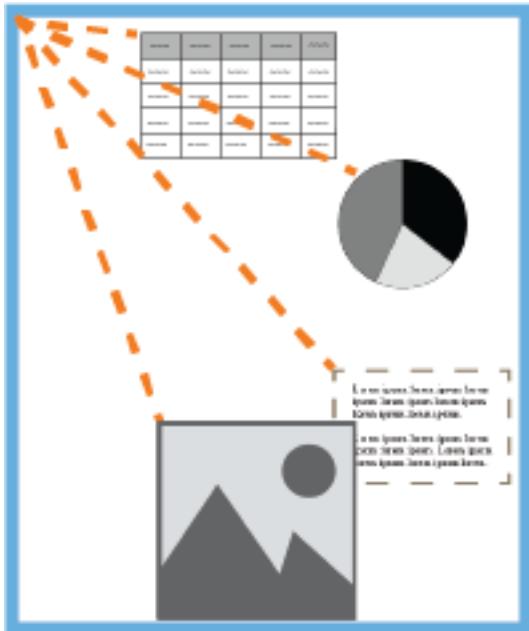
A vertical tile container automatically arranges objects in rows and columns to form a tile pattern that expands vertically (left-to-right, top-to-bottom).

If you use a tile container, keep in mind that rows and columns do not reflow when objects are excluded in the engine run. When an object is excluded, the space reserved for the excluded object remains in the final output.

Tip: If your design includes objects that might be excluded by rule, you can use a span container instead of a tile container so that the engine does not reserve space for excluded objects in final output. In span containers, objects automatically reflow to fill the gap left by objects that are excluded during the engine run.

Absolute position containers

Important: Absolute position containers are not supported in HTML (email) output because most email clients do not support absolute object positioning. If you include an absolute position container in an application that produces HTML (email) output, then the engine ignores the absolute position container and all of its contents.



Absolute Position Container

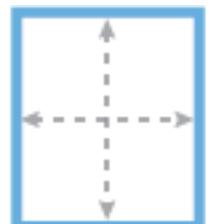
An absolute position container lets you place drawing objects at a specific location in a container design, even if those objects overlap. The object's position is measured from the top-left corner of the absolute position container.

In contrast to other container types where objects reflow to the next available position, objects placed within an absolute position container always maintain their relative position, as measured from the top left corner of the container. In other words, objects in an absolute position container do not reflow when objects are included or excluded using rules. However, the container itself can move and reflow if it is placed inside another container.

If you want to make sure that objects overlap as expected in the final output, consider placing the objects that overlap in the same absolute position container. For example, if

you want to overlap a customer name variable over an image, then you should place both the text box and the image in the same absolute position container so that both objects are grouped together and will move together as the design reflows.

Spacer objects



Though not technically containers, spacer objects are unique to container designs. You can use them to control the amount of spacing between specific design objects within a container, or between objects and the container border. However, spacers can not contain other objects.

You can also add spacer objects to a grid layout container when you want to precisely control the size of specific rows and columns. In span containers, you can add spacers of different widths or heights to separate the adjacent objects. In tile and grid layout containers, spacer objects can be used to maintain blank tile or grid positions in your design.

Spacer objects offer you additional flexibility to support more complex design layouts, compared to using only margin and padding settings that apply the same amount of spacing to all objects within the container. Spacer objects also automatically reflow along with the design objects, so consider this when planning a design that uses rules to include or exclude certain design objects.

3.1.2 Working with grid layout containers

Because of the table-like nature of grid layout containers, you have some distinct ways to manipulate the content within grid cells as well as some additional methods for controlling their structure.

Selecting grid cells

You can select one or more grid cells at a time. When you select multiple grid cells, you can merge those cells; or you can [apply formatting](#) or grid cell properties to multiple cells at a time.

If you select a single grid cell, it is highlighted in red in the design window. If you select multiple grid cells, the first grid cell that you selected is highlighted in red in the design window and the remaining grid cells are highlighted in green. In a group of selected cells, the one highlighted in red is known as the primary cell.

Tip: When you are selecting grid cells in the design window, make sure to click a blank area in each cell, and not the objects inside the cells. If the cells that you want to select contain objects that take up the entire cell, it is much easier to select the cells in the Container Viewer than in the design area.

How to select grid cells

To	In the Container Viewer	In the design window
Select one grid cell	Click the grid cell.	Click a blank area inside of the grid cell.

How to select grid cells, continued

To	In the Container Viewer	In the design window
Select multiple adjacent grid cells	Click the first cell that you want to select, hold down the SHIFT key, and then click the last cell that you want to select.	Do one of the following: <ul style="list-style-type: none">• Hold down SHIFT, and then click each cell that you want to select.• Click a blank area <i>inside</i> of the first cell that you want to select and drag horizontally or vertically over all the cells that you want to select.• Click a blank area of the page or graphic message <i>outside</i> of the first cell that you want to select and drag horizontally or vertically over all the cells that you want to select. A dotted rectangle appears as you drag, and all cells that are touched by the rectangle are selected when you release the mouse button.
Select multiple non-adjacent grid cells	Hold down CTRL, and then click each cell that you want to select.	Hold down SHIFT, and then click each cell that you want to select.

If you need to deselect one or more grid cells, do one of the following.

- To deselect individual grid cells: In the design area, hold down SHIFT, and then click each cell one at a time.
- To deselect all selected grid cells at the same time: In the design area, click a blank area of the page or graphic message outside of the primary container.

Changing the grid cell structure

Grid layout containers are structured like tables, so you can add or delete rows or columns before or after the selected cell. You can also merge and unmerge adjacent cells within the same row or column. These options are available by right-clicking a grid cell in the Container Viewer or in the design window.

Since grids cell can contain only one object, only one of the cells that you select for merging can contain an object. The rest of the cells must be empty (or all of the cells that you select must be empty). If you attempt to merge a group of cells that contain more than one object, the **Merge Cells** option is unavailable.

When you merge grid cells, the merged cell will inherit the properties applied to the primary cell (the cell highlighted in red). If you want the merged cell to inherit the properties of a different cell than the one that is currently outlined in red, re-select the cells to be merged, making sure that the first cell that you select is the one that you want to designate as the primary cell.

When you unmerge grid cells, the merged cell is split into the original number of cells that existed before the merge. If the merged cell contained an object, the object is placed in the top-left cell of the unmerged cells.

Resetting the structure of grid layout containers

Rather than adding or deleting rows and columns, you can reset a grid layout container to a specified number of rows and columns. The new row and column count begins from the top left of the grid layout container (Cell 1,1).

1. In the Container Viewer, right-click the grid layout container (not a grid cell), and then click **Object properties**.
2. In the **Container Properties** dialog box, in the **Container** tab, select the **Restructure grid layout container** check box.
3. In the **Rows** box, enter the number of rows to include in the grid layout container structure.
4. In the **Columns** box, enter the number of columns to include in the grid layout container structure.
5. To manage any objects that cannot fit in the grid structure that you specify, do one of the following:

To	Do this
Add rows to accommodate overflow objects	From the Overflow behavior drop-down list, select Add rows . This behavior is the default option.
Add columns to accommodate overflow objects	From the Overflow behavior drop-down list, select Add columns .
Remove objects that cannot fit within the grid structure	From the Overflow behavior drop-down list, select Remove extra objects .

If you are increasing the number of rows or columns, the added rows or columns are added to the right or bottom of the existing grid layout container. Objects are left as-is in their current grid cells.

If you are decreasing the number of rows and columns, the deleted rows or columns are removed from the right or bottom of the existing grid layout container. Objects in the remaining cells are left as-is in the design, but objects in the deleted cells will be removed from the container design and moved to the **Available Objects** heading in the Container Viewer.

3.1.3 Objects supported in container designs

In a container design, you can add most of the design objects that are supported for standard designs. You can also reuse supported design objects that are included in the standard design or any other container designs on the same page or graphic message.

If you make changes to the object properties from any standard design or container design, then those changes are also reflected in all of the other designs within the page or graphic message that use the same objects. For example, if you resize a logo image that is shared between a standard design and a container design, then the new image size is applied in both designs.

The properties on the **Container Design** tab are the exception—they are unique to each container design that includes the object. For example, if you set an image to [automatically scale to fit various screen sizes](#), the percent width that you apply in one container design is not retained in any other container designs that include the object.

Several object types are rendered as images in the HTML or HTML (email) output. In HTML output, images are always separate files that are referenced inline in the HTML, so specifying the storage location for the images is important. You can specify the way that images are referenced and stored for the output using a relative path, an absolute path, or a variable for each individual image or for all of the images in the output. For information about managing image resources, see *Creating Output* in the Exstream Design and Production documentation.

Unless specified below, all objects that are supported in container designs support the addition of [custom HTML id values](#) and [CSS styles at the object level](#) to control the styling of the output. Additionally, these objects support the use of [scaling](#) for [responsive designs](#), with one exception—embedded objects can not be scaled, and maintain their original size in the output regardless of the screen size of the viewing device.

Object type	Supported	Considerations for using in container designs
Barcode	Yes	Barcodes are rendered as images in the output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.
Bezier curve	Yes	Bezier curves are rendered as images in the output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.
Charts (advanced)	Yes	Advanced charts can scale down so that they are more visible on smaller screens; however, they do not scale up beyond their original size in Designer.
Chart (traditional)	Yes	Traditional charts are rendered as images in the output. Because of this, any text associated with a traditional chart (such as the chart title, labels, and legend) will scale along with the chart. Email clients and web browsers can render text differently, which can change text placement and wrapping and affect the placement of objects that are embedded in the text. For the best results, you should leave at least 5 pixels of additional padding at the end of any chart label to allow for text rendering differences.
Check box	No	Check boxes are for use in interactive documents, so their functionality is not available in HTML or HTML (email) output.
Component	Yes	N/A
Custom button	No	Custom buttons are for use in interactive documents, so their functionality is not available in HTML or HTML (email) output.

Object type	Supported	Considerations for using in container designs
Empty image	Yes	If you don't want to use the output directory path to store the individual image, you can make a different selection on the Image tab of the Image Properties dialog box, using a relative path, an absolute path, or a variable. You can also define a default path for all images. You can also define a default path for all images on the Resource Management tab of the HTML or HTML (email) output object. For information about managing image resources, see <i>Creating Output</i> in the Exstream Design and Production documentation.
Frame	Yes	Frames do not support adding custom <code>id</code> values or CSS styles at the object level.
Graphic message	Yes	Each graphic message in your application includes one standard design and one container design by default, but you can add more than one container design to a graphic message. For graphic messages, grid layout containers are the only container type that can be used as the primary container. As with standard designs, use frames to include graphic messages in a page-level container design.
Image	Yes	If you don't want to use the output directory path to store the individual image, you can make a different selection on the Image tab of the Image Properties dialog box, using a relative path, an absolute path, or a variable. You can also define a default path for all images. You can also define a default path for all images on the Resource Management tab of the HTML or HTML (email) output object. For information about managing image resources, see <i>Creating Output</i> in the Exstream Design and Production documentation.
Index	No	N/A
Line	Yes	Lines are rendered as images in the output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.
Polygon	Yes	Polygons are rendered as images in the output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.
Radio button	No	Radio buttons are for use in interactive documents, so their functionality is not available in HTML or HTML (email) output.
Sections and paragraphs	Yes	As with standard designs, use frames to include section and paragraph objects.
Shape	Yes	Shapes are rendered as images in the output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.
Signature button	No	Signature buttons are for use in interactive documents, so their functionality is not available in HTML or HTML (email) output.
Signature field	No	Signature fields are for use in interactive documents, so their functionality is not available in HTML or HTML (email) output.
Spacer	Yes	Spacers do not support adding custom <code>id</code> values or CSS styles at the object level.

Object type	Supported	Considerations for using in container designs
Table	Yes	<p>While the percent width, minimum width, and maximum width of an object can affect text wrapping and placement, these settings do not change the font size. If you want to change the font size for different screen sizes, you must use cascading style sheet objects.</p> <p>Email clients and web browsers can render text differently, which can change text placement and wrapping and affect the placement of objects that are embedded in the text. For the best results, you should leave at least 5 pixels of additional padding at the end of any table cell to allow for text rendering differences.</p>
Table of contents	No	Tables of contents appear as tables in HTML or HTML (email) output.
Text box	Yes	<p>While the percent width, minimum width, and maximum width of an object can affect text wrapping and placement, these settings do not change the font size. If you want to change the font size for different screen sizes, you must use cascading style sheet objects.</p> <p>Email clients and web browsers can render text differently, which can change text placement and wrapping and affect the placement of objects that are embedded in the text. For the best results, you should leave at least 5 pixels of additional padding at the end of any text box or chart label to allow for text rendering differences.</p>
Text message	Yes	Text messages behave differently in container designs than they do in a standard design. If your container design uses multiple text messages and the message templates that are targeted for multiple frames, then the engine will populate the frame with the lowest fill order number and will ignore all other frames.

3.1.4 Adding objects to container designs

You can add objects from the standard design, other container designs, or a page or message template associated with the page or graphic message, or add objects that are unique to the current container design.

Note: Each grid cell in a grid layout container can hold only one child object. If you want to place multiple objects within a grid cell, you must add a child container that accommodates multiple objects (such as a span or tile container).

How to add objects to container designs

To	In the Container Viewer	In the design window
Add an object from the standard design or other container designs	<p>Drag the object from the Available Objects section to a container or grid cell in the design window.</p> <p>or</p> <p>Hold down CTRL while dragging the object to a container or grid cell in the Container Viewer.</p>	N/A

How to add objects to container designs, continued

To	In the Container Viewer	In the design window
Add an object from the page or message template	Drag the object from the template heading to a container or grid cell in the design window. or Hold down CTRL, and then drag the object to a container or grid cell in the Container Viewer.	N/A
Add an object that is unique to the current container design	Select the container (or the grid cell in a grid layout container) and add the object using the Drawing Objects toolbar or the Insert menu.	Select the container (or the grid cell in a grid layout container) and add the object using the Drawing Objects toolbar or the Insert menu.

Once you have added objects to the design, you can move them between containers and grid cells until you get the layout that you want. As you move objects, you will notice a red line in the design window. This red line indicates the insertion point for the object.

To move objects in the design window, simply drag the object from its current location to its new one. If you want to move an object using the Container Viewer, hold down CTRL, and then drag and drop the object to its new location in the design. You cannot move an object into a grid cell unless it is empty.

For [container types](#) that allow multiple objects (such as span and tile), you can arrange the order in which objects appear by dragging them into the correct order in the Container Viewer. The first object listed under the container appears first in the container, and the second object appears immediately to its right or immediately below it, depending on the container type. For absolute position containers, the order in which the objects appear in the Container Viewer controls how objects overlap.

3.1.5 Adding objects from a template to container designs

In Exstream, you can use page templates and message templates to help enforce consistency and keep communications consistent with branding requirements. Adding objects from a template can be faster and easier than finding and importing them from external locations or re-creating them in your container design. When you add design objects to a page from a page template, you can add them to any [type of container](#). However, when you add design objects to a graphic message from a message template, the primary container will always be a grid layout container.

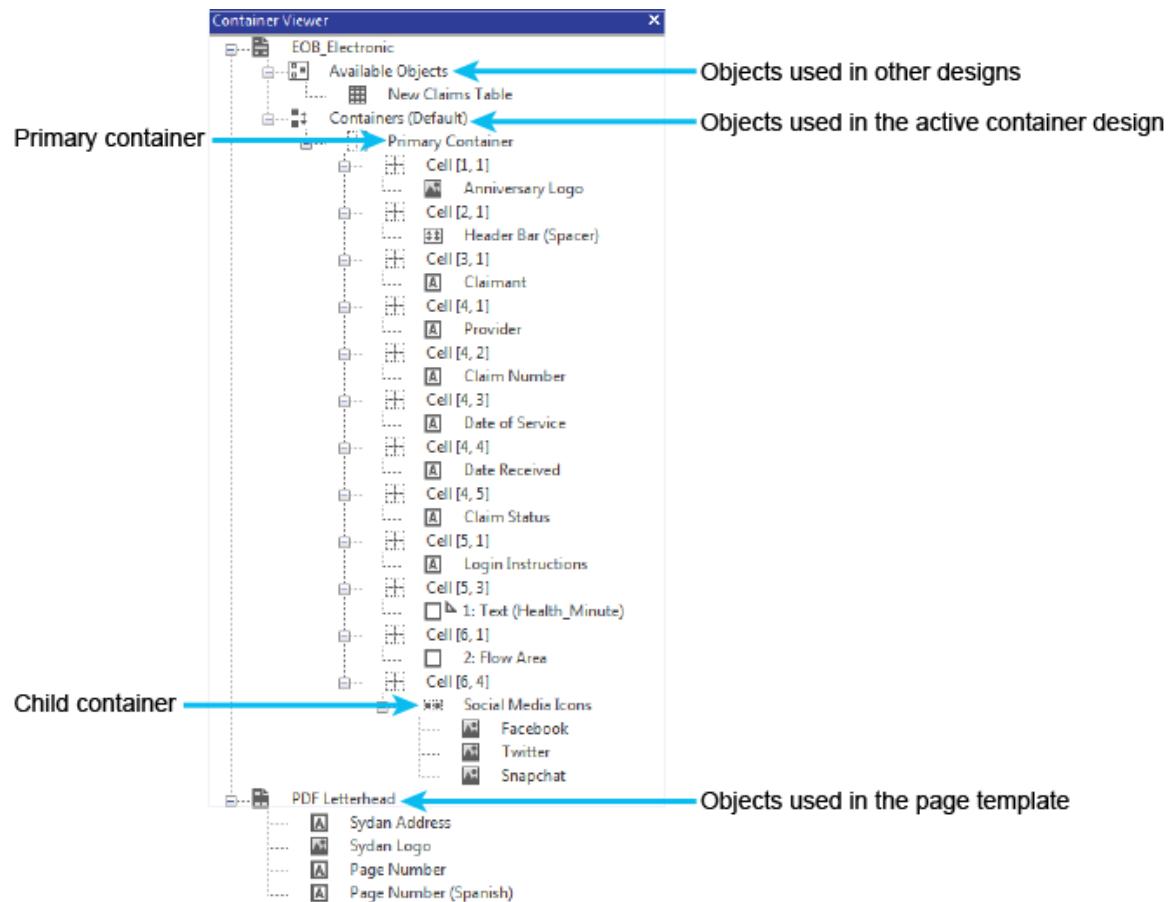
Page and message templates are based on a fixed dimension layout. When you use a template to create a standard design, all of the design objects in the template are automatically placed in the standard design in the same positions as they are in the template, and you cannot modify the placement or the properties of the objects on the template. If you want to change how or where these objects appear in the standard design, you must modify their properties or placement in the template upon which the design page or graphic message is based.

The process for incorporating objects from a template into a container design and how these objects can be modified after you add them to a container design is different, however. Because

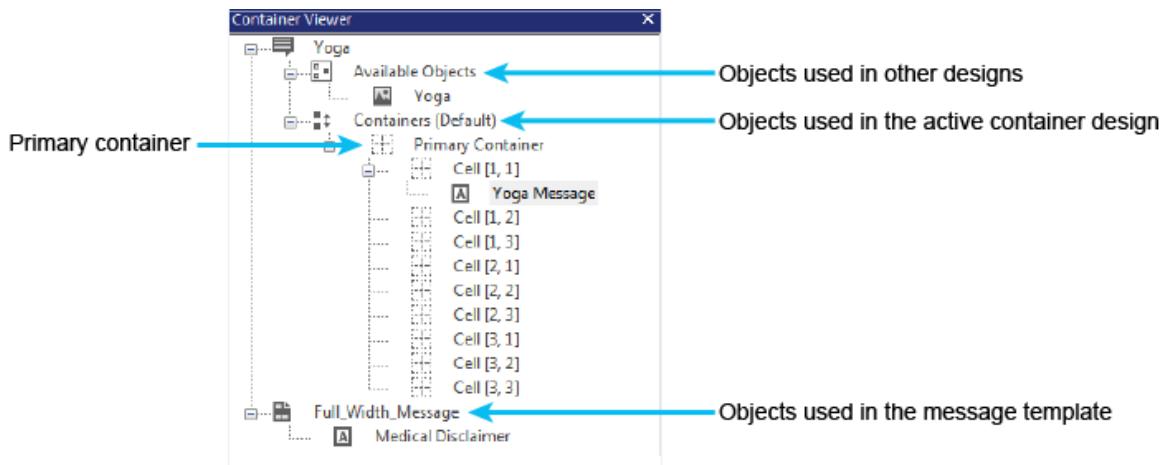
a container design is a relative dimension layout that uses containers to hold content, there is no frame of reference that can be used to automatically position the design elements from a template on the design page or graphic message in the same way that they are positioned in the template. Instead, you must specify where you want design objects from the template to appear in the output by manually placing each object from the template into each container design and language layer in which you want them to appear.

If you associate a page template with a page, the objects in the template appear in the Container Viewer for every container design (and every language layer) that you create within the same page or graphic message. Since graphic messages always require you to use a message template, they will always appear in this way in the Container Viewer. The objects used in the template are listed under the template name and cannot be changed.

The Container Viewer, with a page template



The Container Viewer, with a message template



You can, however, [add the objects to the container design](#). When you do, Designer creates a copy of the object on the page or graphic message, and the copy is no longer associated with the template. You can then modify the options on the **Container Design** tab of the object properties, or change its position within the design, just as you would with objects that do not originate from a template.

Additionally, the new copy of the object appears under the **Available Objects** heading in the Outline Viewer for the standard design and in the Container Viewer for other container designs. From there, you can add that specific copy of the object to another design on the page or graphic message.

3.1.6 Positioning objects within container designs

Since standard designs are based on a fixed dimension layout, you determine the absolute position of objects relative to the page or graphic message boundaries and other objects within the design. Because container designs are based on a relative dimension layout, each [container type](#) handles object positioning in a slightly different way. If you change the container type, all of the objects in the container will automatically be repositioned based on the behavior of the new container type. [Applying margins and padding](#) also affects the position of objects in your designs.

Important: When you reposition objects in a container design, those changes are not reflected in the other designs.

Grid layout containers

In grid layout containers, you can place only one object into each grid cell. The position of the object is based on its alignment to the grid cell, which you control using a combination of vertical (top, middle, bottom) and horizontal (left, center, right) alignment options.

You can specify the object alignment within a grid cell either in the **Object alignment** area in **Grid Cell** tab of the **Grid Cell Properties** dialog box or by [selecting the grid cell](#) and choosing alignment options from the Grid Cell Alignment toolbar.

When you apply these alignment options to a grid cell, the alignment applies to the child object in the grid cell but not that object's children. For example, if you center-align a cell that contains a child container, only the container itself is center-aligned. All of the objects within that child container remain left-aligned.

In grid layout containers, [margins](#) control the spacing of the object from the grid cell border. You can apply margins on the **Grid Cell** tab of the **Grid Cell Properties** dialog box.

Span containers

Span containers arrange objects in a single horizontal or vertical line and adjust in width or height (respectively) to fit their contents, so there are no alignment or other positioning options. You can control the positioning of objects by [applying margins and padding](#) to the container.

In span containers, margins control the spacing of objects from the container border, and padding controls the spacing between objects. You can apply margins and padding on the **Container** tab of the **Container Properties** dialog box.

Tile containers

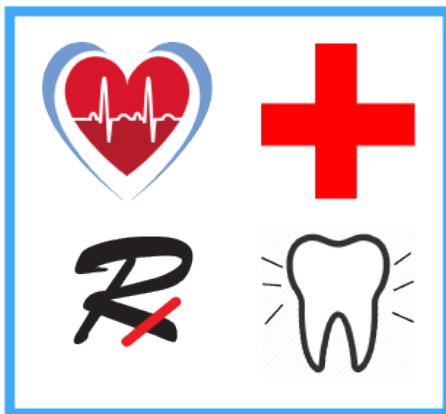
Tile containers arrange objects in a series of rows and columns, and adjust horizontally or vertically based on the number of objects within the container, so there are no alignment options. You can control the positioning of objects by [applying margins and padding](#) to the container, or by specifying the number of objects that can be included in each row or column.

In tile containers, margins control the spacing of objects from the container border, and padding controls the spacing between objects. You can apply margins and padding or determine the number of objects that can be included in each row or column on the **Container** tab of the **Container Properties** dialog box.

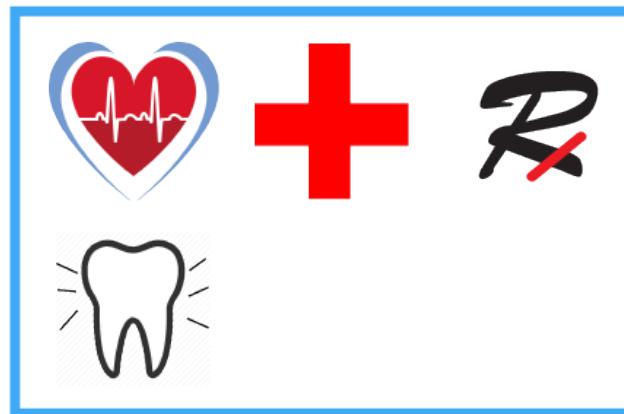
You can control the number of objects that can be included by entering a value in the **Number of tiles** box. The number that you enter is the maximum number of rows (for horizontal tile containers) or columns (for vertical tile containers) that will be used to organize the objects within the container.

How a vertical tile container changes object position based on the number of tiles in the container

Number of tiles = 2



Number of tiles = 3



Absolute position containers

In absolute position containers, you can place objects at a fixed position that is relative to the top-left corner of the container. To move these objects, you can either click and drag the object in the design or enter a specific position using x and y coordinates on the **Container Design** tab of the object properties.

As you move objects in the absolute position container, the appearance of the container can change depending on whether the container is set to [resize automatically to fit its children](#).

3.1.7 Removing objects from container designs

Since objects are shared between the standard and all of the container designs associated with a page or graphic message, you have two options to remove an object from container designs:

- Remove it from the current container design only
- Remove it from all designs associated with the page or graphic message

When you remove an object from the current container design only, the object is moved to the **Available Objects** list in the Container Viewer or the Outline Viewer in that design. From there, you can easily add the object to the current design again later. The only exception to this is when the design is in use in only the current container design. In that case, the object is simply deleted from the page or graphic message.

When you remove an object from all designs associated with the page or graphic message, the object is deleted permanently from all designs where it is being used and from the **Available Objects** list for all designs where it is not in use. The only exception to this is for child containers. When you remove a child container, any objects that it contains are moved to the

Available Objects section in the Container Viewer or Outline viewer for the current design and their use in other designs is not affected. Before you remove an object from all designs associated with a page or graphic message, make sure to review its use in the standard design and in other container designs.

You can remove one or more objects at a time from a container design. To select multiple objects, do one of the following:

- To select a group of adjacent objects in the Outline Viewer or the Container Viewer: Hold down SHIFT, click the first object in the group, and then click the last object in the group. The two objects that you clicked and all of the objects in between are selected.
- To select adjacent or non-adjacent objects in the Outline Viewer or the Container Viewer: Hold down CTRL or SHIFT and then click each object one at a time.

Tip: If the objects that you want to remove are located inside a grid layout container, you can select the cells that contain the objects—instead of selecting the object themselves—before you execute one of the delete commands. The objects inside the cells will be deleted, but the empty cells will remain in the grid layout container.

How to remove objects from containers

To	In the Container Viewer	In the design window
Remove objects from the current container design	Select one object and drag it to the Available Objects list. Or select one or more objects and do one of the following: <ul style="list-style-type: none">• Press DELETE.• Right-click and click Delete. Or select a grid cell, right-click, and click Delete Row or Delete Column .	Select one object and click  . Or select multiple objects and do one of the following: <ul style="list-style-type: none">• Press DELETE.• Right-click and click Delete. Or select a grid cell, right-click, and click Delete Row or Delete Column .
Remove objects from all of the designs on the page or graphic message	Select one or more objects and do one of the following: <ul style="list-style-type: none">• Press SHIFT + DELETE.• Right-click and click Remove From All Views. Or select multiple grid cells , right-click, and click Delete , Delete Row , or Delete Column .	Select one or more objects and do one of the following: <ul style="list-style-type: none">• Press SHIFT + DELETE.• Right-click and click Remove From All Views. Or select multiple grid cells , right-click, and click Delete , Delete Row , or Delete Column .

3.1.8 Reusing container designs

When you create a new container design, you can copy and paste an existing container design to reuse the layout and content from that container design as a starting point for the new

container design within the same page or graphic message (into other container design labels) or across container designs on multiple pages or graphic messages.

For example, suppose that you have already created an email design and you want to use a similar content layout for a new communication. Instead of creating a new container design from scratch, you can copy the container design from the existing email design and paste it into a new container design to reuse the layout and formatting that you applied to the original container. You can also choose whether to include the design objects from the original container. Then, you can make changes to the new design to suit your business needs.

1. In the Container Viewer, right-click the container you want to reuse and select **Copy Container Design**.
2. Open the container design label where you want to reuse the container. You can reuse the container design on the same page or graphic message in a different container design label, language layer, or graphic message; or you can reuse the container design on a different page or graphic message.
3. In the Container Viewer, right-click the primary container into which you want to add the container structure and select one of the following options:
 - **Paste Empty Containers**—Paste only the structure and formatting of the container (for example, grid cell layouts, margins, responsive features, background colors, and so on).
 - **Paste Containers with Design Objects**—Paste the structure and formatting of the container, including the design objects that are included in the original container design (for example, images, text, tables, and so on).

Note: If you paste the container design into a different container design label on the same page or graphic message, the design objects and their properties will be referenced. If you paste the container design onto a different page or graphic message, the design objects will be copied.

3.1.9 Creating container design labels

A container design label is a Library object that identifies an individual container design associated with a page or graphic message. Each page and graphic message always includes a default container design that uses the Default container design label. If you want to use only a single container design per page or graphic message, then you can create and manage your content with this default container design. However, if you want to use multiple container designs within a page or graphic message, you must create a new container design label for each associated container design. You can create container design labels in Design Manager or in Designer.

You also use the container design label to indicate which container designs to include in the final output. For example, suppose that all of the container designs that you want to deliver to smartphones use the smartphone container design label. If you associate the smartphone

container design label to an HTML or HTML (email) output object, the engine collects all of the smartphone container designs used in the application and includes them in the final output.

Tip: To switch between the designs associated with each container design label on the page or graphic message, use the Design Views toolbar.

Create a container design label in Design Manager

1. In the Library, go to **Environment > Design > Container Design Labels**.
2. Right-click the **Container Design Labels** heading and click **New Container Design Label**.
3. In the **New Container Design Label** dialog box, enter a name in the **Name** box. In the **Description** box, enter a description (optional).
4. Click **Finish**.

Create a container design label in Designer

1. From the Menu bar, select **Tools > Containers > New Container Design Label**.
2. In **New Container Design Label** dialog box, enter a name in the **Name** box.
3. Click **OK**.

Add a container design label to a page or graphic message

If you create a container design label in Design Manager, you must add it to the page or graphic message in Designer to use it.

1. Open the page or graphic message in Designer.
2. In the Design Views toolbar, click  .
3. In the **New Container Design Label** dialog box, in the **Select a container design label** list, select the container design label that you want to use.

Add a container design label to an output object

1. In the Library, go to **Environment > Delivery > Outputs**.

2. Open the output object to which you want to add the container design label in the Property Panel.
3. Select the **Use container design** check box.
4. In the **Container design label** box, click .
5. In the **Select Container Design Label** dialog box, select the container design label that you want to add and click **OK**.

Related information

[“The container design environment” on page 43](#)

3.1.10 How language layers work in container designs

You can use language layers with container designs to create communications in multiple languages in much the same way that you can with standard designs. You can reuse available design objects across languages and create language-specific objects.

Important: Right-to-left languages are not supported on the default language layer. If you plan to include right-to-left languages in your design, you must use a separate language layer.

As with standard design, if you add design objects that are not on the default layer to a specific language layer in a container design, those objects are considered language-specific. Language-specific objects are not available for use in all other language layers.

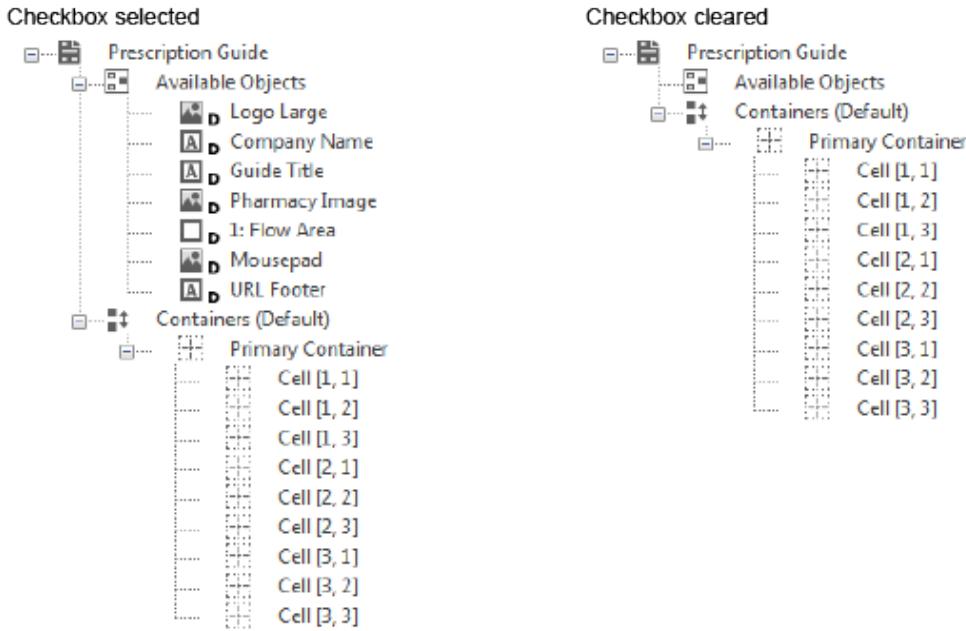
In both standard and container designs, you can make default layer objects available for use in all other language layers in the same way. In Design Manager, open the page, paragraph, or message properties. On the **Language** tab, select the **Use default language as background for other languages** check box.

When you select this check box, default layer objects are included differently on language layers in container designs than they are in standard designs:

- **Standard Design**—The default layer objects are included as a background. The background is not editable, but you can add language-specific objects.
- **Container Design**—The default layer objects are listed under the **Available Objects** heading in the Container Viewer, and are marked with a "D" icon to identify them as default layer objects. You can add the default layer objects to the other language layers in the container design as needed.

If the **Use default language as background for other languages** check box is cleared, none of the default layer objects are included on the language layers—for both standard and container designs.

Language layer in Container Viewer, with and without Use default language as background for other languages selected



Related information

- [“Designing for Multiple Languages” on page 506](#)
- [“How Default Layers Work With Language Layers” on page 506](#)
- [“Adding Language Layers in Design Manager” on page 508](#)
- [“Adding Language Layers to Messages or Paragraphs” on page 509](#)
- [“Adding Language Layers to Pages” on page 508](#)

3.1.11 Controlling the draw order of objects in container designs

You can define the draw order of objects in a container design to have greater control over the appearance of overlapping objects in the final output. The draw order also controls the order in which objects are loaded on the screen when the customer views the output. For example, you might force objects such as an email header and text to load before large images, tables, or charts.

By default, the draw order is determined by the order in which objects appear in the Container Viewer, from top to bottom, based on the hierarchy of objects. Objects at the top of the Container Viewer are drawn before objects that are lower in the list. Objects that are drawn first appear behind objects that are drawn later.

Alternatively, you can assign a z-index value to objects in the design. Objects are drawn in order from the lowest z-index number (which appears at the back of the design) to the highest z-index number (which appears at the front of the design).

Objects to which you have assigned a z-index are drawn in front of objects that do not have a specified z-index. OpenText recommends that you use this method only if you want to fine-tune the draw order of a design. Keep the following in mind:

- If an object does not have a specified z-index, the order of objects in the Container Viewer determines the draw order.
- If a specific z-index is applied to a container, the container is drawn first, followed by the children of that container before the next sibling of the container is drawn.
- If a child object does not have a z-index value, but the parent does have a z-index value, then the child is not drawn until the container is drawn.
- If two siblings use the same z-index, then the draw order is determined by which object is first in the Container Viewer order.
- If a parent object does not have a z-index, but contains children that do have a z-index, then those children are treated like siblings of the parent. In addition, if multiple parents that are siblings do not have a z-index, then all of the children from those parents are treated like siblings.

Important: Exstream applies z-index settings to the object's parent div element and these settings cannot be overridden by classes in a [cascading style sheet object](#). You must specify z-index settings from Designer as a part of the original design. Keep in mind that if you attempt to change or apply z-index settings using a cascading style sheet object, you might receive unexpected results.

As you assign z-index values to objects in a container design, objects in the design automatically adjust to reflect how the object appears in the final output. For example, if you change the z-index of an object so that it is drawn before another object, the object is placed behind any overlapping objects in the container design.

To assign a z-index to an object:

1. In the container design, select the object and click .
2. In the object properties, click the **Container design** tab.
3. Select the **Z-index** check box and enter a z-index value.
4. Click **OK**.

Examples of how draw order is affected by how z-index values are assigned

Container Viewer order and z-index values	Example draw order	Visual example of draw order
<p>Key difference: No z-index values have been applied to the design, so the draw order is determined by the Container Viewer order.</p> <p>Container A (z-index=None) Object a (z-index=None) Object b (z-index=None) Object c (z-index=None)</p> <p>Container B (z-index=None) Object d (z-index=None) Object e (z-index=None)</p>	<ol style="list-style-type: none"> 1. Container A (z-index=None) 2. Object a (z-index=None) 3. Object b (z-index=None) 4. Object c (z-index=None) 5. Container B (z-index=None) 6. Object d (z-index=None) 7. Object e (z-index=None) 	
<p>Key difference: Both parents have a specified z-index.</p> <p>Container A (z-index=3) Object a (z-index=None) Object b (z-index=1) Object c (z-index=5)</p> <p>Container B (z-index=2) Object d (z-index=5) Object e (z-index=1)</p>	<ol style="list-style-type: none"> 1. Container B (z-index=2) 2. Object e (z-index=1) 3. Object d (z-index=5) 4. Container A (z-index=3) 5. Object a (z-index=None) 6. Object b (z-index=1) 7. Object c (z-index=5) 	
<p>Key difference: Only one parent has a specified z-index.</p> <p>Container A (z-index=None) Object a (z-index=None) Object b (z-index=1) Object c (z-index=5)</p> <p>Container B (z-index=2) Object d (z-index=5) Object e (z-index=1)</p>	<ol style="list-style-type: none"> 1. Container A (z-index=None) 2. Object a (z-index=None) 3. Object b (z-index=1) 4. Container B (z-index=2) 5. Object e (z-index=1) 6. Object d (z-index=5) 7. Object c (z-index=5) 	

Examples of how draw order is affected by how z-index values are assigned, continued

Container Viewer order and z-index values	Example draw order	Visual example of draw order
<p>Key difference: Neither parent has a specified z-index.</p> <p>Container A (z-index=None) Object a (z-index=None) Object b (z-index=1) Object c (z-index=5)</p> <p>Container B (z-index=None) Object d (z-index=5) Object e (z-index=1)</p>	<ol style="list-style-type: none">1. Container A (z-index=None)2. Object a (z-index=None)3. Container B (z-index=None)4. Object b (z-index=1)5. Object e (z-index=1)6. Object c (z-index=5)7. Object d (z-index=5)	

3.1.12 Designating container-only pages in an Empower application

All pages in Designer have an associated standard design by default, even if the pages are used only for container designs. If you have pages in your Empower application that use only container designs, you can specify that any unused standard designs are not available to end users in Empower Editor. That way, the standard design that is associated with a page does not appear in Empower Editor.

If you share editable objects between standard and container designs in an Empower document, any changes that end users make to those objects in one view also appear in the other view.

To designate a container-only page in an Empower application:

1. In Design Manager, drag a page to the Property Panel.
2. Click the **Basic** tab.
3. Select the **Use for container designs only** check box.

3.2 Formatting options for containers

Each **container type** controls object positioning and flow in a unique way. For more precise control, however, you can also apply additional formatting to each container type to specify how objects appear in the output.

Tip: To save time when you are designing multiple container designs, you can reuse an existing container design.

Supported formatting options for each container type

Formatting option	Grid layout	Vertical span	Horizontal span	Vertical tile	Horizontal tile	Absolute position	Spacer
Background colors	Yes	Yes	Yes	Yes	Yes	Yes	No
Margins	Grid cell only	Yes	Yes	Yes	Yes	No	No
Padding	No	Yes	Yes	Yes	Yes	No	No
Scroll bars	Grid cell only	No	No	No	No	No	No
Sizing: specify a fixed container size	No	No	No	No	No	Yes	Yes
Sizing: automatically resize containers to fit child objects	Yes	Default behavior	Default behavior	Default behavior	Default behavior	Yes	No

Related information

[“Responsive design features” on page 80](#)

[“The container design environment” on page 43](#)

3.2.1 Adding background colors to container designs

Adding background colors is a common [formatting option](#) for HTML documents. Containers are transparent by default, but you can apply an opaque background color to a container or to individual grid cells in a grid layout container. You can also apply a background color to the full design.

When you apply a background color, you can use any of the color models supported in Exstream, including RGB, CMYK, PANTONE®, custom color families, and spot colors. However, the color will be converted to the RGB equivalent in the resulting HTML output.

Applying a background color to a container

Background colors are supported for all container types. When you apply a background color to the primary container, the color is visible in all blank areas and through transparent objects, including child containers that do not have a color applied.

1. In the Container Viewer, select the container, right-click, and then select **Object Properties**.
2. In the **Container** dialog box, click the **Container** tab.
3. Click the **Background color** color well.
4. In the **Color** dialog box, select a color and click **OK**.

Tip: To remove a background color, in the **Color** dialog box, click **None**.

Applying a background color to a grid cell

1. In the Container Viewer, select a grid cell, right-click, and then select **Grid Cell Properties**.
2. In the **Grid Cell Properties** dialog box, click the **Grid Cell** tab.
3. Click the **Background color** color well.
4. In the **Color** dialog box, select a color and click **OK**.

Tip: To remove a background color, in the **Color** dialog box, click **None**.

Applying a background color to the HTML <body> tag

You can apply background colors to the design if you produce HTML5 or HTML (email) output from a container design. When you apply a background color, the engine populates the `background-color` style property for the `<body>` tag in the output. For example:

```
<body style="background-color:#FF8800;">
```

If you are using a CSS styles associated with a [cascading style sheet object](#), and the CSS styles have a body background color declared, the engine honors the color specified in the cascading style sheet object. If you have added multiple cascading style sheet objects to your [container design label](#), the engine honors the background color specified in the last one listed in the container design label properties in Design Manager.

1. In Design Manager, open the HTML or HTML (email) output object in the Property Panel.
2. On the **Basic** tab, click the **Background color** color well.
3. In the **Color** dialog box, select a color and click **OK**.

Tip: To remove a background color, in the **Color** dialog box, click **None**.

Related information

[Creating Output](#) in the Exstream Design and Production documentation

[System Administration](#) in the Exstream Design and Production documentation

3.2.2 Adding scroll bars to grid layout containers

If you use a grid layout container, you can add scroll bars to individual grid cells. The scroll bars let you reduce the vertical space used to display textual or tabular content on the screen. Your customers can then use the scroll bars to review the content in the cell.

For example, suppose that you are using a grid layout container to design a monthly bank statement and you want to include a table that lists all of the transactions for the month. The number of monthly transactions can vary widely across customers, resulting in varying vertical space used for the transactions table.

In cases where the transactions table is particularly long, it can be cumbersome to navigate the communications using the main scroll bar in the browser window. Additionally, if your communication includes other columns of content in the same row as the transactions table, the content layout may vary significantly across customers. Adding scroll bars provides your customers with a convenient way to navigate the communication and easily find information while maintaining the aesthetic of your design.

Important: Scroll bars are supported only when you produce HTML5 output using a grid layout container.

1. In the Container Viewer, select a grid cell, right-click, and then click **Grid Cell Properties**.
2. In the **Grid Cell Properties** dialog box, click the **Grid Cell** tab.
3. Select the **Vertical scroll bar** check box.
4. In the **Maximum height** box, enter a value (in pixels) that determines the maximum cell height that will trigger the inclusion of a vertical scroll bar in the output.
5. Click **OK**.

3.2.3 Controlling the spacing of objects within containers

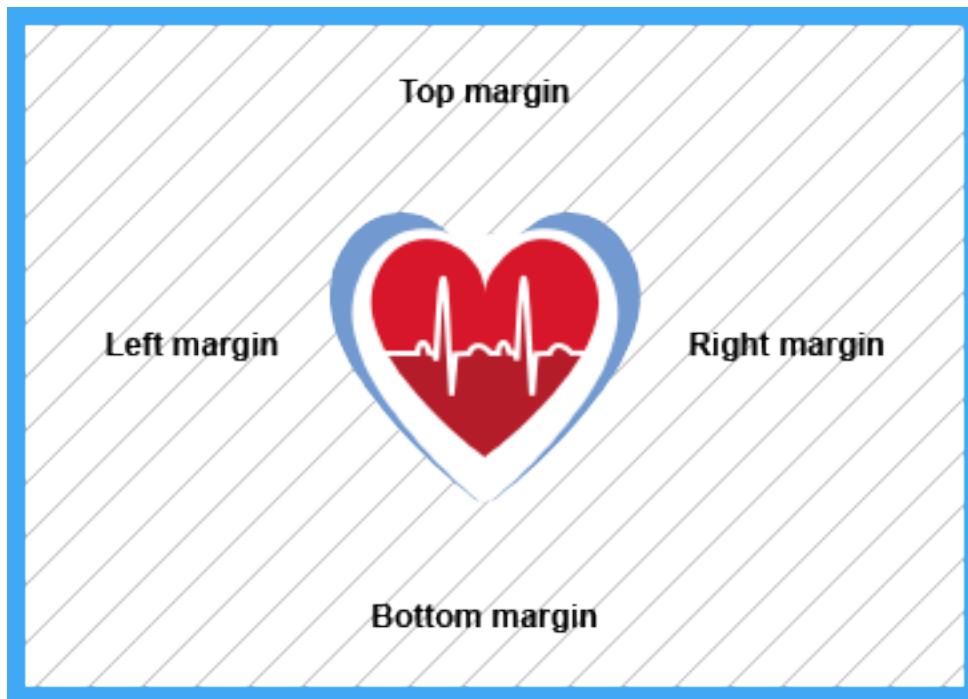
You can control the amount of space between objects in a container by adjusting the margins and padding around objects in a container or grid cell, or by inserting spacers between objects in a container or in a grid cell.

Margins

You can apply margins to span and tile containers, as well as grid cells in a grid layout container. Margins define the distance between each object *and* between objects and the container border uniformly for all objects within the container or grid cell. For example, if you specify a 0.2-inch top margin on a vertical span container, there would be 0.2 inches between the top object and the container border. If you specify the same margin on a horizontal span container, there would be 0.2 inches between all objects in the top row and the container border.

You define the margin settings for span and tile containers on the **Container** tab of the **Container Properties** dialog box. You can specify a margin on a grid cell in a grid layout container on the **Grid Cell Properties** dialog box.

How margin settings affect object spacing in a grid cell



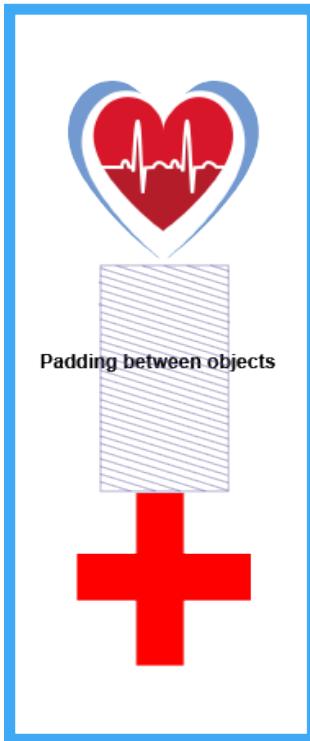
Padding

You can apply padding to span and tile containers, and to grid cells in a grid layout container. Padding defines the distance between objects uniformly within the container.

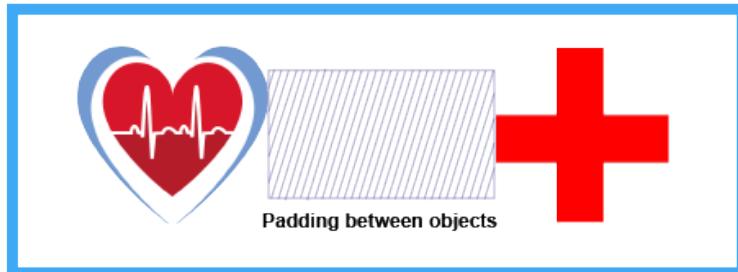
For span containers, you can specify the padding settings on the **Container** tab of the **Container Properties** dialog box. The value that you enter into the **Padding between objects** box specifies the distance between objects in the container.

How padding settings affect object spacing in a span container

Vertical span container



Horizontal span container

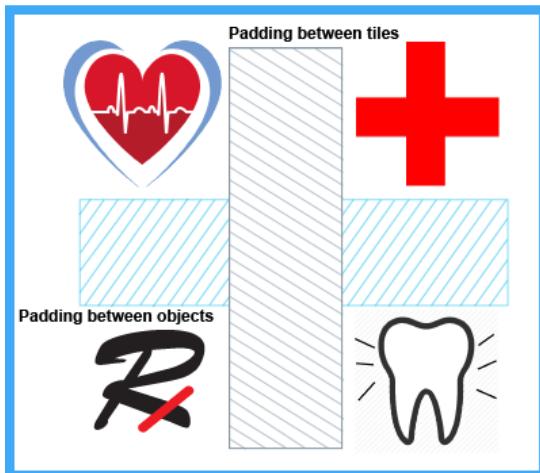


For tile containers, you can specify two different padding settings: the **Padding between tiles** box and the **Padding between objects** box. For a *vertical* tile container, the value that you enter in the **Padding between tiles** box specifies the space between columns. The value that you enter in the **Padding between objects** box specifies the space between rows.

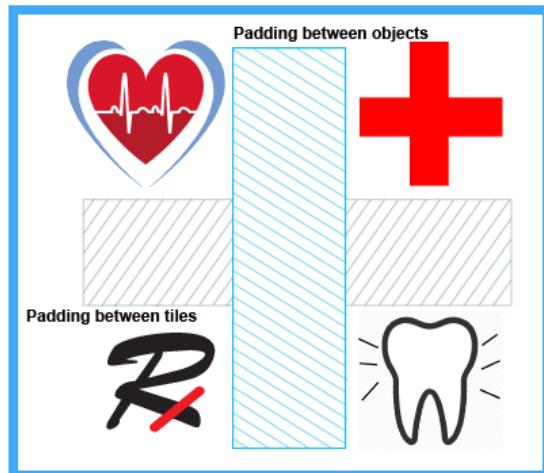
For a *horizontal* tile container, these settings are reversed. The value you enter in the **Padding between tiles** box specifies the space between rows. The value that you enter in the **Padding between objects** box specifies the space between columns.

How padding settings affect object spacing in a tile container

Vertical tile container



Horizontal tile container

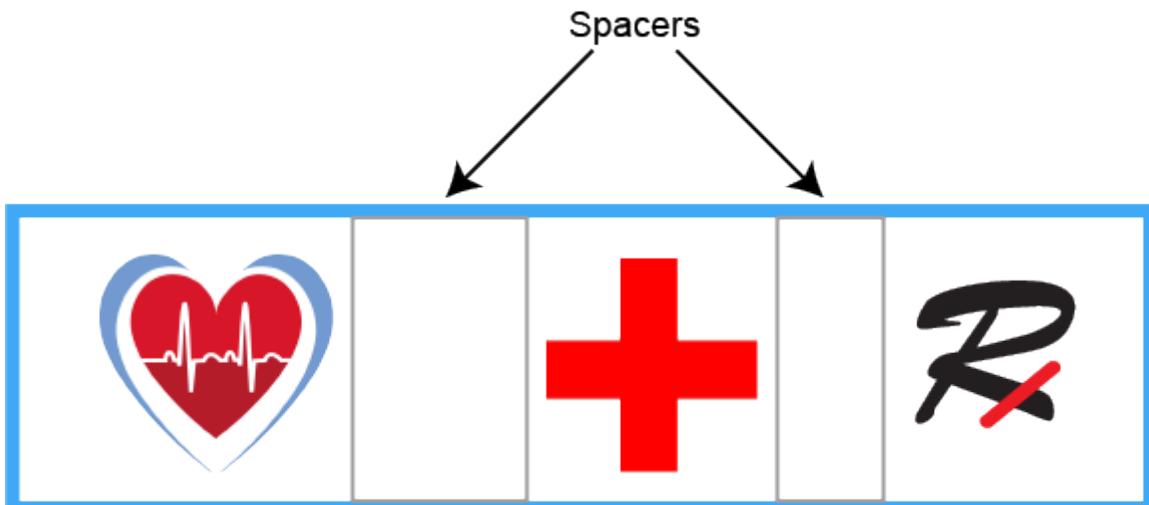


Spacers

Spacers are design objects that you can use to create space between objects within a container or between objects and the container border. Spacers can be different widths or heights, even within the same container.

Since you can add only one design object per grid cell in a grid layout container, you might need to adjust the number of rows or columns in the container to accommodate the use of spacers. When you add a spacer to a grid cell, the size of the spacer defines the width of the column and the height of the row in which it appears.

How spacers affect object spacing in a span container



To add a spacer to a container or grid cell:

1. In the Container Viewer, select the container or grid cell.
2. From the Menu bar, select **Insert > Container Object > Spacer**.
3. In the Container Viewer, right-click the spacer and then click **Object properties**.
4. In the **Spacer Properties** dialog box, click the **Spacer** tab.
5. Specify the size of the spacer. You can specify the width, height, or both based on a fixed size or a percentage of available space in the container

To	Do this
Specify a fixed size for the spacer	<ul style="list-style-type: none">• To set a fixed width—Select the Has fixed width check box and enter a value in the Fixed width box.• To set a fixed height—Select the Has fixed height check box and enter a value in the Fixed height box.
Specify a size based on the percentage of available space in the container	<ul style="list-style-type: none">• To set a percentage width—Clear the Has fixed width check box and enter a value in the Percent width box.• To set a percentage height—Clear the Has fixed height check box and enter a value in the Percent height box.

6. Click **OK**.

Related information

[“Formatting options for containers” on page 69](#)

3.2.4 Specifying a fixed size for containers

You can specify a fixed height and width only for absolute position containers and spacers. Note that container designs that use fixed sizing might not display on all screen sizes in an ideal way.

1. In the Container Viewer, right-click the absolute position container or spacer and select **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. In the **Fixed width** and **Fixed height** boxes, enter the values to use for the container size.
4. Click **OK**.

Related information

[“Formatting options for containers” on page 69](#)

[“Automatically resizing containers to fit child objects” on the next page](#)

["Scaling containers and objects to fit various screen sizes" on page 81](#)

3.2.5 Automatically resizing containers to fit child objects

For grid layout and absolute position containers, you can specify options to automatically resize containers to fit the objects that are placed within them in the design. Auto-resizing options are different between the two different container types, however. For absolute position containers, you can specify that the full container resizes to accommodate the objects within the container. For grid layout containers, you can specify that resizing occurs on the rows, columns, or both.

Tip: To create a better viewing experience on smartphones, you should consider enabling a feature on the primary container to [change the layout to a single column](#) when the output is viewed on smaller devices.

Automatically resizing absolute position containers

Absolute position containers are set up to automatically resize in order to fit child objects by default, but if it isn't working, verify that the **Resize container to fit children** check box is selected in the container properties.

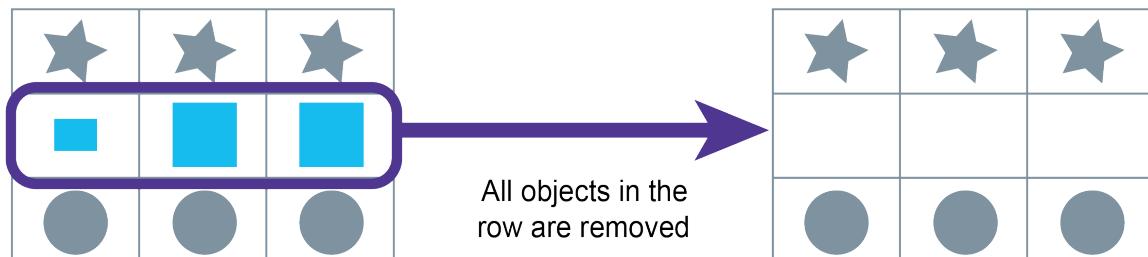
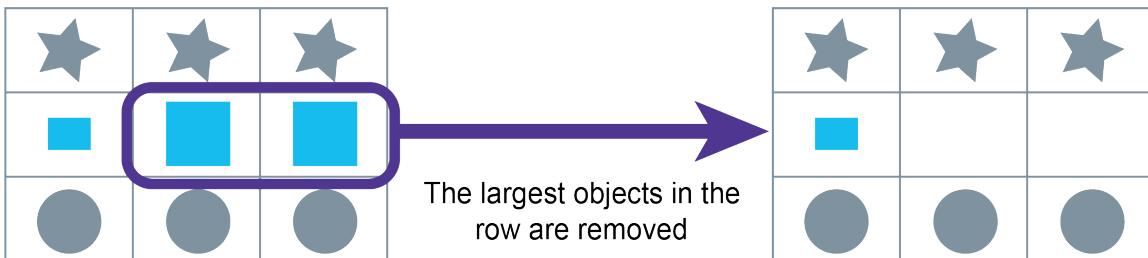
1. In the Container Viewer, right-click the absolute position container and select **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. Select the **Resize container to fit children** check box. The absolute position container resizes in the design window based on the objects in the container at design time. The container does not readjust to reflect dynamic changes that might occur at run time.
4. Click **OK**.

Automatically resizing grid layout containers

Rows and columns in a grid layout container automatically resize based on the size of the largest object in that row or column. In some cases, the largest object in a row or column might be excluded from the output based on exclusion rules or [responsive design features](#) that you have applied to the container or grid cells. This can result in extra white space in your output.

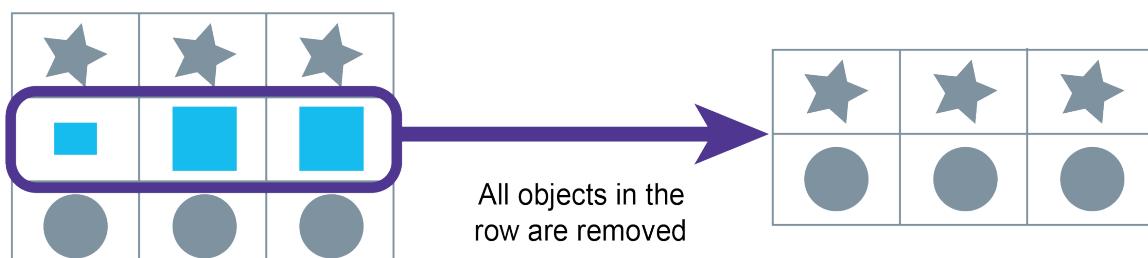
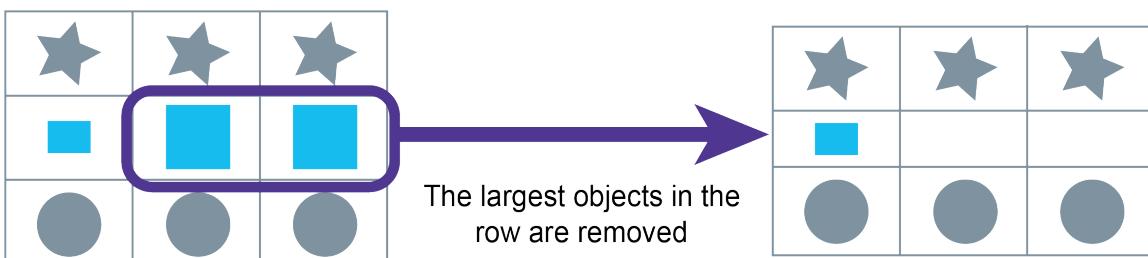
For example, suppose that your design excludes one or more objects in a given row. Without automatic row resizing enabled, the row height is maintained at the size of the largest object—even if *all* of the objects in that row are excluded from the output.

Default behavior for a row with auto-resizing OFF



If, on the other hand, this same design had automatic row resizing enabled on the grid layout, this extra white space would not be present in the output. Instead, the height of rows would automatically adjust to the height of the largest remaining object (including [margin and padding](#) values). If *all* of the objects in that row are excluded from the output, the height of the row would be set to zero in the CSS styles (for example, `<td height: 0px;>`), giving the appearance that the full row has been excluded from the output.

Default behavior for a row with auto-resizing ON



The settings for automatically resizing rows and columns are applied at the container level, and they apply to all of the rows and columns in a given grid layout container. You can use the settings to automatically resize rows and columns either together or independently of one another.

1. In the Container Viewer, right-click the grid layout container (not a grid cell) and select **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. Specify the auto-resize properties for the grid layout container by doing one or both of the following:
 - To adjust the height of all rows in the grid layout container to accommodate the largest object, select the **Auto-resize rows to fit contents** check box. If all of the grid cells in the row are empty because of exclusion rules or the addition of responsive design features, the entire row will be excluded from the output.
 - To adjust the width of all columns in the grid layout container to accommodate the largest object, select the **Auto-resize columns to fit contents** check box. If all of the grid cells in the column are empty because of exclusion rules or the addition of responsive design features, the entire column will be excluded from the output.
4. Click **OK**.

3.2.6 Clipping objects within containers

Important: This [formatting feature](#) is supported only span and tile containers.

Setting clipping values lets you exclude objects from the viewable area when they extend beyond the maximum width of the container. For example, if you want your design to be easily viewable on a smartphone, then you can set the primary container to clip all objects that extend beyond 2.5 inches wide. When you have a clipping value applied, the engine includes the `overflow: hidden` style property for the object in the HTML output.

Keep in mind that object inclusion rules and rendering within different email clients and web browsers can affect the appearance of objects in the output.

1. In the Container Viewer, right-click the container and then click **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. In the **Clipping** list, select **Clip to width**.
4. Select the **Maximum width** check box and enter a measurement for the maximum width that the container can occupy.
5. Click **OK**.

3.3 Responsive design features

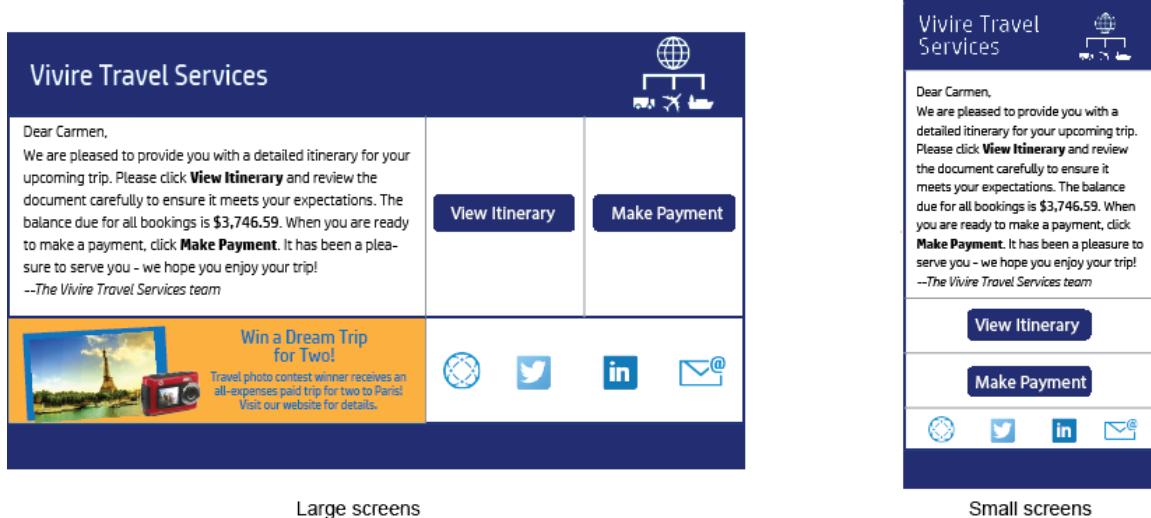
A major part of designing communications for HTML outputs is ensuring that the end result responds to your customer's viewing device size and orientation, as well as the browser or email client that they are using. Responsive design uses a combination of HTML and CSS to scale design elements up or down and hide or move content so that it is easily readable on any screen size.

Important: To use responsive design features, you must use a grid layout container as the primary container for your design.

Exstream supports the following responsive design features for container designs that produce HTML5 or HTML (email) output:

- [Scaling containers and objects](#) based on the viewing device screen size
- [Changing the layout of content](#) in grid layout containers based on the viewing device screen size
- [Showing and hiding content](#) in grid layout cells based on specific viewing device screen sizes, or a range of sizes

Example of an email communication with responsive design features applied on different screen sizes



When you enable any of these responsive features, the CSS produced by the engine includes media queries that determine the size of the viewing device and the content is transformed based on the screen sizes or scaling options that you specified on the container, grid cell, or object properties. You can use these responsive design features together or independently of

one another. The [device preview feature](#) can help you ensure that the output appears correctly on multiple types of devices.

Note: If your email design requires responsive features that are not available in Exstream, you also have the option to create HTML (email) output using an external HTML email template that you import into Exstream at run time. For more information about this functionality, see *Creating Output* in the Exstream Design and Production documentation.

3.3.1 Scaling containers and objects to fit various screen sizes

A key [responsive design feature](#) is scaling objects so that they resize automatically to accommodate different devices and screen orientations. In Exstream Design and Production, you can accomplish this by specifying that containers and the objects used in the container design automatically increase or decrease in size, based a specified percentage of the width of the screen or parent container. This type of automatic resizing is supported for all [container types](#) and all [objects supported in container designs](#) except embedded objects.

When you set a percent width on a container or object, it scales up or down until it occupies the specified percentage of the width of the parent container or viewing device screen. For example, if you set a width of 50 percent on the primary container, it will occupy 50 percent of the screen size. Likewise, if you set a width of 50 percent on a child container or object, it will occupy 50 percent of the parent container.

When you set a percent width for objects, the height and width scale proportionately so that the objects do not distort. If you want to limit the range within which a container or object can scale, you can specify minimum and maximum widths. For example, you might have a graphic with details that are not visible if it is scaled below 200 pixels. In this case, you can set a minimum width on the image object of 200 pixels. Likewise, if you have a graphic that appears pixelated if it is scaled above 400 pixels, you can set a maximum width of 400 pixels on the image object. The minimum and maximum widths can be used in conjunction with one another or independently.

Note: The minimum and maximum widths do not affect how the design is displayed on varying screen sizes, so it is possible for your designs to extend beyond the dimensions of the viewing device. For example, if you specify a minimum width of 4.5 inches for a container in an HTML design, it will not fit on the screen when it is viewed on a 3.5-inch screen. If you want to exclude objects that extend beyond the maximum width of a span or tile container, you can hide the overflow content by applying a [clipping](#) value to those container types.

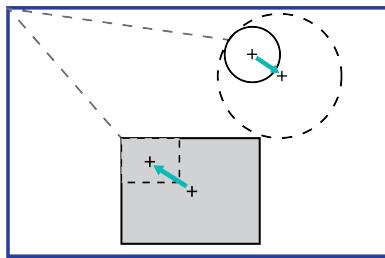
Applying a percent width to a container will affect only the size of the container object. If you also want the objects within the container to scale as well, you must apply percent width settings to each individual object in the container. Otherwise, the engine uses the values in the **Width** and **Height** boxes on the **Placement** tab of the **<Object> Properties** dialog box to size the object. If you do not apply a percent width setting to a child container, its default size is

determined by the size of the objects that it contains (or, for absolute position containers, the fixed height and width if they are specified in the container properties). You can apply a different percent width, minimum width, and maximum width setting for the same object in different container designs, since these settings are not shared across designs.

Design objects can behave differently depending on the type of object that you are resizing, the type of output you generate from the design, and how that object appears in the final output. The type of browser and the screen resolution of the viewing device can also affect the appearance, sizing, and placement of objects in the output. As a best practice, you should thoroughly [test the output](#).

Considerations for using scaling in different container types

Container type	Considerations
Grid layout	In a grid layout container where both the container and the objects within the container scale, the size of the column and row adjust to accommodate the size of the scaled object. For example, if you set an image in a grid layout container to occupy 50 percent of the container width, then the grid cell that the image occupies will expand or contract vertically and horizontally as the image scales.
Vertical and horizontal span	In vertical span and horizontal span containers, objects automatically reflow as they scale. For example, if an image in a span container scales up, the image will push the other objects in the container to the right (in a horizontal span) or down (in a vertical span) in order to fit the image in the container. Likewise, if an image scales down, it will pull the other objects in the container to the left or up.
Vertical and horizontal tile	The size of a row or column in a tile container is determined by the size of the first object that is included in that row or column. This means that if your design includes a combination of objects that do and do not scale within the same row or column, the order in which you place these objects in the container can change the appearance of the container, the spacing of objects in the container, and the behavior of any other objects within the container that are set to scale. If you are applying a percent width to objects, do not use a tile container if the Number of tiles value in the container properties will be greater than the number of children in the container. When a tile container has a greater number of tiles than the number of children within the container, the empty tiles will still occupy space in the output. Keep in mind that these empty tiles can cause unexpected results, depending on the percent width that you might have applied to objects in the container. If you are using a tile container that holds a fewer or equal number of objects to the number of tiles in the container, consider converting the tile container into a span container.
Absolute position	In an absolute position container, as an object scales, the object remains anchored at the top left corner of the object, where you placed the object in the design, and then the object expands and contracts from that anchored point.



Automatically scaling containers

1. In the Container Viewer, right-click the container and click **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. For absolute position containers, clear the **Resize container to fit children** check box.
4. Select the **Percentage width** check box and enter a value.

Tip: A typical setting for the primary container is 100 percent, since it allows the design to expand and fill the entire available display area on the viewing device.

5. Optionally, you can specify limits to the size range within which a container scales:
 - To specify the minimum width of the container, select the **Minimum width** check box and enter a value. The minimum width cannot be more than the total width of the container.
 - To specify the maximum width of the container, select the **Maximum width** check box and enter a value. The maximum width cannot be less than the total width of the container.

Note: If you manually change the width of a child container, it can affect the minimum and maximum width settings that you apply in the container properties. Note that you can not manually change the width of the primary container.

6. Click **OK**.

In the Container Viewer, the  icon appears to the right of the container to indicate that the object is set to automatically scale in the output.

Automatically scaling objects

As a best practice, make sure that the total percent width of the child containers and objects that you arrange in a single horizontal row of a grid layout, span, or tile container is less than or equal to 100 percent. The total width of a row is determined by the sum of the percent width values for all the objects in the row, including the values for any padding or margins that you apply to those objects.

Note: If the total width of the objects within a grid layout container is not equal to 100 percent of the container width, the engine will rebalance width of the columns in the container to equal 100 percent, which can affect the final size of the objects in the output.

Exstream converts bezier curves, lines, polygons, shapes, and traditional charts into images for HTML output. Some minor padding might be added to these objects in the final output because of this conversion. If you are scaling these objects in your design, keep in mind that this additional padding contributes to the total width of the objects.

While the percent width, minimum width, and maximum width of an object can affect text wrapping and placement, these settings do not change the font size of text in text boxes or tables. If you want to change the font size for different screen sizes, you must use [cascading style sheet objects](#). However, because the engine converts traditional charts into images in HTML output, any text on the chart (such as the chart title, labels, and legend) will also scale.

Advanced charts scale down, but do not scale up. Embedded objects can not be scaled and maintain their original size in the output, regardless of the screen size of the viewing device.

1. In the Container Viewer, right-click the object, and then click **<Object> Properties**.
2. In the **<Object> Properties** dialog box, click the **Container Design** tab.
3. Select the **Percent width** check box and enter a value.
4. Optionally, you can specify limits to the size range within which a container scales:
 - To specify the minimum width of the object, select the **Minimum width** check box and enter a value (in inches). The minimum width cannot be more than the total width of the container.
 - To specify the maximum width of the object, select the **Maximum width** check box and enter a value (in inches). The maximum width cannot be less than the total width of the container.
5. Click **OK**.

In the Container Viewer, the  icon appears to the right of the object to indicate that the object is set to automatically scale in the output.

3.3.2 Changing the layout to fit smaller screens

Important: This [responsive design feature](#) is supported only on primary or child grid layout containers. Child grid layout containers do not inherit the setting for this property from the primary grid layout container; you must set this property on each grid layout container individually.

Support for CSS media queries is required for this functionality. Some email clients do not support CSS media queries—in these instances, your customers will see the large-screen design on their device.

When you design for large screens, you might want to present some blocks of content side by side in multiple columns to take full advantage of the available screen space. You can achieve this layout structure by embedding multi-column grid layout containers in your design. On small

screens, however, a single-column layout is usually needed to present content legibly, without requiring the user to scroll horizontally.

Instead of creating separate designs for large and small screens to accommodate this difference, you can enable the **Change layout for small screens** option to force the content in a multi-column grid layout container to reflow into a single column when the design is viewed on devices with a viewport smaller than the pixel value that you specify. When you enable this option, the grid cells are stacked vertically, with each cell being placed below the cell to the left of it. Additionally, based on the screen size of the viewing device, the content scales automatically and the text wraps to fit the screen width, but the font size does not change. You can [add custom media queries at the object level](#) to control how text is displayed on various device sizes.

How the cells in a multi-column grid layout container are rearranged into a single column on a small screen



Be sure to take this cell-stacking order into consideration during the design phase, placing content so that it makes sense when the cell order is rearranged on small screens. You can use the [device preview feature](#) to verify that the message is correctly presented and understandable on a variety of device sizes.

To change the layout of your design when the output is viewed on a smaller screen:

1. In the Container Viewer, right-click a grid layout container and then click **Object properties**.
2. In the **Container Properties** dialog box, click the **Container** tab.
3. In the **Change layout for small screens** list, select one of the following options to specify the maximum screen size at which the cells will reflow into a single column:
 - **Do not change**—The grid cells will not reflow in the output. This is the default setting.
 - **480 px**—The grid cells will reflow into a single column only when the output is viewed

on a device with a viewport that is smaller than 480 pixels.

- **768 px**—The grid cells will reflow into a single column only when the output is viewed on a device with a viewport that is smaller than 768 pixels.
- **800 px**—The grid cells will reflow into a single column only when the output is viewed on a device with a viewport that is smaller than 800 pixels.
- **Custom**—The grid cells will reflow into a single column only when the output is viewed on a device with a viewport that is smaller than the pixel value you enter in the adjacent box.

4. Click **OK**.

The CSS styles that the engine applies to images within the grid layout container specify that each image should take up 100 percent of the grid cell that contains them—unless the cell is wider than the object width in Designer, in which case the object width as set in Designer prevails.

3.3.3 Showing and hiding content based on screen size

Important: This [responsive design feature](#) is supported only on grid cells within a grid layout container. If your design uses horizontal and vertical span and tile containers, you can hide content to accommodate viewing on small devices by [clipping objects](#) that exceed a specific size from the output. For all container types, you can also [add custom media queries at the object level](#) to control how objects are displayed on various device sizes.

When you create a responsive design in Exstream, you should consider how the HTML or HTML (email) appears on various device sizes. If you begin with a design that is intended to be viewed on a computer, you will likely find that some design elements in the output are not as easily readable on tablets or smartphones. In these cases, you might want to hide certain content that uses more space on the screen or is not easily readable when scaled to a smaller size (such as banner images or charts).

You might also want to show different content on different device sizes. For example, suppose that you want to include a menu in your design. On larger screens, a side menu is easily viewable. On smaller screens such as smartphones, however, you might prefer to include a simplified top menu. To do this, you can specify that the side menu is hidden on screens smaller than 768 pixels (the typical screen size for a tablet in CSS) and that the top menu is hidden on screens larger than 768 pixels.

When you enable these features, the Exstream engine adds media query styles to the [automatically-generated cascading style sheets](#). These styles detect the viewport of the viewing device and displays the objects based on the sizes that you selected for each grid cell. During design, you can use the [device preview feature](#) to verify that the correct objects appear in the output for each device size.

To show and hide content based on the screen size of the viewing device:

1. In the Container Viewer, select one or more grid cells, right-click your selection, and then click **Grid Cell Properties**.
2. On the **Grid Cell Properties** dialog box, click the **Responsive Design** tab.
3. In the **Hide cell and its contents on screens equal to or smaller than** list, select one of the following options to specify the minimum screen size on which the grid cell content will appear:
 - **Do not hide**—The contents of the grid cell will always appear in the output. This is the default setting.
 - **480 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is greater than 480 pixels.
 - **768 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is greater than 768 pixels.
 - **800 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is greater than 800 pixels.
 - **Custom**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is greater than the pixel value you enter in the adjacent box.
4. In the **Hide cell and its contents on screens equal to or larger than** list, select one of the following options to specify the maximum screen size on which the grid cell content will appear:
 - **Do not hide**—The contents of the grid cell will always appear in the output. This is the default setting.
 - **480 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is less than 480 pixels.
 - **768 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is less than 768 pixels.
 - **800 px**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is less than 800 pixels.
 - **Custom**—The contents of the grid cell will appear only when the output is viewed on a device with a viewport that is less than the pixel value you enter in the adjacent box.
5. Click **OK**.

Tip: To create a better viewing experience on smartphones, you should consider enabling a feature on the primary container to [change the layout to a single column](#) when the output is viewed on smaller devices.

3.4 CSS styling in container designs

When you generate HTML or HTML (email) output from a container design, the engine automatically generates CSS styles that translate the container design layout, object placement and formatting, text and paragraph styles, and other properties that you applied to your design in Designer. This includes styles related to responsive design features that you included in your design (since these rely on the viewport size).

You also have the option to apply CSS styles directly to objects, or to assign class names and id attribute values to objects and text, and then reference those class names and id values in the CSS styles associated with custom cascading style sheet objects. The engine can then leverage these CSS style definitions to override the formatting in your design, or to apply CSS styles that do not have equivalent formatting options in Designer.

At run time, the engine places the CSS styles applied directly to objects, along with indirect CSS styles from class names, id attribute values, and cascading style sheet objects, into an external .css file, or within the .html file (within the <head> element or inline). The placement of the CSS styles is based on the type or version of HTML output that you are creating and the [CSS placement options](#) that you select.

The engine applies the CSS styles to the output in the following order:

1. [Formatting](#) applied in Designer, such as text and paragraph styles, colors, object size, alignment, and [responsive design features](#)
2. [CSS styles applied to objects, containers, and grid cells](#) at design time
3. Indirect styles for class [names](#) and id [values](#) that are applied to objects through a [cascading style sheet object](#) at run time

Tip: If you include inline CSS styles in unconverted imported HTML content, those styles could override CSS styles applied elsewhere. When you use multiple methods to style HTML and HTML (email) output, make sure to consider the order of precedence and CSS specificity.

Related information

- Text and paragraph styles—*System Administration* in the Exstream Design and Production documentation
- Imported HTML content—*Importing External Content* in the Exstream Design and Production documentation

3.4.1 Automatically-generated CSS styles

When you generate HTML or HTML (email) output from a container design, Exstream automatically creates CSS styles to define how your content should be displayed on a customer's screen based on the [formatting](#) that you apply in Designer, such as text and paragraph styles, colors, object size, alignment, and [responsive design features](#).

HTML (email) output

In HTML (email) output, the engine places all of the automatically-generated CSS styles inside of a single .html file by default. This is because an email message must be a self-contained single file.

HTML output

By default, the engine produces separate .css files that are saved to your HTML output directory and referenced by your .html files. The engine creates these .css files using the CSS2 standard for HTML 4.01 Transitional output, and the CSS3 standard for HTML5 output.

Note: For MIME HTML (MHTML) output, CSS styles are always included in the single .mhtml output file. If you select the **Create external cascading style sheet** check box in the MHTML output object properties, the single output file includes the CSS as a separate file part with a content type of text/css. If you clear the **Create external cascading style sheet** check box in the output object properties, the CSS is placed inline within the HTML. For more information about creating MIME HTML output, see *Creating Output* in the Exstream Design and Production documentation.

The engine automatically generates one StylesContainer.css file for each application, which contains all of the default objects and properties that create the layout of your design.

For each output queue, the engine also generates a StylesContainer<output queue name>.css file, which contains all of the [formatting](#) and properties that are applied in Designer (such as such as text and paragraph styles, colors, object size, alignment, and [responsive design features](#)).

Tip: Instead of generating separate CSS files, you can choose to have the engine [include the CSS within the HTML output file](#), by clearing the **Create external cascading style sheets** check box in the output object properties. In HTML5 output, the CSS styles are included in the <head> element; in HTML 4.01 Transitional output, some styles are included in the <head> element and others are inline.

3.4.2 CSS placement options for user-generated CSS styles

Note: You do not have control over the placement of automatically-generated CSS styles. The selection that you make affects only the CSS styles that are tied to CSS styles applied directly to objects, containers, and grid cells at design time, as well as indirect styles for class names and id values that are applied to objects through a cascading style sheet object at run time.

The CSS placement options available in Exstream control where the CSS styles that you add to your designs are placed relative to the HTML in your output files. At run time, the engine places the CSS styles from Designer and cascading style sheet objects into one or more of the following locations:

- In an external .css file that is linked to each .html output file
- Within the <head> element at the top of each .html output file
- Inline at the HTML element level within each .html output file

The CSS placement options, as well as the location of these options, vary depending on the type of output that you are generating. For HTML output, the CSS placement options are located in the output object properties. For HTML (email) output, the CSS placement options are located in the cascading style sheet object properties.

In HTML (email) output, you can place CSS styles in more than one location by applying multiple cascading style sheet objects to the container design label associated with your design, and then selecting a different CSS placement option in the properties of each.

External .css files

Placing CSS styles in external .css files is supported only for HTML5 and HTML 4.01 Transitional output. External .css files are not supported for HTML (email) because most email clients ignore references to external .css files.

Important: If you choose the external CSS option for HTML 4.01 Transitional output, the engine does not remove all inline styles, as it does for HTML5 output.

The advantage of this option is that it makes it very easy to change the appearance of your HTML output outside of Exstream. If you place the CSS styles for your design in an external file, you need to modify only one file, the external .css file, to change the appearance of all of the related .html files. You do not need to repackage your application to change the appearance of the output.

The disadvantage of using this option is that all of the data that defines your application is not included in one self-contained package file, since the CSS styles for your design are located in a separate external file.

To produce external .css files for the automatically-generated CSS styles and those from cascading style sheet objects, select the **Create external cascading style sheet** check box in the HTML output object properties.

Top-of-file CSS

Placing the CSS styles at the top of the HTML file is supported for HTML5, HTML 4.01 Transitional, and HTML (email) output.

The advantage of this option is that it makes it easier to modify the appearance outside of Exstream than if the styles were embedded inline in the HTML code.

The disadvantage of this option is that you must repackage your application if you change the CSS styles associated with a cascading style sheet object. If you subsequently create new output and save it to the same directory, your changes will be overwritten.

Important: Some email clients ignore any CSS styles placed in the header of an .html file. To ensure compatibility with the largest number of email clients, select the [inline CSS](#) option instead.

To place the CSS styles at the top of the file in HTML5 or HTML 4.01 Transitional output, clear the **Create external cascading style sheet** check box in the HTML output object properties. If you are producing HTML 4.01 Transitional output, some styles will be placed at the top of your .html output files and some will be placed inline.

To place the CSS styles at the top of the file in HTML (email) output, select **Internal (Top of file)** from the **CSS placement in HTML email output** list in the cascading style sheet object properties.

Inline CSS

Placing CSS styles inline is supported only for HTML 4.01 Transitional and HTML (email) output. Inline CSS is not supported for HTML5, in accordance with the recommendation in the HTML5 specification to avoid the use of inline styles.

For HTML (email), the advantage of placing CSS styles inline is that it ensures compatibility with the largest number of email clients.

Note: If your design uses cascading style sheet objects to specify font information for HTML (email) output, you must use the inline CSS option to ensure that your user-defined styles appear correctly in the output.

To place the CSS styles inline in HTML 4.01 Transitional output, clear the **Create external cascading style sheet** check box in the HTML output object properties. Some styles will be placed at the top of your .html output files and some will be placed inline.

To place the CSS styles inline in HTML (email) output, select **Inline** from the **CSS placement in HTML email output** list in the CSS object properties.

No CSS

For HTML (email) output only, you can choose to not include CSS styles in the output. This option is primarily for backward compatibility. You can also use this option to exclude the CSS styles specified in any associated cascading style sheet object.

To produce HTML (email) output without CSS styles, select **None** from the **CSS placement in HTML email output** list in the cascading style sheet object properties.

3.4.3 Adding CSS styles at design time

When you create any HTML output from Exstream, the engine [automatically adds CSS styles](#) to the object in your design based on the [formatting](#) and properties that you have applied in Designer. These styles can be supplemented (and, in some cases, overwritten) by CSS styles associated with [cascading style sheet objects](#).

If you are producing HTML5 or HTML (email) output from a container design, you can also add CSS styles directly to objects (except frames and spacers), primary and child containers, and grid cells while you are creating your design. This is useful when you want to use CSS styles that are not available in Designer.

The engine merges these object-level CSS styles with the CSS styles from Designer and from external cascading style sheets. The CSS styles you add to objects have a higher order of precedence than the formatting that you apply in Designer, but a lower order of precedence than style declarations in a cascading style sheet object.

Tip: When you use multiple methods to style HTML and HTML (email) output, make sure to consider the order of precedence and CSS specificity.

1. In Designer, do one of the following:

To add CSS styles to	Do this
An object (other than a container)	<ol style="list-style-type: none">In the design window, select the object and click .In the <Object> Properties dialog box, click the Container Design tab.
A container	<ol style="list-style-type: none">In the Container Viewer, right-click the container and then click Object properties.In the Container Properties dialog box, click the Container tab.
A grid cell	<ol style="list-style-type: none">In the Container Viewer, right-click the grid cell and then click Grid Cell Properties.In the Grid Cell Properties dialog box, click the Grid Cell tab.

2. In the **Object-level styles** box, enter the CSS styles that you want to apply to the object, container, or grid cell. Use the standard CSS property: value pairs for styling, with semicolons separating declarations from one another. Line breaks between declarations are not required, but make sure to validate your CSS before putting it into Designer.

For example:

```
background: linear-gradient(to right, white, blue, violet);  
text-shadow: 3px 3px #0000FF;
```

Tip: To open the default text editor, click  . After you are finished, save the changes and close the text editor. To import the content from the text editor, click  in the object, container, or grid cell properties.

3. Click **OK**.

3.4.4 Adding CSS styles at run time

In addition to [adding CSS styles to objects at design time](#), you can also add CSS styles that get applied to your design at run time. Run-time support for CSS styles is controlled through [cascading style sheet objects](#), using [class names](#) and [id values](#) that you apply to the design. When you set up a cascading style sheet object, you must make sure that the CSS selectors exactly match the [class](#) or [id](#) values that appear in the HTML or HTML (email) output.

You can specify [class names](#) for objects, containers, and grid cells by using metadata objects to tag them, and for text by using [style objects](#) and [style sheet objects](#) to format the text in your design. You can specify [id values](#) for the objects in the object properties. Unlike [class names](#), each [id](#) value in an HTML file must be unique.

Tip: When you use multiple methods to style HTML and HTML (email) output, make sure to consider the order of precedence and CSS specificity.

1. Specify the `class` or `id` values that you want to use as CSS selectors:
 - Add custom class names by [creating metadata objects](#) and [applying metadata values](#) to the objects, containers, or grid cells in your design.
 - Create styles and style sheet objects, and apply text and paragraph styles to your design.

For information about styles and style sheets, see *System Administration* in the Exstream Design and Production documentation.

 - Add unique id values to objects in your design.
2. Create a cascading style sheet object to hold your CSS styles, or to reference an external .css file that contains your CSS styles, and add the cascading style sheet object to the [container design label](#) object properties.

Considerations for using cascading style sheet objects

Design feature	Design consideration
Containers	If you apply metadata to a container object, the engine uses the metadata to specify the <code>class</code> name for the corresponding <code><div></code> or <code><table></code> element that represents that container object in the HTML output.
Content frames	<p>Content frames are embedded in other parent objects (such as text boxes or tables). In the output, the content frame itself is removed and any objects that were placed within the content frame (such as paragraphs or text messages) are then included as a part of the parent object.</p> <p>Because of how content frames are removed in the output, any objects that were included in the content frame inherit the metadata that specifies the <code>class</code> name from the parent object.</p> <p>For example, suppose that you have a content frame that contains paragraph objects and it is embedded within a text box. In the output, the content frame is removed and the paragraph objects inherit the metadata class name that are applied to the text box.</p>
The CSS content property	If you use the CSS <code>content</code> property to add new text from a cascading style sheet, you must apply the <code>content</code> property to an empty element. Otherwise, keep in mind that the <code>content</code> property might cause unexpected results.
Rotating objects with text	If you rotate a text box or table using a cascading style sheet object, the objects or text within the text box rotate double the degrees that you specify for the parent object to rotate. This behavior occurs because the styles that you apply to objects are also applied to any child <code>span</code> elements within the object in the output.
	<p>For example if you rotate a text box 45 degrees, the text box (and the text within it) first rotate 45 degrees, but then, because the rotate settings are also applied to each child <code>span</code> element in the text box, the text inside the text box is rotated an additional 45 degrees.</p>

Considerations for using cascading style sheet objects, continued

Design feature	Design consideration
Shapes, lines, charts, and images	<p>Shapes, lines, charts, and images are managed as images in HTML output. If you apply changes to these objects from a cascading style sheet object, the changes affect the appearance of only the final image that is included in the HTML output, and not the original object.</p> <p>For example, if you have a circle with a black border in the design, and you use a cascading style sheet object to apply a blue border, the blue border is applied to the square outline of the image. The actual border for the circle remains black.</p>
Text and paragraph styles	The text and paragraph styles that you apply to text boxes, tables, paragraph objects, and text messages are also applied to any child span elements within that object in the HTML output.

Adding custom class names to objects in a container design

Note: This topic covers how to add class names to objects. You can add class names to text by using style objects and style sheet objects.

When you create any HTML output from Exstream, the engine automatically adds a class name for each element that represents an object in your design. These class values can change with design updates.

However, if you are producing HTML5 output from a container design or HTML (email) output, you can customize the class names for objects that you add in Designer by [applying metadata to objects \(except frames\), containers, and grid cells](#). You can then reference these custom class names in CSS styles associated with a [cascading style sheet object](#), in an XSL transform, or in a script (such as JavaScript).

At run time, the Exstream engine applies the *value* of each metadata object (not the *name* of the metadata object) as the class name for the HTML element that defines the object in the output. HTML class names are case-sensitive.

To specify a class name for an object, container, or grid cell:

1. In the Container Viewer, right-click the object, container, or grid cell, and then click **Metadata**.
2. In the **Available Metadata** list, select a metadata object and click to apply it to the object or grid cell. If you apply more than one metadata object, the engine uses the first metadata object that you apply to specify the class name for the corresponding element in the output.
3. If you want to define a specific metadata value that is unique to the object or grid cell in Designer, enter a value in the **Value** box. Otherwise, the metadata value is determined by the default value that you define in the selected metadata object. The value must meet the following criteria:

- It must begin with an ASCII letter.
 - It must contain only ASCII alphanumeric characters, hyphens (-), and underscores (_).
 - If the value includes a variable, then that variable must already exist in the design database.
4. Click **OK**.

When you use metadata to specify the class name for elements in HTML output, you can [create a metadata report](#) to validate that the metadata values or the variables that provide metadata values in the design are consistent with what you expect for classes in HTML output.

Adding custom id values to objects in a container design

When you create any HTML output from Exstream, the engine automatically applies a sequential id attribute to each element that represents an object in your design. These id values can change with design updates.

If you are producing HTML5 output or HTML (email) output from a container design, you can add custom id attribute values to objects (except frames) in Designer. The id attribute lets you uniquely identify an element in an HTML file, so that you can reference it in a [cascading style sheet object](#) or in a script (such as JavaScript). HTML id attribute values are case-sensitive.

You can specify an id attribute value using static text, variables, or a combination of the two. Each custom id attribute value used in the design must meet the following criteria:

- It must be unique.
- It must contain at least one character.
- It must begin with an ASCII letter.
- It must contain only ASCII alphanumeric characters, hyphens (-), and underscores (_).
- If the value includes a variable, then that variable must already exist in the design database.

To add a custom id attribute value to an object:

1. In Designer, select the object to which you want to add a custom id attribute value and click .
2. In the **<Object> Properties** dialog box, click the **Container Design** tab.
3. Select the **HTML id** check box.
4. In the **HTML id** box, enter static text, select one or more variables (by clicking ), or include a combination of static text and variables.

If you enter a variable manually, you must enclose the variable name within angle brackets (for example, <variable_name>). Keep in mind that variable names are case-sensitive.

Tip: To open a larger text editing box, click  . To save what you enter in the **Edit Text** dialog box, click  .

5. Click **OK**.

Setting up a cascading style sheet object

Cascading style sheet objects are supported only on container designs that are delivered in HTML or HTML (email) output. These Library objects let you specify custom CSS styles based on metadata values and text and paragraph styles (which become class names in the output) and id attribute values that you apply to objects in the design.

The **class names** and **id values** in your design must match the CSS selectors associated with the cascading style sheet object exactly, or you might receive unexpected results in your output.

You can store the CSS styles directly in the Library object or in an external .css file that you link to the object in the Design Manager. You can associate multiple cascading style sheet objects to the same container design label, if needed.

Important: The engine applies some CSS styles to the parent `div` element for some lower-level elements, including text alignment and percentage width settings for responsive designs. When a CSS style is applied to the parent `<div>`, it cannot be overridden by a cascading style sheet object.

1. Create a cascading style sheet object.
 - a. In Design Manager, in the Library, go to **Environment > Design > Cascading Style Sheets**.
 - b. Right-click the **Cascading Style Sheets** heading and select **New Cascading Style Sheet**.
 - c. In the **New Cascading Style Sheet** dialog box, enter a name in the **Name** box. In the **Description** box, enter a description (optional).
 - d. Click **Finish**.
 - e. In the cascading style sheet object properties, choose where to store the CSS styles for the engine to access at run time:

To store the CSS here	Do this
In the Library	<ol style="list-style-type: none">i. From the Source list, select User content.ii. In the Content box, enter or paste the cascading style sheet content, or, under the Content box, click  to import the CSS styles from an external file. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Tip: If you want to make changes to the CSS styles in the Content box, click in the box to edit the content directly or click  to edit the code in the default text editor.</p></div>
In a linked .css file	<ol style="list-style-type: none">i. From the Source list, select File.ii. Specify the path to the external .css file:<ul style="list-style-type: none">• Static file path—In the Test file box, click  and choose the CSS file that you want to use for testing. In the Production file box, enter the path and name of the CSS file that you want to use for production.• Variable file path—In the Variable for file naming box, click  and select the variable that specifies the name and path to the CSS file that you want to apply.

Tip: You cannot save a cascading style sheet object until you enter some CSS styles in the object properties or specify a path name for an external .css file. (In the latter case, the external .css file can be initially empty; this will not prevent you from saving the CSS object.)

2. Choose where to [place the CSS styles](#) in the HTML or HTML (email) output.

For this output type	Do this
HTML	<ol style="list-style-type: none">a. In the Library, go to Environment > Delivery > Outputs.b. Open the HTML output object in the Property Panel.c. In the Basic tab, select the Create external cascading style sheet check box to place the styles in a separate file or clear the check box to place the styles inline. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Note: The option you choose will affect the placement of CSS styles that are associated with cascading style sheet objects and the automatically-generated CSS.</p></div>

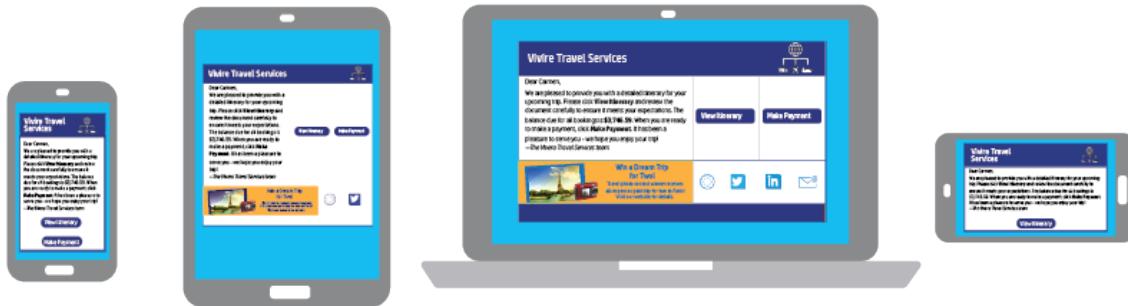
For this output type	Do this
HTML (email)	<ol style="list-style-type: none">a. In the Library, go to Environment > Design > Cascading Style Sheets.b. Open the cascading style sheet object in the Property Panel.c. In the Basic tab, select an option from the CSS placement in HTML email output list. <p>Note: The option that you choose will affect the placement of only the CSS styles that are associated with cascading style sheets objects.</p>

3. Add a reference to the cascading style sheet object in the container design label.
 - a. In the Library, go to **Environment > Design > Container Design Labels**.
 - b. Open the container design label object in the Property Panel.
 - c. In the **Cascading Style Sheets** area, click .
 - d. In the **Select Cascading Style Sheet** dialog box, select a cascading style sheet object and click **OK**.

Tip: Cascading style sheet objects are applied to the output in the same order as they appear in the **Cascading Style Sheets** area. To change the order of cascading style sheet objects, select a cascading style sheet object in the list and click  or  as needed. To remove a cascading style sheet object, select it in the **Cascading Style Sheets** box, and click .

3.5 Previewing and testing container designs

Since HTML and HTML (email) designs are intended for electronic viewing, testing the output on various screen sizes can help you make sure that communications are easily readable by your customers. As you add responsive features, such as hiding or changing the layout of content for smaller screens, you should periodically test the output to see how it will appear on different devices. You might need to check the presentation and tweak the design several times before it is ready for release.



One way to test your design is by using the [Device Preview](#) feature in Designer. Device Preview simulates how your design looks on a specific device by fitting the content within the maximum viewing area of the device's screen. You can preview your design on a variety of device models, and you can easily switch between these previews.

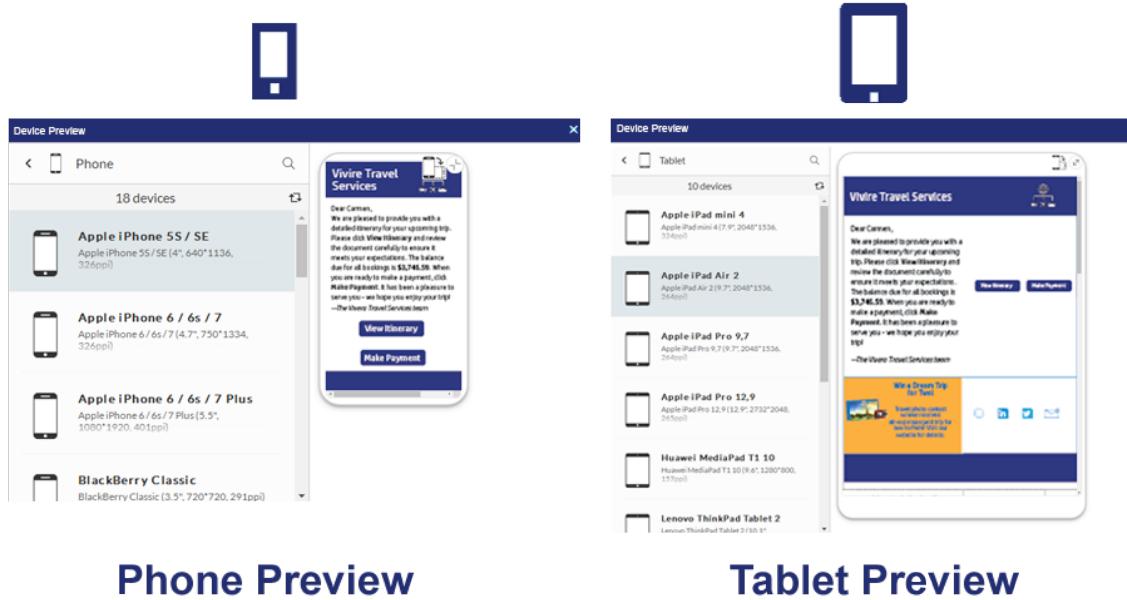
Device Preview lets you preview only container designs that are associated with pages. It is not supported for previewing container designs associated with graphic messages.

You can also test how your communications appear on different devices and in different browsers by running the design engine to create output. For information about running the design engine, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

3.5.1 Using Device Preview for container designs

To make it easier to design effective HTML and HTML (email) communications, you can create a preview in Designer to see how your designs will look on various phone and tablet screen sizes. This can help you as the design format and placement of objects are being developed. As shown in the following illustration, the Device Preview feature simulates how your design looks on a specific device by fitting the content within the maximum viewing area of the device. This lets you check how your design responds to different screen sizes, especially for issues like content stacking or hiding images on smaller screens.

Example of Device Preview



Phone Preview

Tablet Preview

You can preview your design on a variety of device models, and you can easily switch between these previews.

Note: The Device Preview feature only takes the viewport of the device into consideration when previewing a design. So while the preview can be used to aid in the design layout based on a device's screen size and resolution, the design may look different on the actual device. For instance, depending on the device, some of the available viewport space could be used for displaying a status bar or other elements. Also keep in mind that the preview does not reflect any rendering differences between various email clients.

Therefore, in addition to using the Device Preview feature as a design aid during the design process, it is a best practice to always test the output from your design using a third-party testing product to ensure that your design will be effectively presented on various devices.

Before you can use the Device Preview feature to generate previews of a given design, you must create an archived package file of your application and [specify the settings that you want the engine to use when it generates the preview](#).

Related information

["Previewing container designs with Device Preview" on page 106](#)

["Responsive design features" on page 80](#)

3.5.2 Creating an archived package file to enable previewing

Before you can preview your design, you must create an archived package file of your application. The archived package file contains all of the information about your application that the engine requires to generate a preview of your design in Designer.

When you request a preview to be generated in Designer, the engine combines the archived application-level package file with a page-level package file of your latest design to create the preview. Whereas you must first create the archived application-level package file, the engine itself automatically creates a page-level package file in the background each time that you request a preview. The page-level package file contains the current, page-specific information that the engine requires to generate an up-to-date preview of the design.

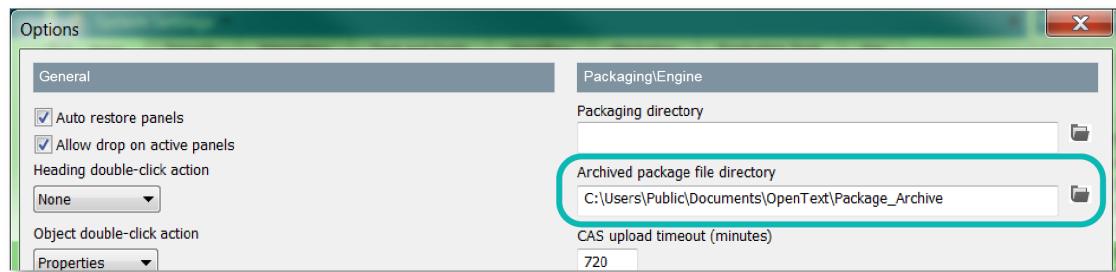
To create an archived package file in Design Manager, you must package your application using a package profile. A package profile is a saved group of packaging settings that you can use to quickly package an application without manually specifying the same settings individually again. Using a package profile when packaging automatically triggers an archived package file to be saved in the archived package file directory specified in the **Options** dialog box (from the Menu bar, select **Tools > Options**). When you request a preview of your design in Designer, the engine automatically accesses this directory to find the archived package file it needs to generate the preview. In the **Device Preview Settings** dialog box, you specify the name of the package profile that the engine should use to generate the preview.

For more information about package profiles, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

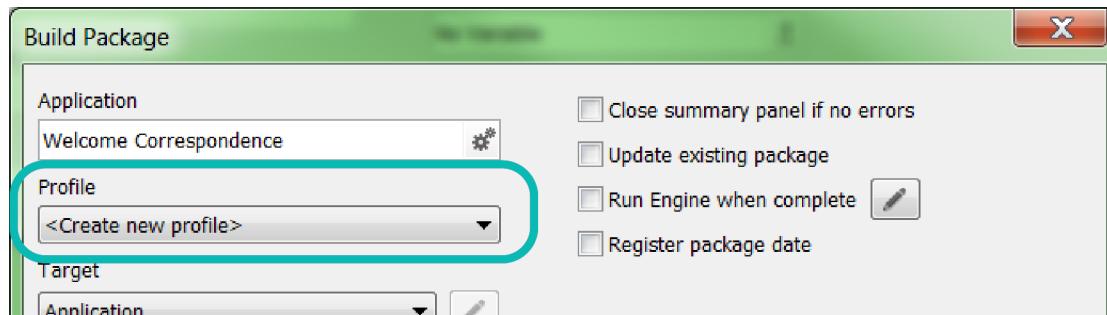
You only need to create an archived package file once, unless you make changes to your application. You can use the same archived package file to generate previews periodically during the design process. If you make a change to your application in Design Manager, however, such as adding new data files or applying new fonts, you must create a new archived package file to render an up-to-date preview.

To create an archived package file, complete the following steps:

1. In Design Manager, make sure that you have specified a directory for archived package files. From the Menu bar, select **Tools > Options** and check that a directory is specified in the **Archived package file directory** box.



2. In the Library, right-click the application that you want to package and select **Package....**
3. From the **Profile** drop-down list, select an existing package profile or select **<Create new profile>** to create a new profile. Keep in mind that this step is required: you must use a package profile for packaging in order to create an archived version of the application package file.



Note: The next time that you package an application, the saved profile that you created appears in the **Profile** drop-down list in the **Build Package** dialog box, and you can select the profile to quickly create a new package file with the settings specified in the profile.

4. Specify other [device preview settings](#) as needed and click **OK**.
5. If you are creating a new profile, the **Create New Package Profile** dialog box opens. Enter a name for the new profile and then click **OK**.

The package file is automatically saved in the directory that you specified as the archived package file directory in step 1.

3.5.3 Specifying Device Preview settings

The first time that you generate a preview of a given design in Designer, you must specify the application, package profile, output queue, and customer number that you want the engine to use to generate the preview. The engine requires this information in order to generate an accurate preview of your design. Optionally, you can also specify an engine control file to further control the preview generation process.

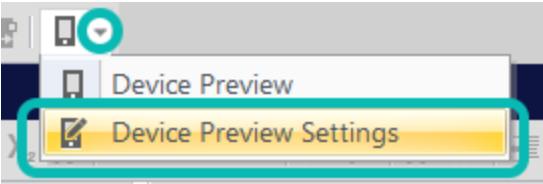
You specify these settings in the **Device Preview Settings** dialog box, which appears automatically the first time that you generate a preview of the design. Thereafter, each time that you generate a new preview of the same design, you do not have to specify the Device Preview settings again unless you want to change them. The engine will automatically use the same settings to generate subsequent previews unless you reopen the **Device Preview Settings** dialog box and change the settings.

To specify Device Preview settings:

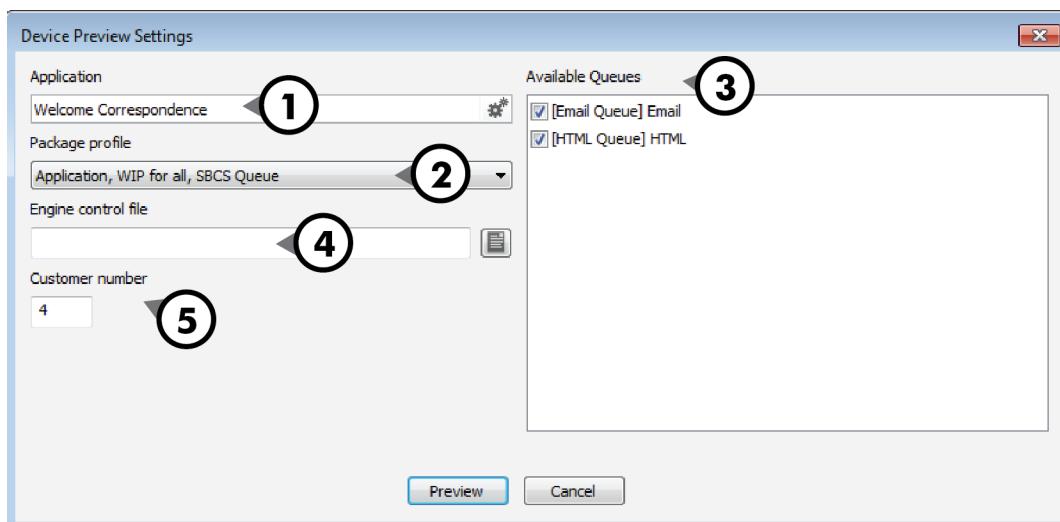
1. In Designer, open the design that you want to preview in Container View. You must be in Container View to enable the Device Preview options on the Menu bar and the Standard toolbar.

Tip: If the **View > Container View** option is unavailable, click **View > Design Views > Container View**.

2. Do one of the following:

To	Do this
To specify Device Preview settings for the first time for this design	 On the Standard toolbar, click . Alternatively, you can select View > Device Preview from the Menu bar. The Device Preview Settings dialog box opens.
To change previously specified Device Preview settings for this design	On the Standard toolbar, click the down arrow on the Device Preview button () and select Device Preview Settings from the drop-down menu.  The Device Preview Settings dialog box opens.

3. In the **Device Preview Settings** dialog box, specify the settings that you want to use for the current preview. The following illustration and table explain each setting.



1	<p>Application—Select the name of the application that you will use to produce your design output.</p>
2	<p>Package profile—Select the name of the profile that you used to create the archived package file you are using for previewing the design.</p>
3	<p>Available Queues—To enable the engine to generate an accurate preview of your design, you must instruct the engine which output queue (and associated output driver) to use to create the preview.</p> <p>The Available Queues box lists all of the HTML and HTML (email) output queues that are referenced in the selected application. Each entry in the list shows the name of an available output queue in brackets, followed by the name of the container design label associated with the queue, as follows:</p> <p> [Name of output queue] Name of associated container design label</p> <p>By default, all of the output queues in the list are selected, which forces the engine to search through all of the queue objects in top-to-bottom order to find the <i>first</i> one that is associated with the container design label for the design that you are previewing. When it finds the first match, the engine uses the properties of that output queue to generate the preview.</p> <p>If your application contains only one output queue that references the target container design label, you can leave all of the output queues in the list selected. When you click Preview, the engine will locate the correct output queue and use the settings of the associated output device to generate the preview.</p> <p>However, if your application contains multiple output queues that reference the same container design label, you might not get the right results when you generate the preview if you leave all of the available output queues selected. If you want the engine to use one of the output queues that is not the first matching queue in the list, then you must select the check box for the output queue that you want it to use for preview generation and clear the check boxes for the other output queues above it in the list that reference the same container design label.</p> <p>Keep in mind that if none of the available output queues reference the container design label associated with your design, you will receive an error when you attempt to generate a preview. To resolve the problem, you must reference the container design label in one of the existing output objects in the application, or add a new output object that references the container design label to the application.</p>
4	<p>Engine control file (optional)—Specify the path and name of an engine control file if you want to use engine switches when generating the output for previewing.</p> <p>For example, you can use the IMPORTDIRECTORY switch in an engine control file to instruct the engine where to obtain images for inclusion in the preview. Or, you can use the MESSAGEFILE switch to instruct the engine where to obtain the engine message file to display in the preview window if the preview generation fails.</p> <p>Keep in mind that some switches that are intended for production configuration will be ignored during the preview generation process because they will interfere with the composition of the preview.</p>
5	<p>Customer number—Specify the number of the customer whose data you want to appear in the preview. You can preview the output for only one customer at a time.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Note: If you specify an engine control file in the Device Preview Settings dialog box, and the control file contains one or more of the customer-processing switches (for example, START, END, NTH, CUSTOMERLIST, and CUSTOMERLISTFILE), those switches will be ignored when the preview is generated. The preview will show only the data for the customer specified in the Customer number box.</p></div>

4. Click **Preview**.

Related information

- “Using Device Preview for container designs” on page 100
- “Creating an archived package file to enable previewing” on page 102
- “Previewing container designs with Device Preview” below

3.5.4 Previewing container designs with Device Preview

The [Device Preview](#) feature allows you to simulate within Designer how your design will appear on current popular models of phones and tablets, so that you can check whether your design is on track as you create it. With this design aid, you can more quickly determine if you need to make adjustments to applied features or the overall layout strategy—without having to first run the engine to produce output for testing.

Note: The Device Preview feature only takes the viewport of the device into consideration when previewing a design. So while the preview can be used to aid in the design layout based on a device's screen size and resolution, the design may look different on the actual device. For instance, depending on the device, some of the available viewport space could be used for displaying a status bar or other elements. Also keep in mind that the preview does not reflect any rendering differences between various email clients.

Therefore, in addition to using the Device Preview feature as a design aid during the design process, it is a best practice to always test the output from your design using a third-party testing product to ensure that your design will be effectively presented on various devices.

The task in this section assumes that you have already [created an archived package file of your application](#) (a prerequisite for previewing).

To use the Device Preview feature, complete the following steps:

1. In Designer, open the design that you want to preview in Container View. You must be in Container View to enable the Device Preview options on the Menu bar and the Standard toolbar.

Tip: If the **View > Container View** option is unavailable, click **View > Design Views > Container View**.

2. On the Standard toolbar, click  . Alternatively, you can select **View > Device Preview** from the Menu bar.
3. If the **Device Preview Settings** dialog box appears, [specify the settings that you want the engine to use when generating the preview](#) and then click **Preview**.

The **Device Preview** window appears docked on the right side of the screen by default. Just as you can with any other window or palette, you can un-dock, move, and re-dock the **Device Preview** window.

4. Preview the design in the **Device Preview** window.

The following illustration and table explain each element in the **Device Preview** window.

The Device Preview window



4	<p>Expand/Collapse button—By default, the preview is scaled down to give a more complete view of the design. If you want to enlarge the preview for better readability, click  to double the size of the preview. Clicking again will reduce the size to the default.</p>
5	<p>Preview—A preview of your design is shown here on the selected device. The default device is not user-configurable. To see the design on a different device, select the device you want from the menu at the left of the Device Preview window.</p> <p>The preview approximates how the design will appear when the content is formatted to fit the dimensions of the maximum viewing area of the device shown.</p>

Note: You cannot edit designs in the Device Preview window.

5. When you are finished previewing the design, you can close the **Device Preview** window, or you can leave it open as you continue working on the design. If you leave the **Device Preview** window open, the preview will automatically refresh each time that you save changes to the design.

Chapter 4: Using Paragraphs and Sections to Build Complex Documents

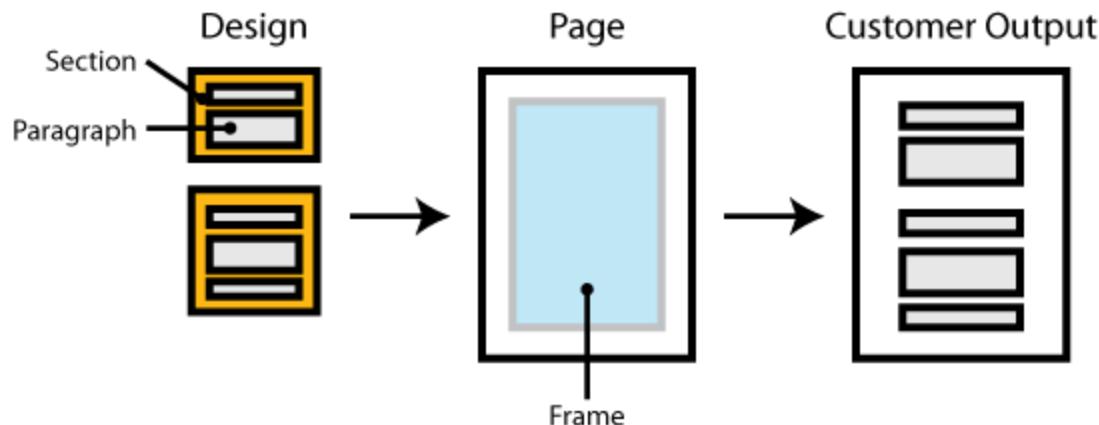
Paragraphs in Exstream are reusable chunks of content that you arrange in container objects, called sections, to build complex documents. Paragraphs typically correspond to one or more textual paragraphs that are used often in different applications, or that require specific wording for legal or regulatory purposes. For example, you could design a single paragraph to explain whom customers should contact for questions about a contract, and you can reuse that paragraph in the contract multiple times, without having to write the information multiple times. Paragraphs are often used to contain the different components of policy information so that you can easily build a complex document by selecting the appropriate pre-approved components required for a particular document.

Although a paragraph might correspond to a textual paragraph, it is important to keep in mind the differences between paragraphs and textual paragraphs. Paragraphs are container objects that reside in the Library like other container objects, such as pages and messages. While you can use Designer to add and format the content of a paragraph, you also set object-level properties on paragraphs using the Property Panel in Design Manager. On the other hand, textual paragraphs are simply areas of text in Designer that allow you to apply specific formatting to a specified area. For example, you can change the margins for a particular textual paragraph so that it is indented from the surrounding text and is emphasized as an important area of text.

Sections let you group together and order paragraphs to form groups of related information. For example, one section could contain all the paragraphs that form the personal insurance policies within a contract, and another section could contain all the paragraphs that form the homeowner's insurance policies within the contract. Sections, like paragraphs, are reusable and allow you to repeat whole groups of paragraph content without having to write the information multiple times. You can also add sections to other sections to build a hierarchy of information.

Sections and paragraphs are slightly different from pages because they are not stand-alone content containers. That is, you add content to paragraphs, but then you place those paragraphs on a page. You set up placeholders, called frames, on the pages where the paragraphs and sections will be placed in the final customer output. Frames give you the flexibility to make sure that flowing content is placed appropriately on pages and white space is used efficiently in the design.

Example of using paragraphs and sections to build complex documents



To build a complex document using paragraphs and sections, you must complete the following tasks:

1. [“Creating a Paragraph” on the next page](#) (You can create as many as you want.)
2. [“Creating a Section” on the next page](#) (You must create at least one section.)
3. [“Designing the Content for Paragraphs and Sections” on page 112](#)
4. Setting the following optional controls on the paragraph:
 - [“Making a Paragraph a Clickable Link in Electronic Output” on page 121](#)
 - [“Associating a Paragraph with Actions to Be Performed by Post-Processing Equipment” on page 121](#)
5. [“Targeting Paragraphs and Sections to Specific Customers” on page 122](#)
6. [“Controlling Where Paragraphs and Sections Are Placed in a Design” on page 126](#)

If you use data sections to drive the inclusion of sections in customer output, you also have the option to eliminate repetition in section-driven paragraphs and sections using data aggregation.

For more information about data aggregation, see [“Eliminating Repetition in Section-Driven Paragraphs and Sections Using Data Aggregation” on page 132](#).

Depending on your requirements, you also have the option to convert existing paragraphs into messages and messages into paragraphs.

For more information about converting paragraphs and messages, see [“Converting Paragraphs and Messages” on page 138](#).

4.1 Creating a Paragraph

Paragraphs are groups of text which are stored in the Design Manager Library under the **Paragraphs** heading. These groups of text can contain any amount of content, as small as a sentence or as large as an entire document. Placing text into a paragraph allows you to reuse the same text in multiple places or to target the inclusion of specific portions of text to specific customers. Paragraphs can be reused as often as required in the hierarchy of paragraphs and sections that make up the customer content. Reused paragraphs are referenced in such a way that when you update a paragraph in one location, all instances of the same paragraph are automatically updated across the entire application.

Paragraphs are intended to fill available space on the design page, which means that paragraphs are not held to a template or any specific design size. Instead, paragraphs allow text to fill available white space and flow across multiple frames, or even multiple pages, in the design.

To create a paragraph:

1. From Design Manager, in the Library, right-click the **Paragraph** heading and select **New Paragraph**.

The **New Paragraph** dialog box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. Click **Finish**.

The **New Paragraph** dialog box closes, and the paragraph opens in the Property Panel for you to define.

4. Design the paragraph content.

For more information about designing content for paragraphs, see “[Designing the Content for Paragraphs and Sections](#)” on the next page.

4.2 Creating a Section

Sections are containers stored in the Design Manager Library under the **Sections** heading. Sections are used as containers, to help you organize paragraphs and other sections into a hierarchy of information. However, sections do not contain any designed content of their own. All designed content is held within the paragraphs you place into the sections. Since a paragraph cannot be included in an application by itself, you must create at least one section to which you can add the paragraphs you want to include in an application. Any paragraphs you want to include in an application must be contained within a section attached to a document.

To create a section:

1. From Design Manager, from the Library, right-click the **Sections** heading and select **New Section**.

The **New Section** dialog box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description.
3. Click **Finish**.

The **New Section** dialog box closes, and the section opens in the Property Panel for you to define.

4. Add paragraphs and sections to the section.

For more information about adding and arranging content into a section, see “[Designing the Content for Paragraphs and Sections](#)” below.

4.3 Designing the Content for Paragraphs and Sections

Many design objects, such as tables and charts, are restricted to being designed in Designer. However, with paragraphs and sections, you can create and organize the content using either Design Manager or Designer. This versatility allows you to work with paragraphs and sections in the following ways:

- Working in Design Manager is useful if you do not want to switch between programs to complete the design and setup of paragraphs and sections, and if you require only minimal text formatting for the paragraph content.
- Working in Designer is useful if you want to be able to view and design all the content of a section at one time and if you want to apply more complex text formatting for the paragraph content.

To design the content for paragraphs and sections:

1. Design the content for paragraphs and sections. You can do this from either Design Manager or Designer, depending on your design requirements or preference.
2. If the content of the paragraphs is numbered, you can optionally enforce consistent numbering across multiple paragraphs.
3. Set the languages in which a paragraph can be delivered.

4.3.1 Designing Content for Paragraphs and Sections in Design Manager

In Design Manager, you can view and design each paragraph individually and view how content is arranged into each section separately. Accessing individual paragraphs or sections through Design Manager can be especially helpful since it lets you make changes to single paragraphs or sections without having to access the entire hierarchy. This restricted access can help to prevent unintended changes to other paragraphs or sections in the applications, since you are accessing only one object at a time.

Working with sections and paragraphs in Design Manager is like entering text into a text box; however, in Design Manager, you are limited to working with text in the following ways:

- Inserting variables
- Applying minimal formatting to the text
- Importing text

To design the content for paragraphs and sections in Design Manager, you must complete the following tasks:

1. [“Designing Text Content for Paragraphs \(Design Manager\)” below](#)
2. [“Organizing Sections and Paragraphs in a Section \(Design Manager\)” on the next page](#)

Designing Text Content for Paragraphs (Design Manager)

Since paragraph content is text only, you have the option to enter text for the paragraph into Design Manager, rather than formally creating the paragraph content in Designer. When you enter text into Design Manager, you have the option to change the font, font size, numbering, or bullets; however, any change you apply to the text in Design Manager is applied to the entirety of the text. For example, if you apply bullets to the text you enter in Design Manager, the entire entry is considered a single bullet point. If you want more varied control over the paragraph content, you can design the paragraph in Designer. Entering text through Design Manager is useful if the paragraph requires only the minimal formatting settings available.

Regardless of the program where the text was entered, if the text includes only the minimal formatting accepted by Design Manager, you can continue to edit the text from Design Manager. However, if you view the **Content** tab of the paragraph and see that the content area is inactive and the **Text is formatted and must be edited with Designer** check box is selected, that means the text includes formatting not supported from Design Manager and you must edit the text from Designer.

To design text content for a paragraph from Design Manager:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Content** tab.
3. Click the content box on the right side of the Property Panel and enter the text. You can also insert text from an RTF file by clicking  and selecting the text file you want to import.

The text is placed in the content box.

4. Click  and select a font and font size for the text.
5. Below the content box, from the drop-down list, set the text style you want to apply to the text:

To	Do this
Make the entire entry appear in a simple paragraph format	Select Simple .
Make the entire entry a single bulleted point	Select Bullet .
Make the entire entry a single numbered entry	Select Number .

Organizing Sections and Paragraphs in a Section (Design Manager)

Sections can contain any mixture of paragraph and other sections you require. If you add a section, you are also adding the contents of that section. You add and organize sections and paragraphs in the **Section Contents** list on the **Basic** tab of the section properties. The order in which you place paragraphs and sections in this list is also the order in which the content is placed in the customer output. Keep in mind that final placement also depends on the targeting controls you place on the section or any object included as the section content.

To add section or paragraph content to a section:

1. In Design Manager, from the Library, drag the section to the Property Panel.
 2. Click the **Basic** tab.
 3. In the **Section Contents** area, click , and, from the shortcut menu, select which object you want to add.
- A selection dialog box opens.
4. In the **Look in** box, click  and select the folder that contains the section or paragraph you want.
 5. In the **Name** list, select the name of the section or paragraph you want to add to the

section.

6. Click **OK**.

The selection dialog box closes, and the section or paragraph you selected is added to the **Section Contents** area.

7. Repeat step 3 through step 6 as needed to add any additional content.

8. If you want to reorder the content, do the following:

- a. In the **Section Contents** area, select the section or paragraph you want to move.
- b. Click  or  as needed to move the section or paragraph to another position in the list.

9. If you want to specify the number of paragraphs that can be included in the section, select the **Limit the number of paragraphs** check box, and then enter the maximum number of paragraphs that can be included in the section in the **Maximum number** box.

If the **Limit the number of paragraphs** check box is not selected, you can include an unlimited number of paragraphs in that section.

4.3.2 Designing Content for Paragraphs and Sections in Designer

In Designer, you can view, design, and arrange all the contents of a section—including all paragraphs and any subsections—at one time. This ability can be especially helpful if you want to view how your changes affect other paragraphs or sections in the hierarchy.

Working with sections and paragraphs in Designer is like working with a text box. You view the same indicators and can perform the same operations, including the following:

- Inserting variables
- Importing text
- Formatting text
- Creating table of contents markers
- Creating footnote markers
- Creating cross references

When you view a section and its contents in Designer, only the style sheet for the top-most section is considered when the document opens in the document view.

To design the content for paragraphs and sections in Designer, complete the following:

1. Design the text content for paragraphs.

For more information about adding text to an object in Designer, see [“Adding Text to a Design” on page 140](#).

2. Organize paragraphs and sections within a section.
3. Set the following optional controls for working with paragraphs and sections in Designer:
 - Use the Outline Viewer tool to navigate a section in Designer.
 - Change the width of the design window to use when viewing a section in Designer.

Organizing Paragraphs and Sections in a Section (Designer)

When you work with a section in Designer, you can rearrange and add content to the section as needed. To organize the paragraphs and sections within a section in Designer, carry out one of the following sets of steps:

To	Do this
Move a paragraph or subsection to a different position in the section	From the Outline Viewer, click and drag paragraphs or sections to rearrange the content. For more information about using the Outline Viewer, see “Using the Outline Viewer Tool to Navigate a Section in Designer” on the next page .
Add an existing paragraph to the section	<ol style="list-style-type: none">1. From the Section Edit toolbar, click  . The Select Paragraph dialog box opens.2. In the Look in box, click  and select the folder that contains the section or paragraph you want.3. In the Name list, select the name of the paragraph you want to add to the section.4. Click OK. The Select Paragraph dialog box closes and the paragraph appears in the section in Designer.

To	Do this
Add an existing section and its content to the section	<ol style="list-style-type: none">From the Section Edit toolbar, click  . The Select Section dialog box opens.In the Look in box, click  and select the folder that contains the section or paragraph you want.In the Name list, select the name of the section you want to add to the section.Click OK. <p>The Select Section dialog box closes and the section appears within the section in Designer.</p>
Add a new paragraph to the section	<ol style="list-style-type: none">From the Section Edit toolbar, click  . The Insert New Paragraph dialog box opens.In the Name box, enter a name. In the Description box, enter a description (optional).In the Folder box, click  and select the folder from the Design Manager Library where you want to add the new paragraph.Click Finish. <p>The new paragraph appears in the section in Designer and is added to the Design Manager Library.</p>
Add a new subsection to the section	<ol style="list-style-type: none">From the Section Edit toolbar, click  . The Insert New Section dialog box opens.In the Name box, enter a name. In the Description box, enter a description (optional).In the Folder box, click  and select the folder from the Design Manager Library where you want to add the new section.Click Finish. <p>The new section appears in the section in Designer and is added to the Design Manager Library.</p>

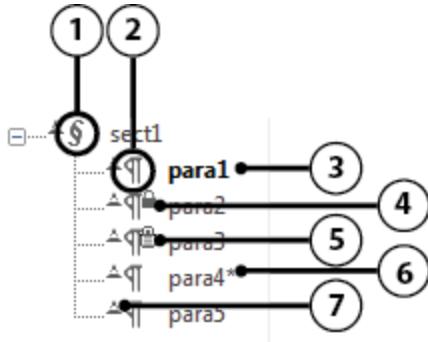
Using the Outline Viewer Tool to Navigate a Section in Designer

When you view a section in Designer, you can use the Outline Viewer tool. This tool lets you view the full hierarchy of the section, including any paragraphs and subsections it contains. If the Outline Viewer is not visible when you open a section in Designer, you can access it by selecting **View > Outline Viewer** from the Menu bar.

The name you give the section or paragraph in Design Manager appears in the Outline Viewer. If you change the name in the Outline Viewer, it is automatically updated in Design Manager. When you double-click a paragraph in the Outline Viewer, the paragraph becomes bold in the

Outline Viewer, and the cursor moves to the beginning of the selected paragraph in the design window.

Example of paragraphs and sections in the Outline Viewer



1	Section icon
2	Paragraph icon
3	A bold object name indicates that this object is currently selected, or that the cursor has been placed in this object in the design window.
4	The yellow lock indicates that the paragraph or section is locked by the current user. You must unlock the object before you can edit it.
5	The gray lock indicates that the paragraph or section is locked by another user. This gray lock is not the same as the gray lock on the paragraph in the design window. A gray lock in the design window indicates one of the following conditions: <ul style="list-style-type: none">• The paragraph is flagged as read-only.• There are two of the same paragraphs in one section. You are allowed to edit the content of a paragraph only if it appears only once in the design window. If you want to edit a locked paragraph, you must either open the paragraph by itself, or open it in a section where it occurs only once.
6	An asterisk after the name of the section indicates that the paragraph or section contains changes that have not been saved.
7	If you use an approval process, the approval status of the section or paragraph is shown next to the object icon.

For more information about using an approval process, see “[Using the Approval Process](#)” on [page 490](#).

Changing the Width of the Design Window to Use When Viewing a Section in Designer

When you open a section in Designer, you can view all the paragraphs and subsections it contains at one time. Optionally, you can change the width of the design window, where you enter text into the paragraphs within the section and its subsections. For example, you could select a design page that uses the width you expect to be used in the final customer output. This layout can help you get a better idea of how text will flow in the final design as you design it.

Since the design page can be set differently on each section, if you view a section that has any subsections, the design page for only the top-most section is used for the view in Designer. Keep in mind that this layout does not carry over into the final customer output, but is used only while you are working in Designer.

To select a design page to use when working with a section in Designer:

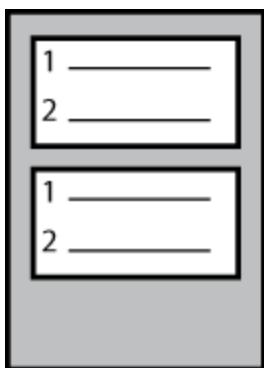
1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Basic** tab.
3. From the **Design Page** box, click  and select the page you want to use when editing this section in Designer.
 - If you do not select a design page, the section uses an 8 1/2 inch width.
 - If there is a flow frame on the design page you select, the section uses the width and column settings of the frame.
 - If there is not a flow frame on the design page you select, the section uses the width of the page.

4.3.3 Enforcing Consistent Numbering Across Multiple Paragraphs

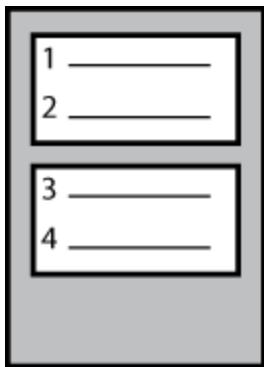
If your paragraph content is numbered, you have the option to make the numbers continue progressively across multiple paragraphs. By default, numbering is confined to a single paragraph. However, if you want a paragraph to continue numbering from where the previous paragraph stopped, you can set the paragraph to renumber the content when the paragraph is placed into the frame.

For example, suppose you have two paragraphs that each contain two numbered entries. By default, both the first and second paragraph are numbered 1-2. However, if you set the second paragraph to renumber the text when it is placed into the frame, the first paragraph is numbered 1-2, and the second paragraph continues numbering 3-4.

Example without renumbering (default)



Example with renumbering



The numbering changes caused by this setting are not visible until the paragraph is placed in the final customer output.

To set a paragraph to continue numbering where the previously-placed paragraph left off:

1. Do one of the following to access the paragraph properties:

From this program	Do this
Design Manager	<ol style="list-style-type: none">In Design Manager, from the Library, drag the paragraph to the Property Panel.Click the Basic tab.
Designer	<ol style="list-style-type: none">From Designer, in the Outline Viewer, right-click the name of the paragraph and select Properties. The Paragraph Properties dialog box opens.Click the Properties tab.

2. Select the **Renumber text when placed in frame** check box.

3. If you are working in Designer, click **OK**.

The **Paragraph Properties** dialog box closes.

4.3.4 Setting the Languages in Which a Paragraph Can Be Delivered

Language layers allow you take a single object and create separate design layers which can be delivered to different customers according to their language preferences. These separate language layers give you the ability to create completely different language versions of the same object.

Languages can be applied to a paragraph from the **Content** tab of the paragraph properties in Design Manager; you can also design the content of the language layers for a paragraph while you are designing the paragraph content in Designer.

For more information about applying language layers to your design, see “[Designing for Multiple Languages](#)” on page 506.

4.4 Making a Paragraph a Clickable Link in Electronic Output

If you are generating electronic output, such as PDF or HTML, you can make a paragraph a clickable link in the customer output. If you make a paragraph a clickable link, customers will be able to click anywhere in the content of the paragraph and be taken to the URL you specified.

To link a paragraph to a URL:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Basic** tab.
3. Select the **Link to URL** check box, and, in the adjacent box, enter the URL to which you want the paragraph to link.

4.5 Associating a Paragraph with Actions to Be Performed by Post-Processing Equipment

Depending on your output setup, you can perform specific actions on the customer output from post-processing equipment, such as label machines, folders, inserters, mail sorters, envelope

and address printers, and so on. To tie post-processing actions to a paragraph, you must set an external message identifier on the paragraph. The external message identifier is a notice that is added to the print stream. When the paragraph and the external message identifier are encountered in the print stream, an action is performed by the post-processing equipment to which the external message identifier is related.

The entry you use as the external message identifier should be defined by your equipment or identified in your production setup. For information about what to enter as an external identifier, consult the system administrator in charge of post-processing equipment.

To add an external message identifier to a paragraph:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Basic** tab.
3. In the **External message identifier** box, enter the text to use as an external message identifier. You can enter up to 10 characters.

4.6 Targeting Paragraphs and Sections to Specific Customers

To control which paragraphs and sections are included for specific customers, you generally start by creating all possible paragraphs and then group related paragraphs into sections. When paragraphs are grouped together in a section, the targeting controls you set on the section let you pre-qualify customers for a group of paragraphs before allowing them to qualify for the individual paragraphs within the section.

For example, if a section is targeted only to homeowners, then only customers who are homeowners are qualified to receive any of the paragraphs within that section. The paragraphs are then considered individually, based on their own targeting settings. For example, a paragraph by itself might target customers who have children in college. When the targeting controls are combined, the paragraph can be received only by homeowners who have children in college.

If a message is selected for inclusion at the section level, you then have the ability to target individual paragraphs to customers using rules. By targeting the individual paragraphs to customers, you can set specific controls for which customers should receive individual paragraphs within the section.

To target paragraphs and sections to customers, complete the following tasks as needed:

- [“Sending a Section to All Customers” on the next page](#)
- [“Sending a Section to Specific Customers Using Rule Logic” on the next page](#)
- [“Sending a Section to Specific Customers Using Data Sections” on page 124](#)

- “[Sending a Section to Specific Customers Using An XML Node](#)” on the next page
- “[Sending a Paragraph to All Customers](#)” on page 125
- “[Sending a Paragraph to Specific Customers Using Rule Logic](#)” on page 125
- “[Controlling How the Paragraphs and Sections Are Included for Customers in Different Locations](#)” on page 126

4.6.1 Sending a Section to All Customers

By default, sections are sent to all customers, as long as no targeting settings have been applied to the **Targeting** tab of the section properties. If a targeting has previously been set on a section, you must remove the targeting settings in order for the section to be delivered to all customers.

To remove previously set targeting controls from a section:

1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Targeting** tab.
3. To remove the existing targeting settings form the sections, carry out one of the following sets of steps:

If	Do this
The Rule box contains logic	<ol style="list-style-type: none">a. Click the Rule box. The Rule dialog box opens.b. Toggle to the code view of the Rule dialog box.c. Select and delete all the logic in the code box.d. Click OK. The Rule dialog box closes and the rule is removed from the section. <p>For more information about using rules, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.</p>
The Data Section Name box contains a data section name	Delete the data section name from the Data Section Name box.

4.6.2 Sending a Section to Specific Customers Using Rule Logic

Rules let you tie a section to customer data or to advanced calculations to determine whether a section is included in the generated customer output.

To send a section to specific customers based on rule logic:

1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Targeting** tab.
3. From the **Inclusion Method** drop-down list, select **Rule**.
4. Click in the **Rule** box and create the rule logic.

For more information about creating rule logic, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

4.6.3 Sending a Section to Specific Customers Using Data Sections

Targeting based on data sections lets you tie an object section to a named section in the customer data. Each time the data section is encountered by the engine, a copy of the section is included in the customer output.

To send an object section to specific customers based on data sections in the customer data:

1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Targeting** tab.
3. From the **Inclusion Method** drop-down list, select **Named section**.
4. In the **Data Section Name** box, enter the name of the data section you want to use to drive the inclusion of this section.

For more information about using data sections to drive the inclusion of an object, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

4.6.4 Sending a Section to Specific Customers Using An XML Node

You can tie a section object to an XML node in the structure of the customer data in order to include a section object in customer output based on the presence of that XML node in the customer data. Each time that the engine encounters the XML node that you specify, a copy of the section object is included in the customer output.

To send a section object to specific customers based on an XML node in the customer data:

1. In Design Manager, from the Library, drag the section object to the Property Panel.
2. Click the **Targeting** tab.
3. From the **Inclusion Method** drop-down list, select **XML Node**.

4. In the **Location** box, click `</>` and select the node that you want to use to drive the inclusion of the section object in the customer output.

The path to the node that you select appears in the **Location** box. Keep in mind that while the node path does contain the information that Exstream needs in order to locate the node in the data, the path is not a valid XPath location.

5. From the Menu bar, select **Edit > Save**.

4.6.5 Sending a Paragraph to All Customers

By default, paragraphs are sent to all customers, as long as no targeting settings have been applied to the **Targeting** tab of the paragraph properties. If a rule has previously been set on a paragraph, you must remove the rule logic in order for the paragraph to be delivered to all customers.

To remove a previously set rule from a paragraph:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Targeting** tab.
3. Click the **Rule** box.
The **Rule** dialog box opens.
4. Toggle to the code view of the **Rule** dialog box.
5. Select and delete all the logic in the code box.
6. Click **OK**.

The **Rule** dialog box closes and the rule is removed from the paragraph.

For more information about using rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

4.6.6 Sending a Paragraph to Specific Customers Using Rule Logic

Rules let you tie a paragraph to customer data or to advanced calculations to determine whether a paragraph is included in the generated customer output.

To send a paragraph to specific customers based on rule logic:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Targeting** tab.
3. Click in the **Rule** box and create the rule logic.

For more information about creating rule logic, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

4.6.7 Controlling How the Paragraphs and Sections Are Included for Customers in Different Locations

If you have licensed the Compliance Support module, you can use the **Regulatory** tab of the paragraph properties or section properties to control how content is distributed to customers based on their location and the production dates you are using. The **Regulatory** tab lets you select jurisdictions and effectivity dates, which instruct the engine to select specific versions of the object based on geographical locations (such as a customer's country/region) or virtual locations (such as a customer's office or home). Jurisdictions target specific information for specific customers while reducing processing time and the number of rules in an application.

For more information about setting up jurisdictions, see *System Administration* in the Exstream Design and Production documentation.

For more information about using effectivity and jurisdictions, see “[Targeting a Design for Multiple Dates and Locations](#)” on page 461.

4.7 Controlling Where Paragraphs and Sections Are Placed in a Design

The order in which paragraphs are placed on the page is dependent on the order in which you add paragraphs, sections, and documents together in the Exstream Library. You add paragraphs to sections and then place sections into other sections or into a document. Keep in mind that this is the starting order and paragraphs are removed as needed based on the targeting settings applied to both paragraphs and the sections in which they are included.

For more information about assembling objects into an application, see “[Adding Objects to an Application](#)” on page 653.

Since paragraphs are planned based on customer information, you do not place paragraphs directly on the design page. Instead, you create frames, which act as placeholders to accept the paragraphs that are included in the final customer output. Frames also offer additional controls that allow you to plan how paragraphs are applied to the frames. For example, you can set up frames to accept only specific paragraphs, or you can set frames to allow paragraphs to split and flow across multiple frames or even across multiple pages.

To control how paragraphs are placed in the design, you must complete the following tasks:

1. “[Adding a Section to a Document](#)” on the next page
2. “[Setting Up Frames to Place Paragraphs and Sections onto a Page](#)” on the next page

4.7.1 Adding a Section to a Document

You must add any sections you want to include in the customer output to a document in the application. This document should contain the pages where you want the sections and paragraphs to be placed. The order in which you add sections to a document is the order in which the sections are placed in the customer output, depending on customer rules, data section-driven content, XML node-driven content, and frame settings.

To add a section to a document:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Basic** tab.
3. In the **Contents** area, click  , and, from the shortcut menu, select **Add a section**.

The **Select Section** dialog box opens.

4. In the **Look in** box, click  and select the folder that contains the section you want.
5. In the **Name** list, select the name of the section you want to add to the document.
6. Click **OK**.

The selection dialog box closes, and the section or paragraph you selected is added to the **Section Contents** area.

7. Repeat step 3 through step 6 as needed to add any additional sections.
8. To place the sections in the order you want, select a section in the list and click  and  as needed.

4.7.2 Setting Up Frames to Place Paragraphs and Sections onto a Page

Paragraphs and sections are placed into pages using frames. As you set up design pages for your application, you must add frames where you want the engine to add paragraphs and sections.

Depending on your design, you can use either of the following types of frames to accept paragraphs and sections:

- **Flow frames**—Flow frames accept a variety of different objects. By default, paragraphs and sections are placed into flow frames. These frames also accept overflow from growing text boxes and tables. In flow frames, paragraphs and sections are always placed after any overflow from growing text boxes or tables.

- **Content frames**—Content frames are embedded frames which can be used to place context-sensitive sections and paragraphs within an object in Designer. This functionality is useful if you must place specific content, such as notes or warnings, either on specific pages, or with specific design objects, such as tables or text boxes.

When paragraphs and sections are accepted into a frame, you can control how the content looks in the final customer output through multiple controls over the split and flow of content from one frame to the next.

To set up frames to place paragraphs and sections onto a page, complete the following tasks as needed:

1. Creating and placing the frames you want to use into the design

For more information about creating flow frames, see “[Adding a Flow Frame to a Flow Page](#)” on page 408.

2. Restricting which frames in the design can accept paragraphs and sections
3. Setting the following optional controls to determine how a paragraph splits and flows across frames:
 - Allowing the content of a paragraph to split across multiple frames
 - Grouping paragraphs together so that they are placed in the same frame
 - Setting the margin of space between a paragraph and the next paragraph in a frame

Restricting Which Frames in the Design Can Accept Paragraphs and Sections

Since you can set up multiple frames in the pages of a document, it is important that you specify which frames in the design can accept specific sections and their content (paragraphs and subsections). From a section level, you can set a section and its content to target a specific type of frame in the design, or target a specific named frame. If the individual paragraphs within a section cannot fit within the frame you target, you can also control where the paragraphs within the section can next be placed.

To restrict which frames in the design can accept a section and its content:

1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Basic** tab.
3. Do one of the following to control what frames accept this section, along with the paragraphs and sections it contains:

To	Do this
Place this section into flow frames	From the Target Frame Type drop-down list, select Flow frames only . This is the default.
Place this section in content frames	a. From the Target Frame Type drop-down list, select Content frames only . b. In the Target Frame Message Type box, click  and select a message type. This message type connects the section to a specific content frame. The message type you select here must match the message type accepted by the content frame for the section to be placed in the content frame. For more information about setting up frames, see " Accommodating Objects That Flow " on page 401.
Place this section in both flow frames and content frames	a. From the Target Frame Type drop-down list, select Content and flow frames . b. In the Target Frame Message Type box, click  and select a message type. This message type connects the section to a specific content frame. The message type you select here must match the message type accepted by the content frame for the section to be placed in the content frame. For more information about setting up frames, see " Accommodating Objects That Flow " on page 401.

4. If the entire content of the section cannot fit within a single frame, do one of the following to control where the overflow of content is placed:

To	Do this
Allow the content of this section to flow to any frame, regardless of whether the frame has a name	From the Paragraph flow drop-down list, select Flow to any frame .
Allow the content of this section to flow to only unnamed frames	From the Paragraph flow drop-down list, select Flow to any unnamed frame .
Allow the content of this section to flow to only named frames, regardless of the name of the frame	From the Paragraph flow drop-down list, select Flow to any named frame .
Force the content of this section to flow to a frame with a specific name	a. From the Paragraph flow drop-down list, select Flow to specified target . b. In the adjacent box, click  and select the name of the frame to which you want the paragraphs to flow.

For more information about naming frames so that you can target specific content to be placed in them, see "[Accommodating Objects That Flow](#)" on page 401.

Allowing the Content of a Paragraph to Split Across Multiple Frames

Since paragraph content is not restricted to a template or any other set amount of space, you can let paragraphs freely split across multiple frames or even across multiple pages in the

design. When the paragraph content splits, you also have the ability to prevent unwanted widows (short snippets of text at the bottom of a frame) or orphans (short snippets of text at the top of a page) in the individual textual paragraphs within the paragraph. For additional control over how content is grouped when the content is allowed to split across multiple frames or pages, you also have the ability to group paragraphs so that they must be placed within the same frame.

To allow the content of a paragraph to split across multiple frames:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Basic** tab.
3. To control how paragraphs behave when the content of a paragraph cannot be contained entirely within a single frame, do one of the following:

To	Do this
Force a paragraph to stay together within a single frame	<p>Clear the Can split across frames check box.</p> <p>If the paragraph cannot be placed entirely into a frame, the paragraph will be placed in the next available frame where it can fit.</p>
Allow a paragraph to split across multiple frames if additional space is required to fit the paragraph	<p>Select the Can split across frames check box.</p> <p>If the paragraph cannot be placed entirely into a frame, the text is allowed to split. This allows the text to be placed across multiple frames, if needed, in order to fit the entire paragraph in the output.</p>

4. To prevent the textual paragraphs within a splitting paragraph from creating widows and orphans, select the **Widow/orphan control** check box, and in the adjacent box enter the number of lines of text that must be able to appear both before and after the split in order for the textual paragraph to be allowed to split. If a textual paragraph cannot place the specified number of lines before and after the split, the entire textual paragraph is moved to the next available frame.

Grouping Paragraphs Together So That They Are Placed in the Same Frame

You can force a paragraph to appear on the same page in the customer output as either the previous or next paragraph in the sequence by grouping paragraphs together. The sequence used to determine which paragraphs are grouped together is based on the order in which the paragraphs are placed in the customer output. Keep in mind that the order of paragraphs in the final customer output can be different from the order in which sections and paragraphs are arranged in Design Manager, because of targeting settings.

If the grouped paragraphs cannot be placed within a frame, both paragraphs will skip to the next available frame in which they can both fit. However, if the paragraphs are allowed to split, grouping requires that at least a portion of each paragraph be placed in the same frame.

To group paragraphs together so that they are placed in the same frame:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Basic** tab.
3. To group this paragraph with other paragraphs, select one of the following options:

To	Do this
Force the current paragraph to always appear in the same frame as the previous paragraph	Select the Keep with previous paragraph check box. If the current paragraph and the previous paragraph cannot be placed within the same frame, then both paragraphs will skip to the next available frame in which they can both fit.
Force the current paragraph to always appear in the same frame as the next paragraph	Select the Keep with next paragraph check box. If the current paragraph and the next paragraph cannot be placed within the same frame, then both paragraphs will skip to the next available frame in which they can both fit.

Setting the Margin of Space Between a Paragraph and the Next Paragraph in a Frame

When paragraphs are inserted into a frame, by default there is a single line space of distance between the current paragraph and the next paragraph in the frame. You can change this margin of space to control the space between one paragraph and the next. Since you might want different spaces between different paragraphs, the flow margin sets only the distance after the current paragraph. If you want to change the margins between all paragraphs, you must set the flow margin for each paragraph.

If the next paragraph cannot fit in the frame and allow for the flow margin you define between the current paragraph and the next paragraph, then the next paragraph is forced to the next flow frame.

To set the space between one paragraph and the next paragraph in the frame:

1. In Design Manager, from the Library, drag the paragraph to the Property Panel.
2. Click the **Basic** tab.
3. In the **Flow** box, enter the minimum space allowed between the current paragraph and the next paragraph in the frame.

4.8 Eliminating Repetition in Section-Driven Paragraphs and Sections Using Data Aggregation

If you include sections in a document based on named sections in an XML formatted customer driver file, you can use data aggregation to eliminate redundant content in complex documents, such as insurance policies and publications. Data aggregation gives the engine access to all of the customer data at one time. At the time of data aggregation in the engine, all of the current customer's data is available for processing, and variables control how the engine reads, manipulates, and deletes duplicate section data.

For more information about data sections, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

For example, compare the two following samples. Both illustrate data used to drive an insurance policy document. The original data structure sample illustrates the repetition that can occur in data-driven content. However, if you use data aggregation settings to force the variables with matching values to combine, the redundant content is removed (as illustrated in the "content structure after data aggregation" sample).

Content using the original data structure

```
"Deductible"
    Plan: A
    Value: 500
"Deductible"
    Plan: B
    Value: 500
"Deductible"
    Plan: C
    Value: 1000
```

Content structure after data aggregation

```
"Deductible"
    Plan: A, B
    Value: 500
"Deductible"
    Plan: C
    Value: 1000
```

To set up data aggregation, you must complete the following tasks:

1. [“Mapping Section Data for Data Aggregation in a Customer Driver File” below](#)

For more information about creating and mapping data files, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

2. [“Configuring Sections and Paragraphs for Data Aggregation” on the next page](#)
3. [“Configuring Variables for Data Aggregation” on the next page](#)

4.8.1 Mapping Section Data for Data Aggregation in a Customer Driver File

In order to drive data aggregation, the data you map must be in a well-formed XML formatted customer driver file, which requires you to license the XML/JSON Input module. You cannot use flat files, such as delimited data files, to drive data aggregation.

In addition to making sure that the XML is well-formed, you should also structure the data file to make data mapping easier. Keep in mind that only one sample record is required for data mapping. Also, do not include blank tags that contain no tag values; instead, use a character such as X to represent data areas. For sections in the data to be merged, the data in each section must be balanced. Compare the two following examples to see the difference between balanced data sections and unbalanced data sections.

Balanced data sections

```
<Policy>Deductible</Policy>
<Plan>A</Plan>
<Value>500</Value>
<Policy>Deductible</Policy>
<Plan>B</Plan>
<Value>500</Value>
```

Unbalanced data sections

```
<Policy>Deductible</Policy>
<Plan>A</Plan>
<Value>500</Value>
<Info>Out of Pocket Max</Info>
<Value>2500</Value>
<Policy>Deductible</Deductible>
<Plan>B</Plan>
<Value>500</Value>
```

For more information about setting up a customer driver file in the XML format, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

4.8.2 Configuring Sections and Paragraphs for Data Aggregation

Since you can use data aggregation to include sections and paragraphs, any section used with data aggregation must be set to be included in the design based on a named section in the data. Additionally, to use data aggregation to merge paragraphs, you must enable data aggregation on the **Basic** tab of the section object properties that contains the paragraph or paragraphs you want to merge. If you enable data aggregation on a section, the engine enables data aggregation for all of the paragraphs in the entire section. If data aggregation is not enabled on a section, the paragraphs remain as designed and are not manipulated during data aggregation.

If you want to view a list of which paragraphs are enabled for data aggregation, you can run an application report.

For more information about application reports, see “[Generating a Custom Report of Application Contents](#)” on page 654.

To configure sections and paragraphs for use with data aggregation:

1. In Design Manager, from the Library, drag the section to the Property Panel.
2. Click the **Basic** tab.
3. Select the **Enable data aggregation** check box.
4. On the **Basic** tab, update additional properties as needed.
5. Click the **Targeting** tab.
6. From the **Inclusion Method** drop-down list, select **Named section**.
7. In the **Data Section Name** box, enter the name of the data section that drives the placement of the current section.
8. On the **Targeting** tab, update additional properties as needed.

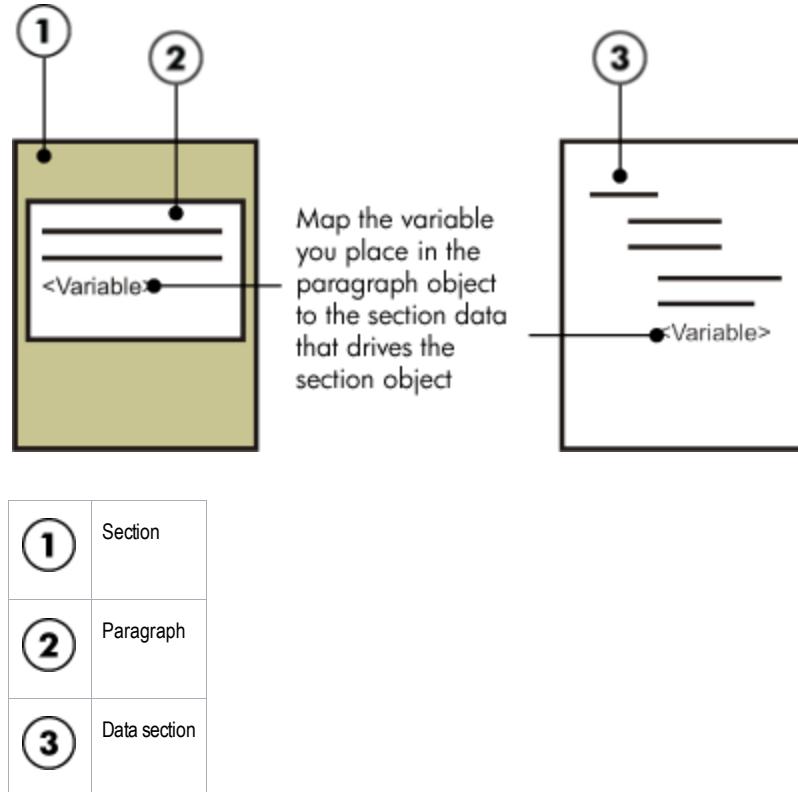
For more information about setting up section data, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

4.8.3 Configuring Variables for Data Aggregation

To use data aggregation to merge paragraphs within a section, you must have data sections driving the placement of the section. To control how the engine uses the data driving the sections, you must connect your section to the data by using variables. Place the variables you want to use for data aggregation in the text of a paragraph within your section, and then map the same variable to the data driving that section. You can define how the array and scalar variables control how data can merge and combine by changing the **Variable Use** properties of your variables.

For more information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

Relationship between a data section and the sections it drives during data aggregation



You can mix scalar and array variables during data aggregation. For example, suppose you have the following content structure, in which some paragraphs act as headings under which other paragraphs are grouped:

```
Employee Type: Exempt
Plan: A
Deductible: 500
Maximum Out of Pocket: 1000
Plan: B
Deductible: 500
Maximum Out of Pocket: 2000
Employee Type: Non-Exempt
Plan: A
Deductible: 500
Maximum Out of Pocket: 1500
Plan: B
Deductible: 500
Maximum Out of Pocket: 2500
```

You can use scalar variables within the paragraphs to control how the data merges the content, and then use an array variable on the heading paragraph to control how the merged paragraphs

are labeled. In this example, the paragraphs Deductible and Maximum Out of Pocket can be mapped to scalar variables, so that matching values will merge. The paragraphs Employee Type and Plan act as headers, so they can be mapped to an array variable.

Driving Data Aggregation with Scalar Variables

If you use scalar variables, then during data aggregation, the engine removes duplicate peer paragraphs when the variable values match. The variable must be mapped to the data section identified in the **Data Section Name** box on the section object properties of the section that contains the paragraph.

To use scalar variables to drive data aggregation:

1. Open a paragraph in Designer.
2. Insert the variable into the text.
3. Right-click the variable and select **Variable Properties**.
The **Variable Properties** dialog box opens.
4. Click the **Variable Use** tab.
5. Select the **Must match during data aggregation** check box.
6. Update additional properties as needed.
7. Click **OK**.
8. Repeat step 1 through step 7 as needed. You are required to place the variable in only one paragraph within a section. The engine automatically applies the same aggregation variable settings to all instances of the variable in the related data section.

Driving Data Aggregation with Array Variables

If you use array variables, then during data aggregation, the engine combines duplicate peer paragraphs when the scalar variable values match; optionally, it deletes the array element from the output if only one section remains after data aggregation.

To use array variables to drive data aggregation:

1. Open a paragraph in Designer.
2. Insert the variable into the text.
3. Right-click the variable and select **Variable Properties**.
The **Variable Properties** dialog box opens.
4. Click the **Variable Use** tab.
5. If you want the engine to append array elements together when the data section merges, select **All, print as list** in the **Array element to use** list. If you select **Automatic** (the

default) in the **Array element to use** list, the output will contain only one variable value.

For more information about appending array elements together, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

6. Select the **Combine during data aggregation** check box.
7. If you want the array elements to be deleted if only one section remains after data aggregation, select the **Delete array elements if single section remains** check box.
8. Update additional properties as needed.
9. Click **OK**.
10. Repeat step 1 through step 9 as needed. You are required to place the variable in only one paragraph within a section. The engine automatically applies the same aggregation variable settings to all instances of the variable in the related data section.

How Array Variable Settings Affect the Output

The following is an example of how the array variable setting you choose can affect the output you receive.

Suppose that the following content structure is being manipulated using array variables:

```
"Deductible"
  Plan: A
  Value: 500
"Deductible"
  Plan: B
  Value: 500
"Deductible"
  Plan: C
  Value: 500
```

The following table illustrates how your selections affect the resulting output:

How array variable options for data aggregation affect output

Settings on the array variable that is mapped to "Plan" in the data structure	Final aggregated data structure
<p>The Variable Use tab of the array variable properties uses the following settings:</p> <ul style="list-style-type: none">• Automatic is selected in the Array element to use list.• The Combine array elements during data aggregation check box is cleared. <p>These are the default settings on the variable properties.</p>	<p>"Deductible"</p> <p>Plan: A</p> <p>Value: 500</p>

How array variable options for data aggregation affect output, continued

Settings on the array variable that is mapped to "Plan" in the data structure	Final aggregated data structure
The Variable Use tab of the array variable properties uses the following settings: <ul style="list-style-type: none">The Combine array elements during data aggregation check box is selected.All, print as list is selected in the Array element to use list.	"Deductible" Plan: A, B, and C Value: 500
The Variable Use tab of the array variable properties uses the following settings: <ul style="list-style-type: none">The Combine array elements during data aggregation check box is selected.Automatic is selected in the Array element to use list.	"Deductible" Plan: A Value: 500
The Variable Use tab of the array variable properties uses the following settings: <ul style="list-style-type: none">The Combine array elements during data aggregation check box is selected.The Delete array elements if single section remains check box is selected.	"Deductible" Value: 500

4.9 Converting Paragraphs and Messages

In Design Manager, you can convert a message to a paragraph or convert a paragraph to a message. Converting messages to paragraphs can make it easier to convert a legacy application that uses messages to one that uses paragraphs; converting paragraphs to messages can be useful since sometimes the same text may be used for both business content and marketing messages.

For more information about messages and designing for marketing, see *Managing Marketing Messages* in the Exstream Design and Production documentation.

4.9.1 Converting a Message to a Paragraph

- From Design Manager, in the Library, right-click the message and select **Convert to Paragraph**.

The **Convert to Paragraph** dialog box opens.

- In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
- In the **Folder** box, select a Library folder for the paragraph.
- Click **OK**.

The **Convert to Paragraph** dialog box closes, the message is converted to a paragraph, and the paragraph is placed in the folder you selected.

After a message is converted into a paragraph, the original message is still available in the Design Manager Library.

4.9.2 Converting a Paragraph to a Message

1. In the Library, right-click the paragraph and select **Convert to Text Message**.

The **Convert to Text Message** box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. In the **Folder** box, select a Library folder for the message.
4. Click **OK**.

The **Convert to Message** dialog box closes, the paragraph is converted to a message, and the message is placed in the folder you selected.

After a paragraph is converted into a message, the original paragraph is still available in the Design Manager Library.

Chapter 5: Adding Text to a Design

Text is the primary way that you create compelling, targeted documents for customers, and Exstream provides many different ways to add text to a design. The following table describes some of the common ways to add text. You can use many different methods in one design to accomplish the output you require.

Ways you can add text

Method	Description
Text boxes or table cells	<p>Text boxes let you place content directly on a page. You can add variables in text boxes to customize the text for a customer, and you can apply rules to the text to include it or exclude it for a customer. You can also turn shapes into text boxes to create uniquely shaped text boxes. Adding text to table cells allows you to include static text in tables or to use table properties to align text within a design.</p>
Importing external content	<p>You can import external text content either at design time or run time. You can import external text at design time, and you can easily add existing text to a design without recreating it in Designer. On the other hand, you can import external text at run time to include content that changes frequently in your design. When you import a text file at run time, you create a placeholder for the text file within the design on a message or page within Designer. At engine run time, the text is imported. This type of text import is useful for dynamic text, or text that must be updated within the design based on source file changes. For example, you can use this design approach if you want to include standard wording used in customer communications that changes periodically, such as a welcome message for new customers.</p> <p>You must have licensed the Dynamic Content Import module to add text dynamically.</p> <p>For information about importing external content, see <i>Importing External Content</i> in the Exstream Design and Production documentation.</p>
Paragraph objects	<p>Paragraph objects contain text that is grouped together, usually by a logical association. You can use paragraph objects to contain text that is reused in many areas of an application or in many applications, and that does not change based on where it is used. For example, paragraph objects are often used to contain policy or contract descriptions.</p> <p>You might choose to use paragraph objects if you are creating a long document, since paragraph objects are easy to organize and place in an application.</p> <p>For information about adding text using paragraph objects, see “Using Paragraphs and Sections to Build Complex Documents” on page 109.</p>
Text messages	<p>Text messages are modular pieces of content that are usually added to a document based on the space available on a page after the other content has been created. You can use text messages to contain marketing content or other content that is not necessarily required on a page.</p> <p>For information about adding text using messages, see <i>Managing Marketing Messages</i> in the Exstream Design and Production documentation.</p>

After you add text, you can adjust the formatting of the text so it has the appearance you want. Many of the formatting functions offered by traditional word processors are available in Designer. For example, you can add bullets or numbers to text to help organize list content. You can also use styles, if they are set up in your environment, to help ensure consistency in your design.

This chapter contains information about adding and formatting text. The tasks described here can be used to format text, regardless of the method you choose to add it (with the exception of text that is added at run time).

This chapter discusses the following topics:

- “[Designing a Text Box](#)” below
- “[Customizing Text for Customers](#)” on page 150
- “[Formatting Text](#)” on page 154
- “[Using a Style Sheet to Format Text](#)” on page 164
- “[Adjusting Text Spacing](#)” on page 168
- “[Adjusting Paragraph Spacing](#)” on page 175
- “[Controlling Paragraph Breaking](#)” on page 178
- “[Aligning Text](#)” on page 185

5.1 Designing a Text Box

The most basic way to add text is to create a text box and enter text into it. You use text boxes to place text directly on a page, paragraph object, or message. Text boxes let you set formatting options that affect all of the text in the text box, rather than apply formatting to all of the individual paragraphs. For example, text boxes let you specify the shape of the text and whether the text has a background color for the text. You can place a text box directly on a design, or you can embed text boxes in many types of design objects, such as table cells.

For information about embedding objects, see “[Embedding Objects in a Design](#)” on page 357.

If you are generating PDF, PDF/A, or VDX output that will be read by screen readers or text-to-speech converters, you can specify how text boxes are handled by those accessibility tools. You can also create bookmarks for text boxes or specific text areas. These bookmarks will appear in a PDF viewer and allow customers to navigate directly to specific text areas.

For information about specifying the accessibility properties of a text box, see “[Optimizing a Design for PDF Accessibility Tools](#)” on page 554.

For information about customizing the bookmarks that appear in PDF output for text, see “[Adding Bookmarks to PDF Output](#)” on page 596.

To customize the appearance of text in a text box, complete the following tasks as needed:

- “[Creating a Text Box](#)” on the next page
- “[Adding a Border to a Text Box](#)” on the next page
- “[Adding a Background to a Text Box](#)” on page 143

- “[Changing the Size of a Text Box](#)” on page 144
- “[Creating a Multiple Text Columns](#)” on page 146
- “[Changing the Shape of a Text Box](#)” on page 147
- “[Placing a Border Around a Paragraph](#)” on page 147
- “[Setting Text Box Margins](#)” on page 148
- “[Rotating a Text Box to Accommodate Vertical Characters in DBCS Applications](#)” on page 149

5.1.1 Creating a Text Box

1. In Designer, on the Standard toolbar, click .

The cursor changes to a drawing cursor so you can draw the text box on the page. If you are adding a text box to a paragraph object or a message, a small text box is added to the design window automatically.

2. Using the cursor, draw the approximate shape of the text box in the design window. You can make adjustments to the text box size and placement later, if necessary.

The text box appears in the design window.

5.1.2 Adding a Border to a Text Box

You can add a border to a text box to help emphasize it in the design or to help distinguish text from objects or other text around it. You can also add borders to specific paragraphs of text within a text box.

For information about adding a border to a paragraph, see “[Placing a Border Around a Paragraph](#)” on page 147.

To add a border to a text box:

1. In Designer, select the text box to which you want to add a border.

2. Click .

The **Text Properties** dialog box opens.

3. Click the **Lines and Fill** tab.

4. To define the appearance of the border, use the options in the **Frame** area.

- a. In the large box at the top of the **Frame** area, select the line style for the border.
- b. From the color well, select a color for the border line.

- c. From the box below the color well, select the thickness of the border.
5. Click **OK**.

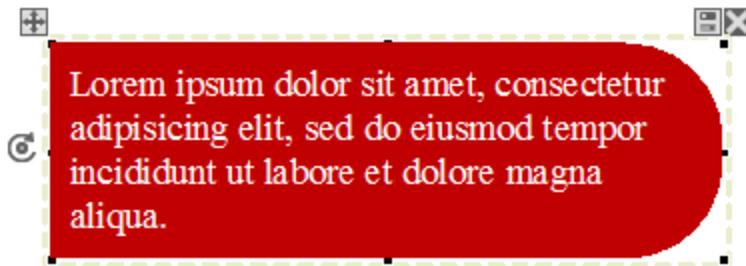
The **Text properties** dialog box closes and the border appears on the text box.

5.1.3 Adding a Background to a Text Box

You can add a background shape and/or color to a text box to help emphasize it in the design. When you add a background to a text box, you specify the shape of the background and its color. For example, you might choose to add a light blue circle as the background of a text box. The text box background is based on the text box size, not the text in the text box. Therefore, the text might appear outside of the background or might not fill the entire text box area, depending on the background shape you select.

If you want text to be in a shape other than square, see “[Changing the Shape of a Text Box](#)” on [page 147](#).

Text box frame example



To add a background to a text box:

1. In Designer, select the text box to which you want to add a background.
2. Click .
- The **Text Properties** dialog box opens.
3. Click the **Text** tab.
4. From the **Frame style** drop-down list, select a shape for the background.
An example of the background fill appears below the drop-down list.
5. If the shape you selected has a **Corners** slider, move the slider to adjust the rounding of the corners.
The example that appears below the **Corners** slider reflects the amount of rounding you select.
6. Click the **Lines and Fill** tab.

7. To add a border to the background, use the options in the **Frame** area.
 - a. In the large box at the top of the **Frame** area, select the line style for the border.
 - b. From the color well box, select a color for the border line.
 - c. From the box below the color well, select the thickness of the border.
8. To add color to the background, select a color from the **Fill** color well.
9. Click **OK**.

The **Text properties** dialog box closes and the background frame appears on the design.

5.1.4 Changing the Size of a Text Box

You can specify the size of a text box in one of two ways:

- **Specifying a static size**—The size of the text box does not change, regardless of the amount of content placed in it.
- **Setting the text box to change size**—The size of the text box can change to accommodate additional content (also called "autosizing").

Specifying a Static Size for a Text box

You specify a static size for a text box in the same way as you set sizes for other objects in Designer.

For information about specifying the static size of an object, see ["Resizing an Object" on page 377](#).

If you drag the edge of a text box or change just the **Width** or **Height** box on the **Placement** tab of the **Text Properties** dialog box, its size becomes static in the direction you drag or size. For example, if you resize width only, the height of the text box can still change based on the amount of content. Blue overflow arrows appear on text boxes in which the text does not fit. To accommodate overflow text, you can change the size of the text box or set the text to flow to another area.

For information about setting up text to flow, see ["Accommodating Objects That Flow" on page 401](#).

Setting a Text Box to Change Size Automatically

Setting a text box to change size automatically lets the text box grow larger, depending on the text entered. For example, the text box can grow as you add text during design, or it can grow during processing to accommodate new content added based on the customer data. If you want to accommodate text that is added during the engine run but you do not want the text box to change size, you can use the autofit text options to automatically resize the text.

Tip: Alternatively, you can set up text to change size in order to make text fit within a given text box size.

For information about making text fit within a specified area, see [“Automatically Resizing Text to Make it Fit in a Text Box” on page 162](#).

To let a text box change size automatically:

1. In Designer, select the text box for which you want to set the size.
2. Click .
- The **Text Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
4. Use the options on the left side of the dialog box to set the sizing options.

To	Do this
Allow the text box to become wider	Select the Autosize width check box.
Allow the text box to become taller	<ol style="list-style-type: none">a. Select the Autosize height check box.b. From the Grow drop-down list, select the direction in which the text box can grow.

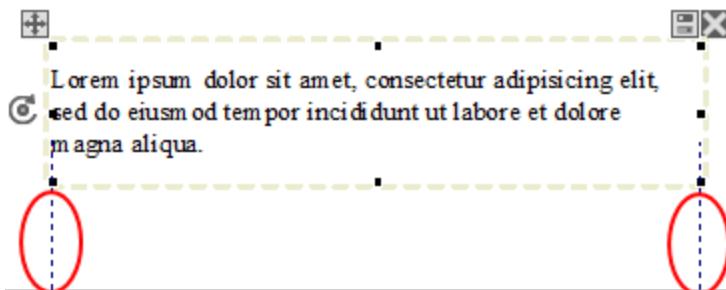
Note: If the text box grows upward, it is not included in the flow calculation that determines whether extra pages are needed. A text box that grows upward cannot split to another page.

5. Click **OK**.

The **Text Properties** dialog box closes.

The text box now automatically changes size as you design and again during the engine run as necessary. Growth lines appear on the text box to indicate the direction of the autosizing for the text box.

Text box growth lines



5.1.5 Creating a Multiple Text Columns

You can add multiple columns to text boxes to create designs similar to newspaper and magazine columns.

To create text columns:

1. In Designer, select the text box to which you want to add text columns.
 2. Click .

The **Text Properties** dialog box opens.
 3. Click the **Text** tab.
 4. In the **Columns** box, enter the number of columns you want to create.

When you set the value to anything other than 1, the **Gutter size** box becomes active.
 5. In the **Gutter size** box, enter the amount of space you want to appear between columns in the text box.

The **Column widths** box is updated to reflect the size of the columns based on the space needed for the gutter.
 6. If you want the lengths of the column to be equal, select the **Balance** check box.
 7. If you want to place a line between the columns, use the options in the **Vertical grid** area on the **Lines and Fill** tab.
 - a. In the large box at the top of the **Vertical grid** area, select the line style for the line.
 - b. From the color well box, select a color for the line.
 - c. From the box below the color well, select the thickness of the line.
 8. Click **OK**.
- The **Text Properties** dialog box closes and columns are added to the text box.
9. By default, textual paragraphs do not span from one column into the next column. To allow a paragraph to span columns, right-click the paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.
 10. From the **Column style** drop-down list, select **Spans columns**.
 11. Click **OK**.
- The **Text paragraph properties** dialog box closes and the paragraph adjusts as necessary.

You can also allow header and footer text to span columns of a text box.

For information about headers and footers, see “[Adding Headers and Footers](#)” on page 458.

5.1.6 Changing the Shape of a Text Box

Text need not always be in a traditional square shape. You can convert any of the shapes available in Designer into text boxes to help emphasize the text, be creative, or make the text fit into a uniquely-shaped area. If you convert shapes into text boxes, they do not support conditional colors, backgrounds, or multiple columns.

To make text boxes in different shapes:

1. In Designer, on the Drawing toolbar, click .

A sub-menu opens displaying the types of shapes you can add.

2. Select the shape you want to add.

The shape appears on the page.

3. Right-click the shape and select **Convert polygon to text**.

The shape is converted into a text box. When you add text to the text box, it conforms to the shape you selected.

5.1.7 Placing a Border Around a Paragraph

You can add a border around a specific textual paragraph within a text box to help separate it from other text in the text box or to help emphasize the text.

To place a border around a paragraph:

1. In Designer, highlight the paragraph to which you want to add a border.

2. Right-click the selected paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.

4. In the **Layout** area, click the edges of the **Lines** box to specify where to place the border.

5. Right-click the box.

The **Border Properties** dialog box opens.

6. Use the options in the **Border Properties** dialog box to elect the line style, color, and weight. Dotted line styles might appear differently in Designer than they do in your output.

- a. In the **Line Properties** box, select the line style.

- b. To change the line color, click the color well.

The **Color** dialog box opens.

- c. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

- d. Enter the width of the line in the box below the color well.

7. Click **OK**.

The **Border Properties** dialog box closes.

8. Click **OK**.

The **Text paragraph properties** dialog box closes and the border appears around the paragraph.

5.1.8 Setting Text Box Margins

Margins prevent text from getting too close to the edge of a text box. Margins are particularly useful when you place two text boxes close together and you want to separate the text in the two text boxes. If you add a background with a border to a text box, you might also use the text box margins so that the text does not overlap the border.

To set text box margins:

1. In Designer, select the text box for which you want to set margins.
2. Click .

The **Text Properties** dialog box opens.

3. Click the **Text** tab.
4. Enter the margin values in the following boxes as appropriate:
 - **Left margin**
 - **Right margin**
 - **Top margin**
 - **Bottom margin**
5. Click **OK**.

The **Text properties** dialog box closes and any text in the text box adjusts based on the margins you specified.

5.1.9 Rotating a Text Box to Accommodate Vertical Characters in DBCS Applications

Sometimes Asian characters are read from top to bottom, unlike Western characters that are read from left to right. In DBCS applications, you can rotate text boxes to accommodate vertical characters, such as hiragana characters, that are read from top to bottom and from right to left. When you rotate a text box, the text contained within it or text that you add to it is rotated as well. If you then apply a Unicode font to the text, the text is re-oriented so it is set up to be read top from the bottom. Keep in mind that when you rotate the text box, your cursor also rotates. The up and down arrow keys change to right and left, and your left and right keys change to up and down.

When you set up a text box to support vertical text, keep the following unique behaviors in mind:

- Rotated text boxes cannot be relative to other objects.
- You cannot rotate a text box after changing it to a Library component.
- Fonts of different sizes are centered on each other. Full-width DBCS characters (for example, @MS Gothic or @Arial Unicode MS) align to the center in each line. Single-byte characters, such as ASCII, Latin, and Katakana, align to the bottom of each line.

For information about making objects relative to other objects, see “[Accommodating Objects That Flow](#)” on page 401.

To rotate text boxes to accommodate vertical characters:

1. In Designer, select the text box you want to rotate.
2. Click .

The **Text Properties** dialog box opens.

3. Click the **Placement** tab.
4. In the **Rotation** box, enter 90.
5. Click **OK**.

The **Text Properties** dialog box closes.

6. Select the text and apply a font that begins with '@'. You must reapply a Unicode font to the text in order for it to be re-oriented from top to bottom.

5.2 Customizing Text for Customers

Exstream provides many features that you can use to customize text for different customers. One way to customize text is to use variables to add different text based on customer data. For example, a common use of variables is to add customers' names to their documents. Using a variable to add unique text lets you create one design that provides customized documents for a customer.

In addition to using variables, you can also use rules on text that appears in customer documents. Text rules let you include or exclude pieces of content, based on conditions you specify. Rules can be a powerful way to ensure that relevant, targeted information is included for each customer.

For more information about creating and using variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

For information about creating and using rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

To use variables or rules to customize text, complete the following tasks as needed:

- “[Inserting a Variable into a Design](#)” below
- “[Displaying Sample Variable Text](#)” on page 152
- “[Removing Variable Lines With No Content](#)” on page 153
- “[Using a Rule to Include or Exclude Text](#)” on page 154

5.2.1 Inserting a Variable into a Design

You can insert variables into almost any area in which you can insert text, such as text boxes or table cells.

To insert a variable:

1. In Designer, place the cursor at the location where you want to insert a variable.
2. Right-click and select **Insert > Variable**.

The **Variable Palette** opens.

3. If you want to filter the variables in the Variable Palette, complete one or more of the following steps, depending on the filter criteria you want to use:

To	Do this
Filter variables by data type	Click  and select the data type of the variables you want to view, or select All Types to view variables of all types.
Filter variables by whether they are array variables	Click  and select one of the following options: <ul style="list-style-type: none"> • All Variables—Show both array and non-array variables. • No Arrays—Show only variables that are not arrays. • Only Arrays—Show only array variables.
Filter variables by whether they are system variables	Click  and select one of the following options: <ul style="list-style-type: none"> • All Variables—Show both system and user-defined variables. • No System Variables—Show only user-defined variables. • Only System Variables—Show only system variables.
Filter variables by the folder in which they are located in the Library	<ol style="list-style-type: none"> a. Click  and select one of the following options: <ul style="list-style-type: none"> • Selected Folder—Show variables from a specific folder in the Library. • Selected Folder and Parents—Show variables from a specific folder and each parent folder up to the root folder in the Library. <p>The Folders dialog box opens.</p> b. Select a folder from the list and click OK. <p>To show variables from all folders in the Library, click  and select All Folders.</p>
Filter variables by the application in which they are used	<ol style="list-style-type: none"> a. Click  and select Selected Application. <p>The Select Application dialog box opens.</p> b. In the Look In box, select the folder where you want to look for the application. c. Select an application from the list and click OK. <p>To show variables used in all applications in the Library, click  and select All Applications.</p>

To	Do this
Filter variables by metadata	<ol style="list-style-type: none">a. Click  and select Filter by Metadata. The Filter by metadata dialog box opens.b. In the Name box, select a metadata object by which you want to filter the list of variables.c. If the metadata object allows values and you want to filter by a value, complete the following steps:<ol style="list-style-type: none">i. Select the Include value in filter check box.ii. In the Value to filter by box, enter a value by which you want to filter the variable list, or, in the variable box, select a variable that contains a value by which you want to filter the variable list.d. Click OK. <p>To show all variables, whether they have metadata or not, click  and select All Variables.</p>

For more information about types of variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

4. Locate the variable you want to insert, and double-click it.

The variable appears in the design with a wavy purple line underneath it to indicate it is a variable.

If you want to see a sample of how the variable will appear after the engine runs, you can display sample variable text. If no data is mapped to the variable for a particular customer, the variable space will be blank. You can choose to remove variables that will blank in the output.

For information about removing blank variables, see “[Removing Variable Lines With No Content](#)” on the next page.

For information about displaying sample variable text, see “[Displaying Sample Variable Text](#)” below.

For information about formatting variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

5.2.2 Displaying Sample Variable Text

Because it is sometimes hard to visualize how your design will appear after the variables have been populated, you can display sample text as you design. Sample data is a textual representation of a variable, but not the actual value of the variable. For example, the sample data for the 'CustomerName' variable might be "George A. Smith." By default, when you insert a variable into text, the variable name appears, not the sample text.

To quickly toggle between the variable name and the sample variable text, click  on the Properties toolbar. Text adjacent to the variable adjusts automatically to accommodate additional characters for the sample text or variable name.

If you typically use the sample text instead of the variable name as you design, you can adjust the Designer system defaults so that the sample text appears automatically each time you open Designer. These settings affect everything opened in Designer, not just the current design.

To change the default view:

1. In Designer, from the **Tools** menu, select **Options**.

The **Designer Options** dialog box opens.

2. Click the **Designer** tab.

3. In the **Design Assist** area, select the **Show variables as design sample text** check box to view the sample text instead of the variable name. Clear the check box to view the variable name by default.

4. Click **OK**.

The **Designer Options** dialog box closes and the default variable view is updated.

5.2.3 Removing Variable Lines With No Content

Sometimes a design contains entire lines populated by variables that do not have values for every customer. You can remove variable lines that do not contain content after the variables have been populated to prevent empty areas from appearing for some customers. For example, suppose your design contains an address block. Some customers must have a second street address line, so you must include that variable in your design. For all customers that do not have a second street address line, that variable value will be blank in the output. When empty variable lines are removed, lines of text or variable text below the empty line are moved up so that no blank space remains.

To remove variable lines with no content:

1. In Designer, select the text box that contains variable lines you want to remove if they are empty.

2. Click .

The **Text Properties** dialog box opens.

3. Click the **Text** tab.

4. Select the **Remove empty variable lines** check box.

5. Click **OK**.

The **Text Properties** dialog box closes.

When the engine encounters a line with no populated variables, the line is removed and the text below is moved up.

5.2.4 Using a Rule to Include or Exclude Text

You can apply rules to specific areas of text or to entire text boxes to include or exclude that content for a particular customer. The object to which you apply a rule depends on the amount of text you want to include or exclude for specific customers. One way to use this feature is to create multiple text boxes layered over each other. You can then apply a rule to each text box so that the appropriate text box is included for the desired customers.

To add a rule to text:

1. In Designer, select the object to which you want to apply a rule.

To	Do this
Apply a rule to a specific area of text	<ol style="list-style-type: none">Select the text.Right-click the text and select Add Text Rule. The Text Rule dialog box opens.
Apply a rule to an entire text box	<ol style="list-style-type: none">Select the text box and click . The Text Properties dialog box opens.Click the Rule tab.

2. Use the options on the **Rule** tab to define the rule that includes the inclusion or exclusion of the text.
3. Click **OK**.

The dialog box closes and a pink wavy line appears by the text to indicate a rule is present.

If you applied the rule to a text box, the  symbol appears next to the text box to indicate a rule is on the text box.

For information about creating rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

5.3 Formatting Text

After you add text to your design, you can format that text to achieve the appearance you want. Designer provides many of the formatting features available in traditional word processing

programs, such as features you can use to adjust the font style and size. If you use a style sheet to help maintain consistency or brand standards in your organization's designs, the formatting options disabled by the style sheet are not available in Designer.

For information about using style sheets, see “[Using a Style Sheet to Format Text](#)” on page 164.

To achieve the desired appearance of text, complete the following tasks as needed:

- “[Applying Basic Text Formatting](#)” below
- “[Adding a Bulleted List](#)” on the next page
- “[Adding a Numbered List](#)” on page 158
- “[Automatically Resizing Text to Make it Fit in a Text Box](#)” on page 162
- “[Turning on Text Symbols](#)” on page 164

5.3.1 Applying Basic Text Formatting

You can apply basic text formatting using toolbars, menus, or the **Select Font** dialog box. If you use the **Select Font** dialog box, you can see a sample of how the text will appear after the changes are applied. The sample is not available if you use the toolbars or menus to apply formatting.

Some basic text formatting can be applied dynamically using tag sets. For information about applying formatting dynamically, see *Importing External Content* in the Exstream Design and Production documentation.

To apply formatting to text:

1. In Designer, highlight the text you want to format.
2. Right-click the selected text and select **Font**.

The **Select Font** dialog box opens.

3. Use the options on the **Select Font** dialog box to specify the formatting you want to apply.

To	Do this
Change the font	In the Font box, select the font you want to use and click OK .
Change the font color	<ol style="list-style-type: none">a. Click the Color box. The Color dialog box opens.b. Specify the color you want to use and click OK. The Color dialog box closes.

To	Do this
Change the font size	From the Point size drop-down list, select the font you want to use and click OK .
Make text bold	Select the Bold check box and click OK .
Make text italic	Select the Italic check box and click OK .
Strike through text	Select the Strike check box and click OK .
Underline text	<ol style="list-style-type: none">a. From the Underline drop-down list, select one of the following options to specify how the underline appears.<ul style="list-style-type: none">• All—All characters, including spaces, are underlined.• Words only—All characters, except spaces, are underlined.b. In the Spacing box, specify the distance between the baseline of the text and the underline. If you leave this box empty, the default spacing for the font is used.c. In the Width box, specify the thickness of the underline. If you leave this box empty, the default width for the font is used. Underline spacing and width might add to the overall height of the text, which could cause overlap.

4. Click **OK**.

The **Select Font** dialog box closes.

5.3.2 Adding a Bulleted List

You can add a bulleted list to help organize points in the content or to make lists easier to read. When you add a bulleted list in Designer, you can customize many aspects of its appearance, such as the type of symbol used for the bullet or the bullet color.

To add and format a bulleted list, complete the following tasks as needed:

- “[Creating a Bulleted List](#)” below
- “[Changing the Bullets in a Bulleted List](#)” on the next page
- “[Adding Sub-Bullets to a Bulleted List](#)” on page 158

Creating a Bulleted List

When you create a bulleted list from existing text, each hard return in the text indicates the end of one bullet item and the beginning of the next.

To create a bulleted list:

1. In Designer, select the text you want to appear in a bulleted list
2. Right-click the selected text and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.
4. Select the **Auto layout** check box.
5. Select the **Bulleted** radio button.
6. In the **Offset** box, enter the distance to appear between the bullet and the text.
7. Click **OK**.

The **Text paragraph properties** dialog box closes and the selected text appears in bullets.

Changing the Bullets in a Bulleted List

You can change the symbol that appears for the bullet in a bulleted list. For example, you can change a circle bullet to be an arrow, a square, or other symbol that enhances your design. You can also change the color of the bullet symbols.

To format the bullets in a bulleted list:

1. In Designer, select the bulleted list for which you want to format the bullets.
2. Right-click the selected list and select **Style > Bullet Style**.

The **Bullet Properties** dialog box opens.

3. To change the bullet symbol, use the **Default symbol** options.
 - a. Clear the **Default symbol** check box.
 - b. Click the symbol box.

The **View Character Set** dialog box opens.

- c. Select the symbol to use for the bullet and click **OK**.

The **View Character Set** dialog box closes and the symbol you selected appears in the **Default symbol** box.

4. To change the bullet color, use the **Default color** options.
 - a. Clear the **Default color** check box.
 - b. Click the color well.

The **Color** dialog box opens.

- c. Select or specify the color you want and click **OK**.

The **Color** dialog box closes and the color you selected appears in the **Default color** box.

5. Click **OK**.

The **Bullet Properties** dialog box closes and the bullet symbol and color are updated.

Adding Sub-Bullets to a Bulleted List

You can change the hierarchy of specific bullets in a list to create sub-bullets. The following example illustrates how you can use sub-bullets to add levels of bullets to a bulleted list.

Bulleted list with hierarchy

- ◆ fac simile
 - quando omni flunkus, mortati
 - ▽ ubi sunt
- ◆ hic sunt dracones
 - nihil dicit

When you demote a bulleted item, it is tabbed over and nested under the bullet above it. When you promote a bulleted item, a tab is removed. You can change the appearance of sub-bullets in the same way as you change the appearance of the main bullets.

You can change the hierarchy of bullets in a list in two ways:

To	Do this
Promote a bullet	Highlight the list item and click  on the Formatting toolbar.
Demote a bullet	Highlight the list item and click  on the Formatting toolbar.

5.3.3 Adding a Numbered List

You can add a numbered list to help illustrate the order of points in the content. When you add a numbered list in Designer, you can customize many aspects of its appearance, such as the numbering method or number font.

To add and format a numbered list, complete the following tasks as needed:

- “[Creating a Numbered List](#)” on the next page
- “[Changing the Numbering Method](#)” on the next page

- “[Changing the Numbers in a Numbered List](#)” on the next page
- “[Changing the First Number in a Numbered List](#)” on the next page
- “[Adding Sub-Lists to a Numbered List](#)” on page 161

Creating a Numbered List

When you create a numbered list from existing text, each hard return in the text indicates the end of one numbered item and the beginning of the next.

To create a numbered list:

1. In Designer, select the text you want to appear in a numbered list.
2. Right-click the selected text and select **Text paragraph properties**.
The **Text paragraph properties** dialog box opens.
3. Click the **Text paragraph properties** tab.
4. Select the **Auto layout** check box.
5. Select the **Numbered** radio button.
6. In the **Offset** box, enter the amount of space you want to appear between the number and the text.
7. Click **OK**.

The **Text paragraph properties** dialog box closes and the selected font appears in a numbered list.

Changing the Numbering Method

You can change the ordering method used in a numbered list. For example, you can change the numbering method from numerical (1,2,3) to alphabetical (A,B,C).

To change the numbering method:

1. In Designer, select the numbered list for which you want to change the numbering method.
2. Right-click the selected text and select **Style > Number Style**.
3. Clear the **Default numbering method** check box.
The **Number Properties** dialog box opens.
4. From the drop-down list, select the numbering method you want to use.
5. Click **OK**.

The **Number Properties** dialog box closes and the numbering method is updated.

Changing the Numbers in a Numbered List

You can format the number that appears in a numbered list by changing its color or font. Any changes you make to the number apply only to the number, and not to the text associated with it.

To format the numbers in a numbered list:

1. In Designer, select the numbered list for which you want to format the numbers.
2. Right-click the selected text and select **Style > Number Style**.

The **Number Properties** dialog box opens.

3. To change the number color, use the **Default color** options.
 - a. Clear the **Default color** check box.
 - b. Click the color well.

The **Color** dialog box opens.

- c. Select or specify the color you want and click **OK**.

The **Color** dialog box closes and the color you selected appears in the **Default color** box.

4. To change the font used for the number, use the **Default font** options.
 - a. Clear the **Default font** check box.
 - b. From the drop-down list below the **Default font** check box, select the font you want to use.
5. Click **OK**.

The **Numbering Properties** dialog box closes and the number formatting is updated.

Changing the First Number in a Numbered List

In some instances, you might need to control how numbered lists restart to ensure that they are numbered correctly. For example, suppose you separate the first few numbered items with a line of text. By default, the text from the original numbered list retains its numbering. However, you can restart the numbering for the text that appears after the added text. On the other hand, if you want a new numbered list to start at item 10, you can specify that the first item in the list is number 10, and the following list items are numbered consecutively.

To restart numbering:

1. In Designer, select the numbered list for which you want to restart the numbering.
2. Right-click the selected text and select **Style > Number Style**.

The **Number Properties** dialog box opens.

3. Select one of the following options from the **Numbering** drop-down list:
 - **Auto**—Numbering is automatically set.
 - **Restart**—Numbering is restarted using the number specified in the box to the right.
 - **Do not restart**—Numbering always continues from the previous list.
4. Click **OK**.

The **Numbering Properties** dialog box closes and the numbered list is updated.

Adding Sub-Lists to a Numbered List

You can change the hierarchy of specific items in a numbered list to create sub-bulleted lists or sub-numbered lists. The following example illustrates how you can use sub-lists in your design to help organize the list content.

Numbered list with hierarchy

1. **fac simile**
 - 1.1. **quando omni flunkus, mortati**
 - 1.2. **ubi sunt**
2. **hic sunt dracones**
 - 2.1. **nihil dicit**

To add sub-lists to a numbered list:

1. In Designer, select the numbered list to which you want to add sub-lists.

To	Do this
Add a sub-bulleted list	On the Formatting toolbar, click  .
Add a sub-numbered list	<ol style="list-style-type: none">a. Right-click the selected text and select Style > Number Style. The Number Properties dialog box opens.b. Select the Hierarchical numbering check box.c. Click OK. The Number Properties dialog box closes.

2. On the Formatting toolbar, click  to promote an item or click  to demote an item.

The hierarchy is created. If you press ENTER, the next numbered item will be the same level as the item before it.

5.3.4 Automatically Resizing Text to Make it Fit in a Text Box

You can set up text so its size automatically adjusts to fit or fill a text box when content is added during the engine run. For example, if variable text that is added during the engine run will cause the text to become too large for a text box, you can set up the text so it automatically becomes smaller until it fits within the text box. On the other hand, you can also set up text so it fills an entire text box so a text box does not have extra white space. Automatically resizing text so it fits in a text box is sometimes called "autofitting text."

When you use the autofitting options to make text fit or fill a text box, you specify the minimum and maximum sizes that the text can become. You also specify the amount the font size increases or decreases until the appropriate font size is found (called the "step size"). During packaging, Exstream attempts to fit each successive font step size until the best font size is found. Therefore, packaging times might increase if you use the autofitting options. If the text box contains more than one font size, all of the fonts are adjusted by the step size and the font sizes are not increased proportionately. Therefore, the first font to reach the minimum or maximum size stops the autofitting process.

Tip: Alternatively, you can set up a text box to change size in order to accommodate text that is too large for the given area.

For information about using the autosizing feature, see ["Setting a Text Box to Change Size Automatically" on page 144](#).

To automatically resize text to make it fit in a text box:

1. In Designer, select the text box that contains the text you want to resize.
 2. Click .
- The **Text Properties** dialog box opens.
3. Click the **Text** tab.
 4. To specify how the text size can change, complete one of the following processes:

To	Do this
Make the font size smaller so that the text fits the text box	<ul style="list-style-type: none"> a. From the Autofit text drop-down list, select Make smaller to fit. b. In the Minimum font size box, enter the smallest font size the text can be. The design font size must be greater than the size you specify in the Minimum font size box. c. In the Font step size box, enter the amount the font size will decrease each time the font size changes.
Make the font size larger so that the text fills the text box	<ul style="list-style-type: none"> a. From the Autofit text drop-down list, select Maximum size that fits. b. In the Maximum font size box, enter the largest font size the text can be. The design font size must be less than the size you specify in the Maximum font size box. c. In the Font step size box, enter the amount the font size will increase each time the font size changes.
Make the font size of the text smaller or larger to best fit the text box	<ul style="list-style-type: none"> a. From the Autofit text drop-down list, select Both. b. In the Minimum font size box, enter the smallest font size the text can be. The design font size must be greater than the size you specify in the Minimum font size box. c. In the Maximum font size box, enter the largest font size the text can be. The design font size must be less than the size you specify in the Maximum font size box. d. In the Font step size box, enter the amount the font size will decrease or increase each time the font size changes.
Make the font width of the text wider while maintaining the current font height to best fill the text box (This option is supported only for PDF and PostScript outputs.)	<ul style="list-style-type: none"> a. Select the X/Y Font Scaling check box. b. From the Autofit text drop-down list, select Maximum size that fits. c. In the Maximum font size box, enter the largest font size the text can be. The design font size must be less than the size you specify in the Maximum font size box. d. In the Font step size box, enter the amount the font size will increase each time the font size changes. e. Select the Fixed height font check box.

5. Click **OK**.

The **Text Properties** dialog box closes and you receive a message informing you of the number of font sets that will be generated so you can determine whether the font step size feature will impact the processing time much.

When the design is packaged and the amount of text and space is calculated, the text size changes according to the autofit settings you specified. The text size changes are not reflected in Designer; they appear only in the output.

5.3.5 Turning on Text Symbols

Text symbols are a graphical representation of the spacing or formatting applied to text. For example, a text symbol appears after every hard return to indicate the end of a paragraph. You can turn on text symbols to help make sure you select the correct text when you apply formatting.

To turn on text symbols:

1. In Designer, from the **Tools** menu, select **Options**.
The **Designer Options** dialog box opens.
2. Click the **Designer** tab.
3. In the **Design indicators** area, do one or both of the following:
 - To view formatting characters, such as paragraph markers and spacing indicators, select the **Show invisible text characters** check box.
 - To view a symbol when text exceeds the space in a text box (indicated by a blue arrow in the direction of the overflow), select the **Show text overflow arrows** check box.
4. Click **OK**.

The **Designer Options** dialog box closes and the text symbols appear in the design.

5.4 Using a Style Sheet to Format Text

Your organization can use styles and style sheets to help enforce corporate text formatting standards. Style sheets are similar to templates, but instead of guiding and standardizing page layout, style sheets help control the consistency of text formatting. Using style sheets is one way to ensure that all outgoing text meets corporate standards, which is especially important if you have a branded corporate design. Style sheets are sometimes called styles or formats in other programs. If you are familiar with these programs, then using styles and style sheets in Designer will be a similar experience.

For information about styles and style sheets, see *System Administration* in the Exstream Design and Production documentation.

Keep in mind that styles and style sheets are set up differently from other formatting features. A system administrator can create a standard set of style objects (for example, Heading1, Footnote, Emphasis, and so on) and then add them to different style sheets. The same style object can be defined differently in each style sheet. For example, Heading1 in one style sheet is 14pt, Bold, Blue, while in another style sheet it is 18pt, Italic, Black. Based on the style sheet you apply, your output will appear differently. Therefore, you can produce a different appearance in multiple outputs without changing the design.

Depending on the settings on a style sheet, the style sheet might be enforced, meaning that the styles in the style sheet cannot be altered in any way and that one of the styles must always be used. If the style sheet is enforced, you cannot format text using the standard formatting features.

In Design Manager, multiple style sheets can be associated with an application so that style sheets are selected dynamically at run time, based on variable data.

For more information about dynamic style sheets, see *System Administration* in the Exstream Design and Production documentation.

Before you can use a style sheet, it must be created and defined. Typically, a system administrator performs this task.

For more information about creating styles and style sheets, see *System Administration* in the Exstream Design and Production documentation.

To use a style sheet to format text, you must complete the following tasks:

1. [“Associating a Style Sheet with an Object” below](#)
2. [“Applying Paragraph and Text Styles” on the next page](#)
3. [“Creating New Paragraph and Text Styles” on the next page](#)
4. [“Updating Paragraph and Text Styles” on page 167](#)

5.4.1 Associating a Style Sheet with an Object

If you want to use a style sheet to help you format text, you must first associate it with the page or paragraph object. If you used a template to create a page, then the style sheet might already be applied, if it was defined as part of the template.

To associate a style sheet with an object:

1. In Designer, from the **Format** menu, select **Style > Select Style Sheet**.
The **Select Style Sheet** dialog box opens.
2. Select the style sheet you want to apply. The names will vary based on what is available on your system.
3. Click **OK**.

The **Select Style Sheet** dialog box closes and the styles in the style sheet become available in a drop-down list on the Formatting toolbar. If the style sheet is enforced, the formatting buttons become inactive.

Style drop-down list in Formatting toolbar



5.4.2 Applying Paragraph and Text Styles

There are two types of styles you can apply to format text:

- **Paragraph styles**—Paragraph styles indicate the characteristics of the text, as well as paragraph settings: spacing, indent, bullets, and flow. Paragraph styles apply to an entire textual paragraph and you cannot change the style for only part of a paragraph. The only way to override a paragraph style is to highlight text and apply a text style. If you select a second paragraph style, only the second one is applied.
- **Text styles**—Text styles indicate the characteristics of text font, size, and usage. Text styles apply only to highlighted text, such as a specific phrase within a paragraph. You can use text styles to apply styles to parts of a paragraph. If you apply a second text style to text, only the second text style is used.

To make it easier for you to identify styles in the style drop-down list, paragraph styles are denoted with and text styles are marked with .

To apply a style:

1. In Designer, place your cursor in the paragraph, or highlight the text to which you want to apply a style.
2. From the style drop-down list on the Formatting toolbar, select the style you want to apply.

The style for the entire paragraph is updated or the highlighted text is updated.

5.4.3 Creating New Paragraph and Text Styles

If you want to create a style that has not already been defined in the style sheet, you can create a new style in Designer. You can create new styles only in style sheets that are not enforced (that is, the style is already defined, but is not part of the style sheet you are using). For example, if you need a Heading 2 but your style sheet defines only a Heading 1, you can add Heading 2 to the style sheet and then specify the formatting of the style.

To create a new style:

1. In Designer, place the cursor in the paragraph or highlight the text that you want to use to define the new style.

2. From the **Format** menu, select **Style** and then one of the following:
 - **Save as New Paragraph Style**
 - **Save as New Text Style**

The **Select a <Paragraph/Text> Style** dialog box opens.

3. Select the name of an existing style that has not been added to the style sheet.
4. Click **OK**.

The **Select a <Paragraph/Text> Style** dialog box closes and the formatting of the currently selected paragraph or text becomes a defined style that you can apply.

5.4.4 Updating Paragraph and Text Styles

If the style sheet is not enforced, you can also make changes to existing styles during design and then save them to the style sheet. For example, suppose you realize that the spacing between paragraphs causes incorrect breaks in the content. You can update the appropriate paragraph style to help avoid spacing issues. Your design group must have functional access in order for you to create a new style. The change applies to the active style sheet only and not to all instances of the style in other style sheets. If the style sheet is used in another design, the design is updated with the change.

For information about enforced style sheets, see “[Using a Style Sheet to Format Text](#)” on [page 164](#).

For information about design groups, see *System Administration* in the Exstream Design and Production documentation.

To update an existing style:

1. In Designer, place your cursor in the paragraph or highlight the text that uses the formatting with which you want to update the style.
2. From the **Format** menu, select **Style** and then one of the following:
 - **Replace Existing Paragraph Style**
 - **Replace Existing Text Style**

The **Select a <Paragraph/Text Style>** dialog box opens.

3. Select the name of the style you want to update.
4. Click **OK**.

The **Select a <Paragraph/Text Style** dialog box closes and the style is updated to reflect the new formatting.

5.5 Adjusting Text Spacing

Just as text can grow taller and wider, the space between the letters can also change. You can adjust text spacing if you want the letters in a word to be closer together or if you want the spacing of letters in the design to match the spacing of letters in print exactly. To adjust text spacing, complete the following tasks as needed:

- “[Adjusting Text Spacing Using Kerning](#)” below
- “[Adjusting Text Spacing Using Tracking](#)” on the next page
- “[Adjusting Text Spacing from the Baseline](#)” on page 170
- “[Adjusting Text Spacing By Defining the Characters Per Inch](#)” on page 171
- “[Wrapping Text](#)” on page 173

5.5.1 Adjusting Text Spacing Using Kerning

At large font sizes, some letters might appear too far apart and can be mistaken for two different words. You can improve the readability of such letters by using kerning to push those letters closer together. When you apply kerning to text, you specify the font point size of text that you want to be kerned. Designer then applies kerning to fonts that size or greater.

Kerning off



Kerning on



Designer bases the kerning it applies on the font being used and the value of its kerning pairs. Kerning pairs are pairs of letters that can be kerned, and some kerning pairs have more kerning than others. The kerning settings you select affect the entire text box, but the actual pairs of letters that are kerned vary based on the font(s) used.

To adjust text spacing using kerning:

1. In Designer, select the text box that contains the text to which you want to apply kerning.
2. Click .

The **Text Properties** dialog box opens.

3. Click the **Text** tab.
4. Select the **Kerning** check box.
5. In the box to the right of the **Kerning** check box, enter a point size to allow kerning for characters at that point size and greater.
6. Click **OK**.

The **Text Properties** dialog box closes and the text is adjusted.

5.5.2 Adjusting Text Spacing Using Tracking

Tracking lets you change the spacing between characters. You can use tracking to help improve the readability for certain font styles or to give text a unique appearance. Whereas kerning applies to the entire text box and affects only certain letters, tracking affects all the letters but only in text you select. When you use tracking to adjust text spacing, you can choose if you want letters to be closer together or farther apart.

Normal tracking

Tempus Fugit

Condensed tracking

Tempus Fugit

Expanded tracking

Tempus Fugit

To adjust text spacing using tracking:

1. In Designer, highlight the text you want to adjust.
2. Right-click the selected text and select **Font**.

The **Select Font** dialog box opens.

3. From the **Tracking** drop-down list, select one of the following options:
 - **Normal**—The letters are spaced normally.
 - **Condensed**—The letters are pushed closer together.

- **Expanded**—The letters are pulled farther apart.
4. In the box to the right of the **Tracking** drop-down list, enter the size of the tracking (measured in tenths of a point).
 5. Click **OK**.

The **Select Font** dialog box closes and the highlighted text is adjusted.

5.5.3 Adjusting Text Spacing from the Baseline

The baseline is the default line on which the text characters are placed into the design. As with superscript and subscript, adjusting text spacing from the baseline places characters above or below the level of surrounding characters. With superscript and subscript, however, the spacing and font size adjusts automatically. If you adjust the text spacing from the baseline, the font size does not change automatically, which allows you to create the unique design you want.

Example of 2.0-point adjustment up from baseline

supra caleum

Example of 2.0-point adjustment down from baseline

infra terrum

To adjust the text spacing from the baseline:

1. In Designer, highlight the text you want to adjust.
2. From the Menu bar, select **Format > Adjust Baseline**.

The **Adjust Baseline** dialog box opens.

3. In the **Points** box, enter the points to adjust the text spacing from the baseline. Use positive numbers to adjust text up from the baseline and negative numbers to adjust the text down from the baseline.
4. Click **OK**.

The **Adjust Baseline** dialog box closes.

Note: To adjust the text spacing up or down from the baseline in increments of 25 percent of the font size, highlight the text and select either **Format > Nudge Baseline Up** or **Format > Nudge Baseline Down** from the Menu bar.

5.5.4 Adjusting Text Spacing By Defining the Characters Per Inch

In cases where the spacing of letters in the design and in the printed output must match exactly, you can specify the number of characters that can be placed per inch. This precision is especially useful in DBCS applications, where you can place characters at specific intervals in the design stage, which allows a designer to align with print quality control measures used in the output stage.

When you use the characters per inch (CPI) setting in text boxes with variable text, the size of the output file will increase because more positioning data must be embedded in the output stream. The amount of increase depends on your output type. The file size does not increase when you use static text in a CPI-enabled text box because static text is treated as an overlay and is positioned only once in the output stream.

In addition, if you choose to define the CPI, the following text formatting features are disabled (or overridden if they are already set):

- **Kerning**
- **Remove extra spacing**
- **X/Y Font Scaling**
- **Autofit text**

To adjust text spacing by defining the CPI:

1. In Designer, select the text box that contains the text for which you want to define the CPI.
2. Click .
- The **Text Properties** dialog box opens.
3. Click the **Text** tab.
4. Select the **Characters Per Inch (CPI)** check box.
5. In the box to the right of the **Characters Per Inch (CPI)**, enter the number of characters per inch.
6. Click **OK**.

The **Text Properties** dialog box closes and the characters are adjusted as necessary.

If you want to exercise more control over the placement of characters when you use the CPI options, you can define the CPI grid. In addition, if you want to embed objects in a text box in which you use CPI options, make sure you review the information about using embedded objects with CPI.

For information about defining the CPI grid, see “[Defining a CPI Grid to Help Align Characters](#)” below.

For information about using embedded objects with CPI, see “[Embedded Objects and CPI](#)” below.

Defining a CPI Grid to Help Align Characters

If you want to ensure that the CPI character settings align properly, you can use the **cpi/lpi** setting on the **Grid Control** tab in the **Designer Options** dialog box. This feature lets you change the grid used to align objects in Designer to measure distances in character per inch (horizontal) and lines per inch (vertical).

To turn on the grid:

1. In Designer, from the **Tools** menu, select **Options**.
The **Designer Options** dialog box opens.
2. Click the **Grid Control** tab.
3. From the **Grid units** drop-down list, select **cpi/lpi**.
4. In the **Grid width** box, enter the number of characters in each inch. This number should match the value in the **Characters Per Inch (CPI)** box.
5. In the **Grid height** box, enter the number of lines in each inch.
6. To view the grid, select the **Display grid** check box.
7. To snap drawing objects to the grid, select the **Snap to grid** check box.
8. Click **OK**.

The **Designer Options** dialog box closes.

Embedded Objects and CPI

If you embed objects in a CPI-enabled text box, they are embedded in the same way as they are embedded in a normal text box. Since the positioning of characters in a CPI-enabled text box is set at a specific interval, the positioning of the embedded object is determined in the same way. Therefore, the embedded object might overlap characters in your design. If you use embedded objects, you must manually adjust characters to the next open position (for example, by inserting spaces or tabs).

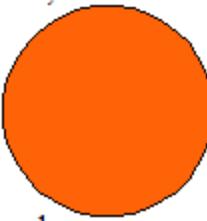
For information about embedded objects, see “[Embedding Objects in a Design](#)” on page 357.

5.5.5 Wrapping Text

If text and other objects, such as images, will overlap in your design, you can make the text wrap around the object. To wrap text around objects, the object must be only partially covered by the text. You cannot wrap text around both sides of an object (that is, an object cannot appear in the middle of a text box with text wrapped on both sides of it).

Text wrapping

 Lorem ipsum dolor sit amet,
 consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.



Because the engine composes text boxes differently for some outputs, text cannot wrap around objects in the following output types:

- 3211 line data
- EDGAR HTML
- HTML
- HTML (email)
- PowerPoint
- RTF
- XML (composed)
- XML (content)
- XML (multi-channel)

To wrap text around an object, you must complete the following tasks:

1. [“Setting Up Wrapping on Text” on the next page](#)
2. [“Setting Up Wrapping on an Object” on the next page](#)

Setting Up Wrapping on Text

1. In Designer, select the text box that contains the text you want to wrap.
2. Click . The **Text Properties** dialog box opens.
3. Click the **Text** tab.
4. Select the **Wrap** check box.
5. From the **Flow around other objects** drop-down list, select one of the following options:
 - **Fit**—Text follows the shape of the object.
 - **Rectangular**—Text maintains a rectangular shape when wrapping around the object.
The text must be justified to use this option.
6. As needed, enter values in the following boxes to prevent the text from being too close to the object:
 - **Left margin**
 - **Right margin**
 - **Top margin**
 - **Bottom margin**
7. Click **OK**.

The **Text Properties** dialog box closes and the text will wrap around objects that also have wrapping turned on.

Setting Up Wrapping on an Object

After you set up wrapping on the text, you must change the properties of the object to indicate that text can wrap around it.

Tip: All images are imported in a rectangular configuration. Therefore, even if you use fitted text, the text wraps around an image in a rectangular shape. If you want to create the illusion that the text is wrapping around the picture part of the image, you can place a shape, or a series of shapes, with no outline and no fill, in the area where you want text to wrap.

To set up wrapping on an object:

1. In Designer, select the object around which you want to text to wrap.
2. Click .

The **<Object> Properties** dialog box opens.

3. On the **Dynamic Size and Placement** tab, select one of the following options from the **How text wraps around this object** drop-down list:
 - **Does not wrap around**—The object still appears in the design, but text appears over it.
 - **Wrap around**—Text wraps around the object.
 - **Wrap around and hide this object**—Text wraps around and the object is hidden.
 - **Ignore and hide this object**—Text appears over the object and the object is hidden.
4. Click **OK**.

The **<Object> Properties** dialog box closes and text that also has wrapping turned on will wrap around the object.

Tip: To make text wrapping permanent, select the text box, and then select **Set Overlapped PolyShape** from the **Tools** menu. If you later move or delete an object that the text is wrapped around, the text stays wrapped as if the object is still there.

5.6 Adjusting Paragraph Spacing

The spacing of paragraphs can affect the readability of the text and the overall appearance of the document. You use the paragraph spacing tasks to make adjustments to large portions of text and to specify how entire paragraphs interact, as opposed to how lines of text interact.

To control paragraph spacing, complete the following tasks as needed:

- “[Adjusting the Space Around a Paragraph](#)” below
- “[Adjusting the Space Between a Paragraph and Text Box Margins](#)” on the next page
- “[Setting the Line Spacing in a Paragraph](#)” on page 178

5.6.1 Adjusting the Space Around a Paragraph

You can adjust the space that appears around a paragraph. For example, you can increase the space that appears below a paragraph to help separate it from the following paragraph. If the paragraphs above and below a paragraph with spacing also have space around them, the largest spacing is used. The spacings of the two paragraphs are not added together. Keep in mind that the space around a paragraph is different from the text box margins.

If you want the text box to ignore the space at the top of the paragraph, see “[Adjusting the Space Between a Paragraph and Text Box Margins](#)” below.

To adjust the space around a paragraph:

1. In Designer, select the paragraph for which you want to set the space. Even if you do not select an entire paragraph, be aware that the properties you set affect the entire paragraph, not just the highlighted portion.
2. Right-click the selected paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.
4. As needed, enter values in the following boxes to adjust the space that appears around the paragraph:
 - **Above**
 - **Below**
 - **Left margin**
 - **Right margin**
5. Click **OK**.

The **Text paragraph properties** dialog box closes and the space is added around the paragraph.

5.6.2 Adjusting the Space Between a Paragraph and Text Box Margins

When you add space around a paragraph, the spacing you specify does not automatically account for the margins set on the text box. Therefore, if you have placed space around a paragraph and margins on the text box, it is possible for the paragraph to start in the middle of the text box. You can set up the text box so it ignores the space above a paragraph when it appears at the top of the text box and the space below a paragraph when it appears at the bottom of a text box. In this case, the text box uses the margins specified on the text box properties.

Remove Extra Spacing off

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Remove Extra Spacing on

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To adjust the spacing between a paragraph and a text box:

1. In Designer, select the text box for which you want to adjust the spacing.
 2. Click  .

The **Text Properties** dialog box opens.
 3. Click the **Text** tab.
 4. Select the **Remove extra spacing** check box.
 5. Click **OK**.

The **Text Properties** dialog box closes.

When the text box encounters paragraphs with spacing around them, the paragraph spacing is ignored and the text box's margin is used at the top and bottom of the text box.

5.6.3 Setting the Line Spacing in a Paragraph

In addition to adding space between paragraphs, you can also adjust the space between the lines within a paragraph. For example, if you use very small text sizes, you might choose to add more space between the lines in a paragraph to make the text easier to read.

To adjust the space between lines in a paragraph:

1. In Designer, select the paragraph for which you want to set the space. Even if you do not select an entire paragraph, be aware that the properties you set affect the entire paragraph, not just the highlighted portion.
2. Right-click the selected paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.
4. Select one of the following options from the **Line spacing** drop-down list:
 - **Single**—Lines are placed on top of each other with no extra space.
 - **Space and Half**—Space for half a line is added between each line.
 - **Double**—Space for an entire line is added between each line.
 - **Minimum**—Space between the lines must be at least the amount specified in the **Space** box. The space is increased if the font requires more room.
 - **Exactly**—Lines are always spaced the distance set in the **Space** box, even if the text overlaps. The spacing is below the line of text.
 - **10ths of Space**—Lines are spaced using the value entered in the **10ths** box.
 - **Exactly (like Word)**—Lines behave as they do in Microsoft Word and use the amount in the **Space** box. The spacing is above the line of text.
5. Click **OK**.

The **Text paragraph properties** dialog box closes and the amount of space between the lines is adjusted.

5.7 Controlling Paragraph Breaking

You can control the way paragraphs break to help keep information in context. For example, if a paragraph introduces the information located in the following paragraph, you can prevent the paragraphs from being placed on separate pages. On the other hand, you can also force paragraph breaks (for example, you might force a specific paragraph to always appear at the top

of a page). The ability to control paragraph breaking is especially helpful if you use text boxes that can flow to other locations in the design (and not necessarily to the next page).

For information about setting up text to flow, see “[Accommodating Objects That Flow](#)” on [page 401](#).

To control paragraph breaking, complete the following tasks as needed:

- “[Preventing a Paragraph from Breaking](#)” below
- “[Controlling Paragraph and Line Breaks](#)” on the next page
- “[Tips and Tricks: Controlling Line Breaks in Languages That Do Not Use Spaces Between Words](#)” on page 181
- “[Keeping a Paragraph with the Next Paragraph](#)” on page 183
- “[Controlling the Number of Widow/Orphan Lines](#)” on page 183
- “[Setting Hyphenation Breaks](#)” on page 184

5.7.1 Preventing a Paragraph from Breaking

You can keep an entire paragraph together so it does not break at the end of a page or text box. If all of the lines in a paragraph cannot appear on a single page, the entire paragraph is moved to the next available location.

To prevent a paragraph from breaking:

1. In Designer, select the paragraph you want to prevent from breaking. Even if you do not select an entire paragraph, be aware that the properties you set affect the entire paragraph, not just the highlighted portion.
2. Right-click the selected paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.
4. Select the **Cannot split** check box.
5. Click **OK**.

The **Text paragraph properties** dialog box closes.

When the design is processed, the entire paragraph is always kept together. If the paragraph cannot fit on a page in its entirety, then the entire paragraph will be moved.

5.7.2 Controlling Paragraph and Line Breaks

In addition to keeping paragraphs and lines together, you can also ensure that a paragraph appears in a specific location (for example, at the top of a column or a page), or that lines break correctly in languages that do not use spaces between words. To ensure the placement you want, you insert a break control, which tells the engine where to use line or paragraph breaks.

To control line and paragraph breaks:

1. In Designer, place your cursor where you want to insert the break control. For example, if you want a paragraph to always start at the top of a page, insert the cursor at the beginning of the paragraph.
2. Right-click and select **Insert > Break Control**.

The **Type of Break Control** dialog box opens.

3. Select one of the following radio buttons to place a break:
 - **Column**—The paragraph always starts in a new column.
 - **Line**—The paragraph always starts on a new line.
 - **Page**—The paragraph always starts on a new page.
 - **No-break space**—No break allowed at this position, including hyphenation. This option prevents Designer from breaking a line at a certain space.
 - **Joiner (DBCS only)**—This option prevents a line break between two characters. If text reflows, the engine will not allow a break between the characters. This option is reserved for the special case of controlling line breaks in complex text languages that do not use spaces between words—namely, Cambodian (Khmer), Lao, and Thai. For a complete description of how to use this setting, see “[Tips and Tricks: Controlling Line Breaks in Languages That Do Not Use Spaces Between Words](#)” on the next page.
 - **Zero-width space (DBCS only)**—This option adds a potential line break between two characters. If text reflows and the zero-width space falls at the logical place for a line break, then the engine will break the line at this character. This option is reserved for the special case of controlling line breaks in complex text languages that do not use spaces between words—namely, Cambodian (Khmer), Lao, and Thai. For a complete description of how to use this setting, see “[Tips and Tricks: Controlling Line Breaks in Languages That Do Not Use Spaces Between Words](#)” on the next page.
4. Click **OK**.

The **Type of Break Control** dialog box closes.

When the design is processed, lines and paragraphs are broken according to the settings.

5.7.3 Tips and Tricks: Controlling Line Breaks in Languages That Do Not Use Spaces Between Words

Challenge:

Trying to control line breaks in DBCS languages that do not use spaces between words—such as Cambodian (Khmer), Lao, and Thai—can present a unique set of challenges. In Designer, for example, it is easy to add soft returns to control where line breaks occur in static text, because static text flows the same way in engine output as it does in Designer. But what happens if your design contains variables? When the engine populates variable data, the reflowing of text can completely change the locations of any soft line breaks that you had previously added, resulting in lines that could break in awkward or undesirable locations.

Note: The functionality discussed in this topic is available only when you have enabled complex text layout in your database (by selecting the **Enable complex text layout** check box on the **Text and Fonts** tab in the **System Settings** in Design Manager).

Solution:

To help with these challenges, Designer provides a set of tools that allow you to fine-tune where your text can break when it reflows. First of all, Designer allows you to see where lines will potentially break based on International Components for Unicode (ICU) standards. Then, if any of those suggested line breaks seem problematic, you can fine-tune them, either by overriding the suggested line breaks, or by adding your own.

Note that the break control options described here add line breaks only when text needs to reflow. They are non-printing characters that are visible only in Designer, and only when you click  on the Standard toolbar. Furthermore, they are available strictly in DBCS databases, and work exclusively for languages that do not use spaces between words.

The following table describes the break control options available in Designer specifically for languages that do not use spaces between words:

Break control options for DBCS languages that do not use spaces between words

Symbol	Name	Description
	Potential line break	Designer inserts this character automatically based on ICU standards. If Designer inserts a potential line break, you can override it by inserting a joiner at the same position.

Break control options for DBCS languages that do not use spaces between words, continued

Symbol	Name	Description
	Joiner	You can insert this character to override any potential line breaks that Designer automatically inserts. This option ensures that adjacent characters stay together both in Designer and in output produced by the engine.
	Zero-width space	You can insert this character in Designer to add a potential line break between any two characters.

How to do it:

To apply a line break to languages that do not use spaces between words:

1. In Designer, on the Standard toolbar, click  .
The potential break characters appear as non-printing symbols between characters as in this example:



កំឡុងនេះគឺជាពេលដែលអាសម្រាប់មនុស្សលើ
កើនឡើង យ៉ាងតាមរបៀប ត្រូវការពេញ ជាន់

2. Place your cursor where you want to add a non-breaking joiner or zero-width space.
3. Right click and select **Insert > Break Control**.
The **Type of Break Control** dialog box opens.
4. Select one of the following radio buttons:
 - **Joiner (DBCS only)**—This option prevents a line break between the two characters. If text reflows, the engine will not allow a break between the characters.
 - **Zero-width space (DBCS only)**—This option adds a potential line break between the two characters. If text reflows and the zero-width space falls at the logical place for a line break, then the engine will break the line at this character.
5. Click **OK**.
The **Type of Break Control** dialog box closes and the non-printing break control symbol appears where you placed the cursor.

When the engine processes the design, line breaks are added according to the settings that you specified.

5.7.4 Keeping a Paragraph with the Next Paragraph

You can force a paragraph to always appear with the paragraph that follows it. For example, if you are designing a paragraph as a heading, you might set up the paragraph so that it always appears with the following paragraph. If both paragraphs cannot fit on the page, they are both moved to the next available location.

To keep a paragraph with the next paragraph:

1. In Designer, select the paragraph you want to keep with the next paragraph. Even if you do not select an entire paragraph, be aware that the properties you set affect the entire paragraph, not just the highlighted portion.
2. Right-click the selected paragraph and select **Text paragraph properties**.
The **Text paragraph properties** dialog box opens.
3. Click the **Text paragraph properties** tab.
4. Select the **Keep with next** check box.
5. Click **OK**.

The **Text paragraph properties** dialog box closes.

During processing, the selected paragraph and the paragraph that follows it will always appear together. If the following paragraph moves, then the paragraph to which you have applied the **Keep with next** setting moves too. Keep in mind, however, that paragraphs set to **Keep with next** will not behave as expected if you do not also apply the **Cannot split** setting to the same paragraph. Specifically, if you apply the **Keep with next** setting without applying the **Cannot split** setting, then only part of the paragraph stays with the paragraph that follows. If you apply both settings, however, then the whole paragraph stays with the one that follows. For information about the **Cannot split** setting, see “[Preventing a Paragraph from Breaking](#)” on [page 179](#).

5.7.5 Controlling the Number of Widow/Orphan Lines

You can control widow or orphan lines (lines that appear by themselves) to ensure that lines do not appear by themselves without enough content to keep them in context. For example, you can prevent only one line of a paragraph from appearing on one page if all of the other lines of the paragraph appear on another page.

When you set the number of widow or orphan lines, you specify the number of lines that must be together when the text is placed. For example, if you set a widow/orphan setting of two, at least

two lines be together when the text is placed. If the paragraph contains five lines, three lines can appear on one page and two on another.

To control the number of widow/orphan lines:

1. In Designer, select the text box in which you want to control the number of widow/orphan lines.
 2. Click .
- The **Text Properties** dialog box opens.
3. Click the **Text** tab.
 4. Select the **Widow control** check box.
 5. In the box to the right of the **Widow control** box, enter the number of lines of text that must be placed together when the text box splits.
 6. Click **OK**.

The **Text Properties** dialog box closes.

During processing, the number of lines that must remain together is honored and lines and/or paragraphs are moved as needed to avoid windows and orphans.

5.7.6 Setting Hyphenation Breaks

By default, Designer does not hyphenate words that appear at the end of a line; instead, words that do not fit within the given space at the end of a line are moved to the beginning of the next line. Sometimes, this method can cause the end of lines in a paragraph to have a choppy appearance. Therefore, Designer allows you to set hyphenation breaks at a paragraph level to help you control the appearance of a textual paragraph.

To use hyphenation to improve alignment:

1. In Designer, place your pointer in the paragraph in which you want to apply hyphenation.
 2. From the **Tools** menu, select **Hyphenation**.
- The **Hyphenation** dialog box opens.
3. Select the **Automatically hyphenate selected paragraph(s)** check box.
 4. In the **Hyphenation zone** box, enter the space from the right margin where hyphens should appear.
 5. To limit the number of hyphens appearing in a row:
 - a. Select the **Limit consecutive hyphens** check box.
 - b. In the box below, enter the number of lines in a row that can have hyphens.

6. Click **OK**.

The **Hyphenation** dialog box closes.

5.8 Aligning Text

Designer provides several methods you can use to align text. The method you choose to use depends on the way you want the alignment to appear. To align text, complete the following tasks as needed:

- “[Aligning All the Content in a Paragraph](#)” below
- “[Setting Alignment on the First Line of a Paragraph](#)” on the next page
- “[Setting Tab Stops](#)” on the next page

5.8.1 Aligning All the Content in a Paragraph

You can align paragraphs both horizontally and vertically within a text box or table cell. You can use any combination of vertical and horizontal alignment. For example, you can align text at the vertical center and the left side of a text box.

To align paragraphs:

1. In Designer, highlight the paragraph you want to align. If you do not select an entire paragraph, the properties you set affect the entire paragraph, not just the highlighted portion.
2. Right-click the selected paragraph, select **Alignment** and then one of the following:
 - **Left**—The text is aligned at the left side of the text box or table cell.
 - **Center**—The text is aligned at the horizontal center of the text box or table cell.
 - **Right**—The text is aligned at the right side of the text box or table cell.
 - **Justify**—The text is aligned at both the left and right sides of the text box or table cell.
 - **Span**—(DBCS) Characters are distributed equally per character and per line. The span option is similar to justification, but instead of changing the space between words, it adjusts the space between individual characters. This option is disabled if you have set up the characters per inch (CPI) options on the text.
 - **Top**—The text is aligned at the top of the text box or table cell.
 - **Center**—The text is aligned at the vertical center of the text box or table cell.
 - **Bottom**—The text is aligned at the bottom of the text box or table cell.

A check mark appears next to the alignment selection and the text is aligned.

For information about the CPI options, see “[Adjusting Text Spacing By Defining the Characters Per Inch](#)” on page 171.

5.8.2 Setting Alignment on the First Line of a Paragraph

You can align the first line in a paragraph differently from the other lines. For example, you might indent the first line to help distinguish the beginning of the paragraph. When you set unique alignment on the first line of a paragraph, Designer creates automatic tab stops that control the alignment.

To set alignment on the first line of a paragraph:

1. In Designer, select the paragraph in which you want to set the alignment.
2. Right-click the selected paragraph and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

3. Click the **Text paragraph properties** tab.
4. Select the **Auto layout** check box.
5. Select one of the following radio buttons:
 - **Hanging indented**—All lines except the first are indented.
 - **Indented**—The first line is indented.
6. In the **Offset** box, enter the amount the indented line (or lines) is indented.
7. Click **OK**.

The **Text paragraph properties** dialog box closes and the offset is applied. If you press **ENTER** to add more paragraphs, the settings apply to the new paragraphs.

5.8.3 Setting Tab Stops

If the default tab stops in Designer do not allow you to set up the alignment you need, you can create a custom tab stop that aligns text each time you press **TAB**. For example, if you are creating a financial statement, you can create custom tab stops so that numbers align at the decimal. Designer provides the following types of tab stops:

Tab type symbols and examples

Tab Style	Button symbol	Example
Left-align tab		The text is aligned to the left of the box.
Right-align tab		The text is aligned to the right of the box.
Center-align tab		The text is centered within the box.
Decimal-align tab		The text is aligned to the decimal point of the box.
Sign-align tab		The text is aligned to the sign of the box.

When you create a text box or table cell, a paragraph format ruler appears. You use this ruler to set up tabs for the object. When you highlight a paragraph, the ruler shows the paragraph's existing tab properties.

To set tab stops:

1. In Designer, place your cursor inside the text box or table cell where you want to place the tab stop.
2. Click (beside the ruler) to cycle through the tab stops until you find the one you want.
3. Click the ruler where you want to set the tab. To remove a tab stop, drag the tab stop symbol off the ruler.
4. Place the cursor in the text and press TAB to align the text.

After defining a custom tab stop, you can format the leader area if needed.

For information about formatting the leader area of a tab stop, see “[Adding Leader Dots to a Tab Stop](#)” below.

Adding Leader Dots to a Tab Stop

When you create a custom tab stop, you can add characters to the space between the edge of the text box or table cell and the text appears after the tab space. For example, if you want a series of periods to fill the space between the edge of a text box and the indented text, you can specify periods as the leader character.

To add leader dots to a tab stop:

1. In Designer, select the paragraph in which you want to add leader dots.
2. Click the **Text paragraph properties** tab.
3. Select the **Use leader dots** check box.
4. From the **Dot** drop-down list, select a leader character or enter a leader character. The leader character is repeated to fill the tabbed space.
5. In the **Spacing** box, enter the spacing (in tenths of an inch) that appears between each character in the leader.
6. Click **OK**.

The **Text paragraph properties** dialog box closes.

Each time you press TAB, the space is filled with the leader dots you have defined.

Chapter 6: Adding Images and Drawings to a Design

Images and drawings are a graphical means of providing information to a customer. You can add almost any type of image to your design, such as photos or logos, or you can use the drawing tools available in Designer to create a new drawing.

This chapter discusses the following topics:

- “[Adding Images to a Design](#)” below
- “[Adding Shapes and Drawings to a Design](#)” on the next page
- “[Adding or Removing Points From a Shape](#)” on page 192
- “[Using a Rule to Include or Exclude an Image or Drawing](#)” on page 194

If you are generating PDF or PDF/A output that will be read by screen readers or text-to-speech converters, you can specify how images and shapes are handled by those accessibility tools. You can also create bookmarks for images. These bookmarks will appear in a PDF viewer and allow customers to navigate directly to specific images.

For information about specifying the accessibility properties of an image, see “[Optimizing a Design for PDF Accessibility Tools](#)” on page 554.

For information about customizing the bookmarks that appear in PDF output for images, see “[Adding Bookmarks to PDF Output](#)” on page 596.

6.1 Adding Images to a Design

Exstream provides two different methods you can use to add images to a design. It is important to understand the benefits of each method and which one will best meet your application requirements:

- **Importing at design time**—When you import images at design time, you place an image directly into the design on a message or page within Designer. You can then change the size, placement, resolution, and color properties of the image independently of the source file. This type of image import is useful for static images, or those that do not need to be updated within the design based on source file changes. For example, if you want to include an image of a snowman in your company's winter newsletter, you can import the image at design time.
- **Importing at run time**—When you import images at run time, you create a placeholder for the image within the design on a message or page within Designer. At engine run time, the image is imported. This type of image import is useful for dynamic images, or those that

must be updated within the design based on source file changes. For example, you can use dynamic images if you want to include check images on bank statements or seasonal banners on customer newsletters. A benefit of importing content at run time is that the content is not stored in the design database, which results in a reduced package file size. Another benefit is that you can leverage content stored in enterprise systems to which Exstream does not natively speak by using Dynamic Data Access (DDA) to integrate Exstream into your existing infrastructure.

For more information about the methods you can use to add images to a design and for the tasks associated with each method, see *Importing External Content* in the Exstream Design and Production documentation.

6.2 Adding Shapes and Drawings to a Design

Shapes are one type of graphic you can add to a design. Designer provides many shapes that you can easily add to a design, and then customize their size or color. You can also use Designer's drawing tools to add free-form drawings, such as a line, to a design. To add shapes and drawings to a design, complete the following tasks as needed:

- “[Adding a Bezier Line \(Curve\)](#)” below
- “[Adding a Custom Polygon Shape](#)” on the next page
- “[Adding a Line Drawing](#)” on the next page
- “[Adding a Shape](#)” on the next page
- “[Adding a Star](#)” on the next page
- “[Adding a Straight Line](#)” on page 192

6.2.1 Adding a Bezier Line (Curve)

1. On the Drawing toolbar, click .
2. Use the cursor to draw the line on the page.
3. To customize the start and end of the line:
 - a. Select the line.
 - b. Click .

The **Shape Properties** dialog box opens.

- c. Click the **Lines and Fill** tab.

- d. From the **Begin style** drop-down list and the **End style** drop-down list, select the appearance you want for the ends of the line.
- e. Click **OK**.

The **Shape Properties** dialog box closes.

6.2.2 Adding a Custom Polygon Shape

1. From the **Insert** menu, select **Shape > Custom Polystar**.
- The **Polygons and Stars** dialog box opens.
2. Select the **Polygon** check box.
 3. In the **Number of sides or points** box, enter the number of sides you want the polygon to have.
 4. Click **OK**.

The **Polygons and Stars** dialog box closes.

6.2.3 Adding a Line Drawing

1. On the Drawing toolbar, click .
2. Use the cursor to draw the shape on the page.

6.2.4 Adding a Shape

1. On the Drawing toolbar, click .
- A sub-menu opens displaying the types of shapes you can add.
2. Select the shape you want to add.
- The shape appears on the page.

6.2.5 Adding a Star

1. From the **Insert** menu, select **Shape > Custom Polystar**.
- The **Polygons and Stars** dialog box opens.

2. Clear the **Polygon** check box.
3. In the **Number of sides or points** box, enter the number of sides you want the polygon to have.
4. In the **Star proportions** box, enter the proportion you want the star lines to be to the entire star shape. (A lower number makes more extreme points.)
5. Click **OK**.

The **Polygons and Stars** dialog box closes.

6.2.6 Adding a Straight Line

1. On the Drawing toolbar, click .
2. Use the cursor to draw the line on the page.

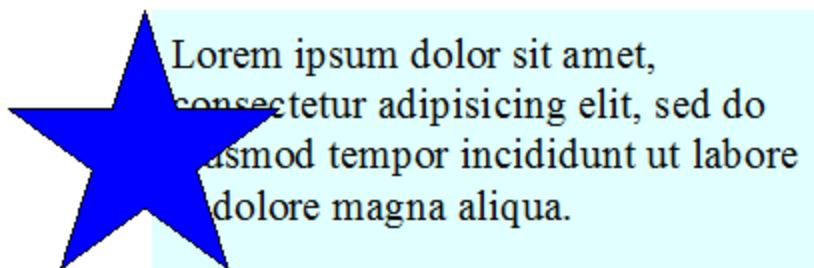
For information about changing the size and placement of shapes and drawings, see “[General Administrative and Formatting Tasks for Design Objects](#)” on page 371.

For information about adding or removing points from a shape, see “[Adding or Removing Points From a Shape](#)” below.

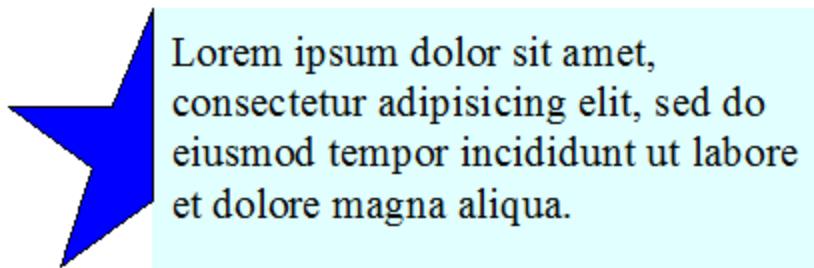
6.3 Adding or Removing Points From a Shape

Designer provides a unique editing capability for lines and shapes you draw on a page. You can use an editing tool called "point editing" to add or remove points from a shape. When you add or remove points from a shape, the connecting line readjusts and reconnects the other points in the shape. Point editing allows you to use the shapes provided by Designer as a starting point for more unique shapes. For example, suppose you added a shape to a design. You want the shape to be adjacent to a text box, but by default, it overlaps the text box. You can enable the point editing mode to delete one of the points in the polygon so it is adjacent to the other object without overlapping. In the following example, notice how point editing removes the two right points of the star. If the star had simply been moved behind the text box, the lower point would have still been visible.

Before point editing



After point editing

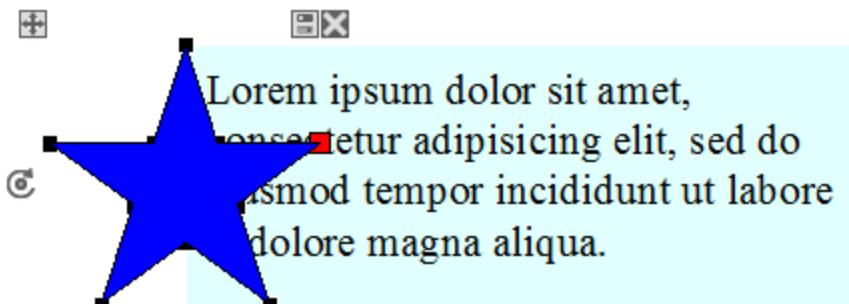


You cannot edit the points of grouped objects or Bezier curves.

To add or remove points from a shape:

1. In Designer, select the shape you want to adjust.
 2. On the Properties toolbar, click .
- Additional editing points appear on the object.
3. Click the point you want to delete or the point that is adjacent to the area to which you want to add an additional point.

The point you selected becomes red.



4. Right-click the object and select either **Insert point** or **Delete point**.

The shape is updated based on the option you select.

5. If you selected to add a point, you can drag the new point to change the shape of the object, just as you would use existing object points.

6.4 Using a Rule to Include or Exclude an Image or Drawing

You can apply rules to images to include or exclude them for specific customers. For example, if you want to include unique images for specific customers, you can layer the images over one another. You can then apply a rule to each image so that the appropriate image is included for each customer and the other images are excluded.

To add a rule to include or exclude an image:

1. In Designer, select the image to which you want to apply a rule.
 2. Click .
- The **Image Properties** dialog box opens.
3. Click the **Rule** tab.
 4. Use the options on the **Rule** tab to define the rule that includes the inclusion or exclusion of the rule.
 5. Click **OK**. The image

The **Image Properties** dialog box closes and the  symbol appears next to the image to indicate that a rule is applied to it.

For information about creating rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

Chapter 7: Adding Tables to a Design

Tables are design objects that allow you to organize and categorize content to make it easier to read. Tables are often used to present complex data that is not easy to read in paragraph form, such as transaction histories or balance statements. Data in tables is presented in rows and columns, and you can use labels to help the customer understand the data that is being presented.

As with other objects in Exstream, tables can grow and change, based on customer data and the way that other objects on the page are placed. For example, suppose you use a table to display all of the phone calls a customer placed in the past month. The data about the placed calls will vary for each customer. However, you can design one table to contain the call history. When the engine runs, rows will be added as necessary to contain each customer's data.

Tables that change during the engine run are called "automated tables." Static tables that do not change are called "simple tables." You must have licensed the Advanced Tables module in order to add automated tables to your design.

Tables are also completely customizable. For example, you can hide columns and rows based on customer data or rules. You can also set up headers and footers so that they repeat or appear only in certain situations. You can even completely remove certain tables for some customers. Tables in Exstream also allow you to create table sections, which are groups of rows that have similar properties and help to organize large tables into smaller, more manageable areas.

This chapter discusses the following topics:

- ["Table Types" on the next page](#)
- ["Creating a Table" on page 197](#)
- ["Adding Content to Tables" on page 199](#)
- ["Using Data to Create Rows and Columns" on page 200](#)
- ["Adding Headers and Footers to a Table" on page 208](#)
- ["Using Table Sections to Organize Table Content" on page 212](#)
- ["Changing the Width and Height of a Table" on page 217](#)
- ["Controlling Table Breaking" on page 221](#)
- ["Formatting a Table" on page 229](#)
- ["Using Section Data to Create Tables" on page 240](#)
- ["Using XML Node Data To Create Tables" on page 243](#)
- ["Automatically Adding Page Totals to a Table" on page 246](#)
- ["Using Table Sorting to Customize the Order of Customers' Tables" on page 248](#)

- “[Analyzing Tables for Errors](#)” on page 250
- “[Symbols Used in Tables](#)” on page 251

In addition to these tasks, Exstream provides several engine switches you can use to perform run-time formatting of tables. For example, you can use a switch to ensure columns are balanced to help keep table content in context.

For information about the switches you can use to control the appearance of tables, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

If you are generating PDF, PDF/A, PDF/VT, or VDX output, you can create bookmarks for tables. These bookmarks will appear in a PDF viewer and allow customers to navigate directly to specific tables. If the table splits and flows, a bookmark will be added for each page to which the table flows.

For information about customizing the bookmarks that appear in PDF output for tables, see [“Adding Bookmarks to PDF Output” on page 596](#).

7.1 Table Types

Tables can range from simple to complex. Because you can do so many things to customize a table, choose your table type according to your project's requirements and the functionality available for the table. When you select your table type, you get just the features you need making it easier to make formatting and customization decisions. The following table describes the types of tables available.

Types of tables

Type	Symbol	Description
Simple Table		The table is produced in the finished document exactly as it is drawn. There is no automation of the table.
Basic Automated Table		The table has automated rows, headers, and footers, but there are no table sections that control which parts of the table are generated.
Automated Table with Sections		The table has table sections to control which sections of the table are produced and in what order. This type of table is used for table designs containing many sections, but without levels to control complex header and footer logic.
Automated Table with Levels		The table has table sections with levels to enable complex header and footer logic. For example, you can repeat one master heading from one level across all lower level sections of the table.
Basic Automated Table with Automated Columns		The table has automated rows, but there are no table sections that control which parts of the table are generated. This table type also provides automated columns.

Types of tables, continued

Type	Symbol	Description
User Table		The table has all features enabled to allow you full control over tables. Select this type of table if you want the functionality available in all of the table types.

7.2 Creating a Table

To add a table to a design, you can either create a new table using the tools available in Designer, or you can import an existing table from another program.

7.2.1 Creating a Table Using Designer

1. In Designer, on the Drawing Tools toolbar, click

The **Table** dialog box opens.

2. Click the **Table type** icon.

The **Table Type** dialog box opens.

3. Select the radio button next to the table type you want to create.

For information about the table types and the functionality they enable, see “[Table Types](#)” on the previous page.

4. To enable special data processing in the table, do one of the following:

To	Do this
Use section data in the table	Select the Enable data section/XML node processing check box. For information about using section data in a table, see “ Using Section Data to Create Tables ” on page 240.
Use XML node data in the table	Select the Enable data section/XML node processing check box. For more information about using XML node data in a table, see “ Using XML Node Data To Create Tables ” on page 243

Note: Data processing is available only for tables with a **Table type** of **Automated Table with Sections**, **Automated Table with Levels**, or **User Table**.

5. Click **OK**.

The **Table Type** dialog box closes and you return to the **Table** dialog box.

6. In the **Rows** box, enter the number of rows you want in the table. (You can change this number during design, if needed.)
7. In the **Columns** box, enter the number of columns you want in the table. (You can change this number during design, if needed.)
8. Click **OK**.

The **Table** dialog box closes and the table is placed on the page. You can now move, format, and add data to the table.

7.2.2 Importing an Existing Table

You can import tables that have been created in other programs. Importing existing tables allows you to leverage tables created by people who might not have Exstream or to transfer designs from a legacy system.

To import an existing table, carry out one of the following sets of steps, depending on the type of application in which you are working:

To	Do this
Import the table in an SBCS application	<ol style="list-style-type: none">1. In Designer, from the Insert menu, select Import > Table. The Open dialog box opens.2. From the Open dialog box, select the table you want to import.3. Click Open. The Open dialog box closes and the table is placed in the page.
Import the table in a DBCS application	<ol style="list-style-type: none">1. In Designer, from the Insert menu, select Import > Table. The Import Text File dialog box opens.2. Next to the File to import box, click . The Open dialog box opens3. Select the file and click Open. The Open dialog box closes and you return to the Import Text File dialog box.4. Click  to specify an encoding. The Select Encoding dialog box opens.5. From the Name list, select the encoding you want.6. Click OK. The Select Encoding dialog box closes.7. Click OK. The Import Text File dialog box closes and the table is placed in the page.

The table appears on the design. You can adjust its properties, such as the row height, or add or remove columns and rows, as necessary.

7.3 Adding Content to Tables

Tables store content in cells, which are the intersection of rows and columns. You can add content to tables in the same ways that you can add content to other types of design objects. For example, you can enter static text, variables, or graphics in table cells. You can also embed tables within table cells, text boxes, messages, and paragraph objects to help align content or to create a complex design. Depending on the type of table you use and where the table is embedded, embedded tables can have all the functionality of non-embedded tables. You can format the content you add to tables just as you can format text or images in other areas of the design.

For more information about embedding tables in a design, see [“Embedding Objects in a Design” on page 357](#).

For information about formatting text or images, see [“Adding Text to a Design” on page 140](#) and [“Adding Images and Drawings to a Design” on page 189](#).

As you add content to a table, keep in mind that the more cells you have in a table, the more processing time will be required. If processing time is a concern, where possible, join cells or use other formatting techniques to maintain the appearance you want without adding cells.

Exstream tables provide different types of rows and columns. The types of rows and columns you use in a table are determined by the purpose of the row and column. For example, one type of row, called a repeating header row, allows you to design a row that appears on the top of each page on which the table appears. You will often use automated rows and columns in your table, since they repeat as needed to contain data.

For information about automated rows and columns, see [“Using Data to Create Rows and Columns” on the next page](#).

As you design a table, you can specify the type of row or column and then add content to it, or you can add content to the table and then define the rows and columns so their functionality accommodates the content in them. The order in which you choose to design a table is up to you. However, before designing a table, it is important to plan how you want the content to appear in the final output, and understand the types of table properties you need to set in order to achieve that appearance. For example, if you are not designing a flowing document and you use any type of repeating row, make sure that all table contents can fit on a single design page. Otherwise, the table contents can be truncated and repeating rows might not appear as intended in the output.

For information about the types of rows and columns you can use in Exstream, see [“Row Types” on page 253](#) and [“Column Types” on page 254](#).

For information about flow, see [“Accommodating Objects That Flow” on page 401](#).

7.4 Using Data to Create Rows and Columns

The number of rows and columns you design is based on the data you need to display. You do not have to design a row or column for each data element that you need to accommodate.

Instead, you can use automated rows and columns to create a table that expands automatically to include a customer's data. For example, suppose you want to create rows to display the number of charges to a cell phone. You do not have to consider all the possibilities for each of your customers. Instead, you use a variable to supply the charges, and allow that variable to specify the number of rows that will appear in the final table. You can use data to create multiple rows or create multiple columns, but you cannot do both in the same table.

To create rows and columns using data, complete the following tasks as needed:

- “[Repeating a Row Based on Data](#)” below
- “[Counting Rows](#)” on page 202
- “[Removing Empty Rows](#)” on page 203
- “[Repeating a Column Based on Data](#)” on page 203
- “[Numbering Columns](#)” on page 204
- “[Using Serpentine Rows to Repeat Data](#)” on page 204

7.4.1 Repeating a Row Based on Data

When you create rows that repeat based on data, you design a row and then specify how many times the row is repeated and how those rows fill their cells with data. When you specify how a row is repeated, you also specify the order in which the variables in the row are populated with data (for example, whether the variables fill all of the columns in the row before creating the next row or whether they fill the first column and then create additional rows before filling the second column).

To repeat a row based on data:

1. In Designer, place the cursor in the row you want to set to repeat.
2. Right-click and select **Row properties**.

The **Row Properties** dialog box opens.

3. Click the **Automated Row Properties** tab.
4. From the **Row type** drop-down list, select **Automated row — Repeating on defined criteria**.
5. In the **Repeat criteria** area, specify how the row is repeated:

To	Do this
Repeat the row a specified number of times	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Fixed number. b. In the Repeat count box, enter the number of times you want the row to repeat. The automated row is included in the count of the number of rows. <p>Red plus signs are added to the rows underneath to indicate they are filled using the properties of the automated row.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>Note: A row with a repeating row indicator cannot be selected independently. If there are fewer reference variables than the number of repeated rows you specify, blank rows are added to the table.</p> </div>
Repeat the row based on the number of elements in an array variable	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Number of elements in array. b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows.
Repeat the row based on the number of elements in an array, but remove rows in which the array value equals a specified value	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Variable (filter if not equal). b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows. c. In the Variable filter box, enter the value you want to use to filter the data. You can use only one value to filter the data.
Repeat the row based on the number of elements in an array, but remove rows in which the array value equals a specified value	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Variable (filter if equal). b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows. c. In the Variable filter box, enter the value you want to use to filter the data. You can use only one value to filter the data.
Repeat the row based on the value of a specified variable	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Value of variable. b. In the Repeat variable box, select the variable that refers to the data and controls the number of rows.

6. If you selected an option other than **Fixed number** from the **Repeat method** drop-down list, you must select an option from the **Multi-column flow method** drop-down list to specify how the table cells are filled:

To	Example	Do this						
Create rows using data in the first column and then populate the remaining columns	<table border="1"><tr><td>1</td><td>4</td></tr><tr><td>2</td><td>5</td></tr><tr><td>3</td><td>6</td></tr></table>	1	4	2	5	3	6	Select Fill columns first .
1	4							
2	5							
3	6							
Populate all columns in the first row and then create additional rows	<table border="1"><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr><tr><td>5</td><td>6</td></tr></table>	1	2	3	4	5	6	Select Fill rows first .
1	2							
3	4							
5	6							
Repeat the value of the variable in the first column for the entire row	<table border="1"><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>2</td></tr><tr><td>3</td><td>3</td></tr></table>	1	1	2	2	3	3	Select Duplicate entries .
1	1							
2	2							
3	3							

7. Click **OK**.

The **Row Properties** dialog box closes.

If you want to make sure empty rows do not appear in the final table, see “[Removing Empty Rows](#)” on the next page.

7.4.2 Counting Rows

If you want to track the number of rows in a table, Exstream provides several system variables designed to count rows. For example, if you want to include a column in a table that numbers each table row, you can use a system variable to automatically count and provide the row numbers. You can use the following system variables to count rows:

- **SYS_TableRow**—The current row count for a table. The variable value reflects the rows on the page as well as rows that were excluded due to rules.
- **SYS_TableRowOnPage**—The current row number on a page for a table. Only the rows that use this variable are included in the count.
- **SYS_TableRowPage**—The current row count for a table on a page. This count does not include headers, footers, or rows excluded due to rules.
- **SYS_TableRowTotal**—The current row count for an entire table, regardless of how many overflow pages it requires. This count does not include headers, footers, or rows excluded due to rules.

For more information about system variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

7.4.3 Removing Empty Rows

Similar to the text box feature that allows you to remove empty lines, the "remove empty rows" feature lets you remove rows from the table during production if they do not contain any data. Otherwise, all table rows appear in the output, even if they are empty.

To remove empty rows:

1. In Designer, select the table for which you want to remove empty rows.
2. Click . The **Table Properties** dialog box opens.
3. Click the **Table** tab.
4. Select the **Remove empty rows** check box.
5. Click **OK**.

The **Table Properties** dialog box closes.

When the table is processed, any rows that do not contain data will be excluded from the final output.

7.4.4 Repeating a Column Based on Data

When you create columns that repeat based on data, you design a column and then specify how many times the column is repeated and how those columns fill their cells with data. When you set up a column to repeat based on data, you must set up the table to break to another page.

For information about allowing a table to break, see ["Controlling Table Breaking" on page 221](#).

To repeat columns based on data:

1. In Designer, place the cursor in the column you want to set to repeat.
2. Right-click and select **Column properties**. The **Column Properties** dialog box opens.
3. Click the **Automated Column Properties** tab.
4. From the **Column type** drop-down list, select **Column**.

5. In the **Repeat criteria** area, specify how the column is repeated:

To	Do this
Repeat the column a specified number of times	<ol style="list-style-type: none">From the Repeat method drop-down list, select Fixed number.In the Repeat count box, enter the number of times you want the column to repeat. <p>Note: If there are fewer reference variables than the number of repeated columns you specify, blank columns are added to the table.</p>
Repeat the column based on the number of elements in an array	<ol style="list-style-type: none">From the Repeat method drop-down list, select Number of elements in array.In the Repeat variable box, select the array variable that refers to the data and controls the number of columns.
Repeat the column based on the value of a specified variable	<ol style="list-style-type: none">From the Repeat method drop-down list, select Value of variable.In the Repeat variable box, select the array variable that refers to the data and controls the number of columns.

6. Click **OK**.

The **Table Column Properties** dialog box closes.

The table will create additional columns as specified by the data during processing. If necessary, the table will break and continue on another page or below the current table.

7.4.5 Numbering Columns

Exstream provides the 'SYS_TableColumn' system variable that you can use to track the number of columns in a table. For example, if you want to include a row in a table that numbers each table column, you can use a system variable to automatically count and provide the column numbers.

For more information about system variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

7.4.6 Using Serpentine Rows to Repeat Data

Serpentine rows are a unique type of table row that repeat groups of cells across the row. Rather than placing a variable in a row twice, serpentine rows let you automatically repeat sets of data. The data can be repeated horizontally and vertically. For example, suppose you need a table to present the following data:

Check 1
Amount 1
Date 1
Check 2
Amount 2
Date 2
Check 3
Amount 3
Date 3

You can use serpentine rows to present the data like this:

Example of serpentine rows

Check 1	Amount 1	Date 1	Check 3	Amount 3	Date 3
Check 2	Amount 2	Date 2			

Notice that instead of using three rows to present the data, the serpentine rows allow you to leverage the design white space and use only two rows.

The columns in a table that uses serpentine rows are balanced automatically, if possible, when the table is produced in output. In other words, each set of columns has the same number of rows, so the table maintains a balanced appearance. For example, in the following illustration, assume the table displays eight dates. In this case, each set of columns would have four rows. However, if the table displayed seven dates, the first row set would have four rows and the second set would have three rows.

Serpentine row example

Summary of Charges					
Date	Location	Amount	Date	Location	Amount
10/11/99	Lexington	100.00			

Because serpentine flow is not like the other types of flow in a table, the behavior of serpentine rows is different from other row behavior. When working with serpentine rows, keep in mind the following considerations:

- Cells that accept serpentine flow content must be the same size as the cells used to create the serpentine content.
- You cannot use joined cells with serpentine sections.
- A table must be set to split and flow in order for serpentine sections to work properly. If the table doesn't break, you can accomplish the same look with another **Multi-column flow method** option, such as **Fill columns first**.

For information about setting up objects to split and flow, see [“Accommodating Objects That Flow” on page 401](#).

- Row height in serpentine rows is fixed during design and cannot be changed during the engine run.
- Headers and footers are not automatically created for serpentine sections. You must create these types of rows separately, and specify the appropriate number of headers and footers for each section.
- Repeating divider rows are not automatically created for serpentine sections. You must create these types of rows separately.
- If you use a repeating divider row with serpentine sections, the divider always spans the table, even if the data does not flow past the divider row in the last column. For example, if the number of rows does not balance equally, and no data rows appear after the divider row, the divider row will be the last row in the last column.

Creating Serpentine Rows

When designing a serpentine row, you design only the initial set of cells that are repeated. You then set the number of cells that repeat and how often they repeat on the row. Before creating serpentine rows, you must set up the table to break.

For information about setting up tables to break, see [“Controlling Table Breaking” on page 221](#).

To create a serpentine row:

1. In Designer, on the row you want to make serpentine, place the variables in the cells that will repeat.
2. Add columns to the table as necessary so that the table has enough columns to hold the repeated content.
3. Select the row you want to make serpentine.
4. Right-click the row and select **Row properties**.

The **Row Properties** dialog box opens.

5. Click the **Automated Row Properties** tab.
6. From the **Row type** drop-down list, select **Automated, based on repeat criteria**.
7. In the **Repeat criteria** area, specify how the rows repeat:

To	Do this
Repeat the row based on data	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Number of elements in array. b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows.
Repeat the row based on data, but remove those rows not equal to a value	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Variable (filter if not equal). b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows. c. In the Variable filter box, enter the value you want to use to filter the data.
Repeat the row based on data, but remove those rows equal to a value	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Variable (filter if equal). b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows. c. In the Variable filter box, enter the value you want to use to filter the data.
Repeat the row based on the value of a variable	<ul style="list-style-type: none"> a. From the Repeat method drop-down list, select Value of variable. b. In the Repeat variable box, select the array variable that refers to the data and controls the number of rows.

8. In the **Multi-column flow method** area, specify the way in which columns are filled:

To	Do this
Repeat groups of cells with no space between	<ul style="list-style-type: none"> a. From the Multi-column flow method drop-down list, select Serpentine (aligned). b. In the Number of serpentine box, enter the number of cells to repeat. c. In the Include serpentine box, enter the number of times to repeat the cells.
Repeat groups of cells with a cell between groups for spacing	<ul style="list-style-type: none"> a. From the Multi-column flow method drop-down list, select Serpentine (spread). b. In the Number of serpentine box, enter the number of cells to repeat. c. In the Include serpentine box, enter the number of times to repeat the cells.

9. Click **OK**.

The **Row Properties** dialog box closes and the cells set to receive serpentine flow appear crossed out with red dashed lines. The number of cells crossed out depends on the number of cells in the serpentine section and the number of times you include the serpentine section.

7.5 Adding Headers and Footers to a Table

Headers and footers are unique types of rows and columns that you can use to distinguish separate areas of tables. Headers are used to introduce data in a table, and footers indicate the end of the data. For example, suppose you use a table as part of a financial statement design. You can use a header in the table to describe the type of charges or credits, and you can use a footer to provide the total of the charges or credits. You can place headers and footers in rows or columns in Exstream tables.

When you add headers and footers to a table, design the table so that each set of rows appears in the following order:

1. Header
2. Footer
3. Data row(s)

This order will most likely not match your desired output, but will be ordered correctly during composition. By designing your rows in this order, you can avoid processing errors because it makes it clear in the design which headers and footers should stay together.

If you are designing special headers for the top of a page or section, keep in mind that when drawing a table, the engine places a header and then checks whether other rows (excluding other table headers) have been placed on the page. If no other rows have been placed, the header is considered the top of the page (even if other headers are placed above it).

For information about the types of headers and footers available, see “[Row Types](#)” on page 253 and “[Column Types](#)” on page 254.

To add headers and footers to your table, complete the following tasks as needed:

- [“Creating Header and Footer Columns” on the next page](#)
- [“Creating Header and Footer Rows” on the next page](#)
- [“Setting Up Headers to Overlap” on page 210](#)

7.5.1 Creating Header and Footer Columns

1. In Designer, select the column you want to make a header or footer.
2. Right-click the selected column and select **Column properties**.
The **Table Column Properties** dialog box opens.
3. Click the **Automated Column Properties** tab.
4. From the **Column type** drop-down list, select the type of header or footer you want to create:

To	Do this
Create a column that appears at the left of a table and only on the first page on which the table appears	Select Header .
Create a column that appears at the left of a table on each page on which the table appears	Select Repeating header .
Create a column that appears at the left of a table on each page on which the table appears, except the first	Select Repeating header except first .
Create a column that appears at the right of a table and only on the last page on which the table appears	Select Footer .
Create a column that appears at the right of a table on each page on which the table appears	Select Repeating footer .
Create a column that appears at the right of a table on each page on which the table appears, except the first	Select Repeating footer except first .

5. Click **OK**.

The **Table Column Properties** dialog box closes. A table symbol is added next to the column to indicate that it is a header or footer.

For information about the types of headers and footers available, see “[Row Types](#)” on page 253 and “[Column Types](#)” on page 254.

7.5.2 Creating Header and Footer Rows

1. In Designer, select the row you want to make a header or footer, right-click, and then select **Row properties**.
2. In the **Row Properties** dialog box, click the **Automated Row Properties** tab.
3. From the **Row type** list, select the type of header or footer you want to create:

To create	Select
A row that appears at the top of the table and only on the first page on which the table appears	Header (H)
A row that appears on the top of each page on which the table appears	Repeating header (H+)
A row that appears at the top of a table on each page on which the table appears, except the first	Repeating header- Except first page (H-)
A row that appears at the top of a table only if the table is located at the top of a flow frame	Header- If table at top of flow frame (Hpf)
A row that appears at the top of a table only if the table is located in a flow frame, but not at the top of the flow frame	Header - If table is not at top of flow frame (Hmf)
A row that appears at the top of a table section at the first occurrence of the table section on the page	Section header - First occurrence on page (Hp)
A row that appears at the top of a table section on all but the first appearance of the table	Section header - Not first occurrence on page (Hm)
A row that appears at the bottom of a page and only on the last page on which the table appears	Footer (F)
A row that appears at the bottom of a table on each page on which the table appears	Repeating footer (F+)
A row that appears at the bottom of a table on each page on which the table appears, except the last	Repeating footer- Except last page (F-)
A row that appears after each subsection of a table	Sub-section footer (Fs)

4. Click **OK**.

A table symbol is added next to the row to indicate that it is a header or footer.

For information about the types of headers and footers available and the symbols used to represent them, see “[Row Types](#)” on page 253 and “[Column Types](#)” on page 254.

7.5.3 Setting Up Headers to Overlap

Overlapping headers are special headers that let you place the contents of the selected header over the contents of the row below it. For example, suppose you are creating a statement and you do not want to include the symbol for the currency (for example, \$, £, or ¥) on every row. By using an overlapping header, you can make the symbol appear on the first row only. If you do not use an overlapping header, you must repeat the symbol on every row or create complicated logic in your variable.

There are two steps to setting up headers to overlap: first, you specify that a particular row can overlap. Then, you specify which cells in that row can overlap the row below.

When using an overlapping header, keep in mind the following behaviors:

- The overlapping cells are ignored when calculating the height of the table.
- Objects that are relative to the table ignore the overlapping cells.
- When a row with an overlapping cell is placed on the page, the overlapping cell must fit on the page or the row is not included on the page.
- Headers and footers can be overlapped at the bottom or top by growing text.
- It is possible for an overlapping cell to grow large enough to exceed the page borders.
- Overlapping headers are not supported in the following output types: HTML, HTML (email), RTF, 3211 line data, or XML (composed).

Before setting up headers to overlap, you must have already specified a header row.

For information about setting up rows to be headers, see “[Creating Header and Footer Rows](#)” on [page 209](#).

To set up headers to overlap:

1. In Designer, select the row you want to overlap the next row.
2. Right-click the selected row and select **Row properties**.
The **Row Properties** dialog box opens.
3. Click the **Automated Row Properties** tab.
4. In the **Header processing** area, select one of the following options from the **Overlapping header** drop-down list:
 - **Does not overlap next row (normal)**
 - **Overlap with next row-align rows at top**
 - **Overlap with next row-align rows at center**
 - **Overlap with next row-align rows at bottom**
5. Click **OK**.
The **Row Properties** dialog box closes.
6. In the overlapping row, select the cell you want to overlap the next row.
7. Right-click the selected cell and select **Cell properties**.
The **Cell Properties** dialog box opens.
8. Click the **Table Cell Properties** tab.
9. Select the **Overlapping cell mode** check box.
10. If you want Designer to adjust the cell text in an overlapping header to prevent it from

overlapping the text below it, select the **Adjust text in overlapping headers** check box.

11. Click **OK**.

The **Cell Properties** dialog box closes.

12. Repeat step 6 through step 11 for each cell you want to overlap the next row.

7.6 Using Table Sections to Organize Table Content

Table sections are groups of rows that are treated uniquely in the table. Table sections can be especially useful when you work with complex data and you need to provide categories within the data. For example, if you use a table to provide a statement for a customer's phone, cable, and Internet bill, you can create four sections: one section for each service and a summary section. You can also use sections to apply different table properties to specific areas of a table. For example, you might want to define widow/orphan settings for rows in the cable bill section, but you do not need the same settings in the Internet bill section, since it is shorter.

In addition to these uses, you can also use sections to control which parts of the table are included and the order in which they are included. Table sections can also be used to create a hierarchy to let customers know how the sections relate to each other.

It is important to keep in mind the differences between table sections and section data. While they are often used together and they both are used to categorize information, they are not interchangeable terms. Section data is used to drive the creation of repetitive data, and section tables are used to present data in a categorized way.

For information about using section data to drive a table, see [“Using Section Data to Create Tables” on page 240](#).

You can add table sections to the following table types:

- Automated table with sections
- Automated table with levels
- User table

To use sections in a table, complete the following tasks as needed:

- [“Creating Table Sections” on the next page](#)
- [“Adding Levels to Table Sections to Create Hierarchy” on page 214](#)
- [“Using Array Variables to Create the Appearance of Table Sections” on page 216](#)

7.6.1 Creating Table Sections

1. Select the first row in the section.
2. Right-click the selected row and select **Row properties**.
The **Row Properties** dialog box opens.
3. Click the **Automated Row Properties** tab.
4. From the **Row Type** drop-down list, select any type of row other than **Not automated** or **Repeating divider**. (The most common type is a header.)
5. In the **Table section (set of rows)** area, select the **First row of table section** check box.
6. In the **Table section (set of rows)** area, specify how the section will break and flow:

To	Do this
Force the table flow to break when the row is encountered	Select the Break flow check box.
Keep a specified number of rows together on a given page	<ol style="list-style-type: none">a. Select the Widow and orphan rows check box.b. In the adjacent box, enter the number of rows to keep together.
Limit the number of rows (not headers or footers) allowed on the page	<ol style="list-style-type: none">a. Select the Limit number of rows per page check box.b. In the adjacent box, enter the maximum number of section rows allowed on the page.

Tip: This option works correctly only if the table flows to another page. If the table will not flow to another page but you want the table to break over two pages, use the **Break flow** option instead.

7. From the **When to include section** drop-down list, select when to include the section in the table:

To	Do this
Always include the section	Select When page created .
Include the section when a variable is in the data	<ol style="list-style-type: none">a. Select Page created, if variable count > 0.b. In the Variable box, enter the variable.
Include the section when the value in a variable is greater than zero	<ol style="list-style-type: none">a. Select Page created, if variable value > 0.b. In the Variable box, enter the variable.

To	Do this
Include the section when a variable is not in the data	a. Select Page created, if variable count = 0 . b. In the Variable box, enter the variable.
Include the section when the value in a variable is zero	a. Select Page created, if variable value = 0 . b. In the Variable box, enter the variable.
Include the section each time a section follows	Select With table section at next level, each .
Include the section the first time a section follows	Select Table section at next level, first only .

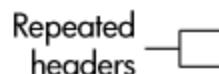
8. Click **OK**.

The **Row Properties** dialog box closes.

7.6.2 Adding Levels to Table Sections to Create Hierarchy

You can add levels to table sections to create divisions similar to sub-tables or subheadings in a document. Levels contain a complete subset of customer information but are contained within a larger set (for example, debits versus credits or checking versus savings for a single account). Levels also allow you to create a master heading that repeats over multiple sections (since table sections do not include headers from other sections). You add levels to table sections by specifying header rows that repeat on lower level table sections.

Example of repeated headers forming table levels



August 31, 2003	6:35 PM	MERCHANTV1 NJ	609-663-5550	27.10
August 31, 2003	8:29 PM	HADDONFLD NJ	609-751-2200	1.40
August 31, 2003	9:41 PM	HADDONFLD NJ	609-751-2200	39.10
End of Long Distance - (3rd Quarter- August)				
Long Distance Account Number - 3036752435				
Long Distance - 3rd Quarter				
September				
Call Date	Call Time	Call Location	Call Number	Call Minutes
September 3, 2003	11:44 AM	EWING NJ	609-530-2616	5.30
September 3, 2003	12:56 PM	EWING NJ	609-530-2616	9.10
September 3, 2003	2:08 PM	EWING NJ	609-530-2616	18.10
September 4, 2003	9:45 AM	MOORESTOWN NJ	609-366-4980	8.90
September 4, 2003	5:05 PM	MERCHANTV1 NJ	609-482-3000	5.30

Sections and levels work together to create a hierarchy within the table. Sections control what data is included and when it is included, while levels let you create the actual hierarchy by determining how the sections are nested within other sections.

Note: Make sure that your data supports your design. If you have a level 1 header you want included once for all pages, it should be included once in the data.

To add levels to a table section, you must use one of the following table types:

- Automated table with sections
- User table

Before carrying out this task, make sure you have set up sections in the table.

For information about setting up sections, see “[Creating Table Sections](#)” on page 213.

To add levels to a table section:

1. In Designer, select the first row in the section.
2. Right-click the selected row and select **Row properties**.
The **Row Properties** dialog box opens.
3. Click the **Automated Row Properties** tab.
4. From the **Level of this table section** drop-down list, select the section level. (The scale is 1 to 20, with 1 being the highest and 20 the lowest. Selecting 0 means the section cannot be nested.)
5. If you are creating a header and you want the header to repeat on levels lower than the one specified in the **Level of this table section** drop-down list, select the **Repeat headers on lower levels** check box.
6. If you selected the **Repeat headers on lower levels** check box, select the **Include headers from higher levels** check box.
7. In the adjacent box, enter the level from which you want headers to be included. For example, if you want all headers lower than level 2 to be repeated, enter 3.

Note: If you select the **Repeat headers on lower levels** but do not select the **Include headers from higher levels** check box, the engine will still reserve the space for the higher level headers. Therefore, the output might include empty space and the table appearance might be different from what you expect.

8. Click **OK**.

The **Row Properties** dialog box closes.

As the table is composed, the levels will be ordered and nested based on section inclusion. Headers will be repeated as specified.

7.6.3 Using Array Variables to Create the Appearance of Table Sections

If your data does not include sections but instead uses an array variable to provide different types of data for a single customer, you can design a table to use the array data to provide section-like functionality. When the table is processed, it includes the section header in specified locations, such as when the variable value changes. For example, if the data for a customer's cell phone charges and land-line phone charges are contained in an array, you can set up the table so that a header appears between the cell phone charges and the land-line phone charges to distinguish the different types of data being displayed.

When you use array variables, you cannot nest a single array section within another single array section.

Before carrying out this task, make sure you have created the start of the section on a header. In addition, you must set up the table to split and flow.

For information about creating sections, see [“Creating Table Sections” on page 213](#).

For information about allowing a table to split and flow, see [“Controlling Table Breaking” on page 221](#).

To use an array to create the appearance of table sections, you must use one of the following table types:

- Automated table with sections
- Automated table with levels
- User table

To use an array to create the appearance of table sections:

1. In Designer, select the first row in the section.
2. Right-click the selected row and select **Row properties**.

The **Row Properties** dialog box opens.

3. Click the **Automated Row Properties** tab.
4. Select the **Create multiple table sections from single array** check box.

The **Row breaks** area becomes available.

5. In the **Row breaks** area, select how the section breaks:

To	Do this
Break the table after a specified number of rows	<ol style="list-style-type: none">From the Break method drop-down list, select Fixed number.In the Number per break box, enter the number of rows.
Break the table when the value of a variable changes	<ol style="list-style-type: none">From the Break method drop-down list, select When variable value changes.In the Variable box, enter the variable.
Break the table when a variable does not equal a specified value	<ol style="list-style-type: none">From the Break method drop-down list, select When variable does not equal.In the Variable box, enter the variable.In the Variable filter box, enter the value.
Break the table when a variable equals a specified value	<ol style="list-style-type: none">From the Break method drop-down list, select When variable equals.In the Variable box, enter the variable.In the Variable filter box, enter the value.
Break the table after the engine places all the array elements of the specified variable	<ol style="list-style-type: none">From the Break method drop-down list, select Value of variable.In the Variable box, enter the variable.

6. Click **OK**.

The **Row Properties** dialog box closes.

7.7 Changing the Width and Height of a Table

You can manually adjust the size of a table during the design time. For example, you can drag table borders to make the table larger or smaller, or you can distribute rows and columns to adjust their spacing. However, you can also set up a table to resize automatically to accommodate the final content. By allowing a table to resize automatically, the table can fill a page more evenly without using more space than necessary. In addition, unlike other design objects, you can set up a simple table to grow upward, rather than downward.

7.7.1 Automatically Resizing the Width of a Column

If you use automated columns in a table, you can set up a column so its width is adjusted automatically to fit within the size set for the table. If the table does not use automated columns, the table will not change size, so it is not necessary for you to adjust the column width. When you allow a table to automatically change width, you enter the target width of the table after columns have been excluded because of rules or included because of automated columns.

Before setting up a table to automatically resize its width, make sure the table uses at least one automated column and that the table is set to break.

For information about adding automated columns, see “[Repeating a Column Based on Data](#)” on [page 203](#).

For information about setting up a table to break, see “[Controlling Table Breaking](#)” on [page 221](#).

To automatically resize the width of a table:

1. Select the table you want to set up to automatically resize.
2. Click .

The **Table Properties** dialog box opens.

3. Click the **Table** tab.
4. Select the **Autofit width** check box.
5. In the **Target width** box, enter the desired table width.
6. Click **OK**.

The **Table Properties** dialog box closes.

7. Select the automated column.
8. Right-click the selected column and select **Column Properties**.

The **Table Column Properties** dialog box opens.

9. Click the **Column Properties** tab.
10. From the **Autofit width** drop-down list specify how the column is adjusted:

To	Do this
Make the column wider only	<ol style="list-style-type: none">a. Select Can get wider.b. In the Maximum width box, enter the maximum width of the column.

To	Do this
Make the column narrower only	<ol style="list-style-type: none">Select Can get narrower.In the Minimum width box, enter the minimum width of the column.
Make the column wider or narrower	<ol style="list-style-type: none">Select Either.In the Maximum width box, enter the maximum width of the column.In the Minimum width box, enter the minimum width of the column.

11. Click **OK**.

The **Table Column Properties** dialog box closes.

When the table is composed the columns can change widths as specified. The changing column width also affects the width of the table.

7.7.2 Automatically Resizing the Height of a Row

You can manually change the height of a row during design, or you can allow the row to resize automatically as content is added to it. You can also let the engine resize the row height during processing to make sure all of the variable content is included in the final output.

Note: To make a table shorter or taller during design, you must resize the individual rows. You cannot drag the top or bottom border of a table.

To automatically change the height of a row:

1. In Designer, select the row you want to allow to be resized.
2. Click .

The **Row Properties** dialog box opens.

3. Click the **Row Properties** tab.
4. From the **Autosize height during design** drop-down list, select one of the following options:
 - **Make shorter or taller**
 - **Shorter only**

- **Taller only**
 - **Do not resize**
5. If you know that the data will not grow beyond the size of the row and you want row heights in your design to have a consistent appearance, select the **Fixed height in Engine** check box. When this check box is selected, the row's height will not change during the engine run.
 6. Click **OK**.

The **Row Properties** dialog box closes.

During design, the row height changes based on the amount of content in it. Depending on your selection on the **Fixed height in Engine** check box, the height might change during processing as well.

7.7.3 Allowing a Table to Grow Upward

By default, tables are set to grow downward like other design objects. However, you can set up simple tables so that they can grow upward. For example, if a page has a remittance slip at the bottom, you can place a simple table above it and set the table to grow upward so that the remittance slip is not moved. If you allow a table to grow upward, you cannot make other objects relative to the table. In addition, a table that grows upward cannot flow.

To allow a table to grow upward:

1. Select the table you want to allow to grow upward.
 2. Click .
- The **Table Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
 4. Clear the **Can split and flow** check box.
 5. Select the **Autosize height** check box.
 6. From the **Grow** drop-down list, select **Up**.
 7. From the **Ignore for relative flow** drop-down list, select the way you want the design flow to react to this table:

To	Do this
Stop all flow when this table is reached. Flow begins again on the next page.	Select Yes, and breaks flow on page .
Have the flow ignore the table	Select Ignore for relative flow .

8. Click **OK**.

The **Table Properties** dialog box closes and the lines indicating the growth direction change to reflect the direction in which the table will grow.

7.8 Controlling Table Breaking

You can control the way a table breaks to help keep information together on a page. For example, in a table with repeating rows or columns, the table might exceed the given space on a page after the data has been added to the table. If you do not allow the table to break and it exceeds the space available, the output might not include important data. Designer provides many features you can use to control how tables break and flow so that the table has the appearance you want after the engine processing.

To control the way a table breaks, complete the following tasks as needed:

- “[Allowing a Table to Split When It Becomes Too Long for an Area](#)” below
- “[Allowing a Table to Split When it Becomes Too Wide for an Area](#)” on page 223
- “[Grouping Columns to Keep Them Together](#)” on page 224
- “[Grouping Table Rows to Keep Them Together](#)” on page 225
- “[Controlling the Number of Widow/Orphan Rows](#)” on page 227
- “[Setting a Row to Break](#)” on page 228

7.8.1 Allowing a Table to Split When It Becomes Too Long for an Area

If you use automated rows or columns in a table, it is important to consider how the table will grow and expand when the data is populated. If a table can potentially grow too long for its given space, you can set up the table to split and flow so important data is not lost. You can allow a table to split while keeping together specific rows so information stays in context.

For information about keeping rows together, see “[Grouping Table Rows to Keep Them Together](#)” on page 225.

You use flow frames to contain the table content that splits and flows from the original table.

For detailed information about flow frames and allowing objects to flow, see “[Accommodating Objects That Flow](#)” on page 401.

To allow a table to split when it becomes too long for an area:

1. In Designer, select the table you want to allow to break.
2. Click .

The **Table Properties** dialog box opens.

3. Click the **Dynamic Size and Placement** tab.
4. Select the **Can split and flow** check box.
5. From the drop-down list below the **Can split and flow** check box, specify where the overflow from the table will be placed:

To	Do this
Allow the content to flow to any frame	Select Flow to any frame .
Allow the content to flow to any flow frame without a name	Select Any unnamed frame .
Allow the content to flow to any frame with a name	Select Flow to any named frame .
Allow the content to flow to frames with a specific name	<ol style="list-style-type: none">a. Select Flow to specified target.b. Click  and select the name of the frame.

6. In the **Page flow limit** box, enter the smallest distance that can exist between the top of the table and the top page margin when the table flows.
7. In the **Minimum flow size** box, enter the smallest portion of a table that can flow to a frame. If the overflow amount is too small, additional content from the table is moved.
8. In the **Minimum height** box, enter the smallest portion of a table that can appear on a page. If the table is too small, the entire table is moved.
9. If you do not want to place messages in any white space between splits, select the **Between splits** check box.
10. To keep repeating rows together when the table breaks, click the **Table** tab and select the **Keep groups together** check box. This selection overrides the widow/orphan controls on table sections.
11. Click **OK**.

The **Table Properties** dialog box closes.

7.8.2 Allowing a Table to Split When it Becomes Too Wide for an Area

If you use automated rows or columns in a table, it is important to consider how the table will grow and expand when the data is populated. If a table can potentially grow too wide for its given space, you can set up the table to split so important data is not lost. You can allow a table to split while keeping together specific columns so information stays in context.

For information about keeping columns together, see “[Grouping Columns to Keep Them Together](#)” on the next page.

Before setting up a table to break horizontally, you must have set up the table to split and flow.

For information about setting up a table to split and flow, see “[Allowing a Table to Split When It Becomes Too Long for an Area](#)” on page 221.

To allow a table to split when it becomes too wide for an area:

1. In Designer, select the table you want to allow to break.
2. Click .

The **Table Properties** dialog box opens.

3. Click the **Table** tab.
4. From the **Split if too wide** drop-down list, select how the table breaks when it is too long for the page:

To	Do this
Split the table and place it below table	<ol style="list-style-type: none">a. Select Yes.b. In the Space between tables box, enter the amount of space between the table and the overflow.
Split the table and place it on another page	<ol style="list-style-type: none">a. Select Yes, with page break.b. Verify that a page with an overflow frame is included in the document.

Note: For information about creating overflow frames, see “[Accommodating Objects That Flow](#)” on page 401.

5. Click **OK**.
6. Select the column that can break.
7. Right-click and select **Column properties**.

The **Table Column Properties** dialog box opens.

8. Click the **Automated Column Properties** tab.
9. In the **Table splitting when too wide** area, click  in the **Break variable** box and select the variable that specifies when the table breaks.
10. If you want to force the table to split when the variable is encountered, select the **Force break** check box.
11. Click **OK**.

The **Table Column Properties** dialog box closes.

During processing, when the table needs to break horizontally, the break variable specifies when the table breaks.

7.8.3 Grouping Columns to Keep Them Together

Grouping columns lets you keep sets of columns together as the table grows and splits. When columns are grouped, each time the first column in the group is placed, the columns grouped with it are placed as well. Grouping columns allows you to keep information in context when a table splits.

Note: Only the first column in a group can repeat.

If you create a group, you can use rules to select the columns in the group to include in a composed table. This method is more efficient than adding a rule to each column to specify when it is used. You can use a single rule to select up to four columns. In the rule, each column is represented by two numbers. For example, the first column is 01 and the fourth column is 04. The eleventh column is 11.

The rules on a column are not executed until the first row of the table is created. After a column is removed, it is removed from the entire table. You can use the rules to create a table that is wider than the page, and then remove the unneeded columns until the table fits onto the width of the page.

To group columns:

1. In Designer, select the column that appears after the first column in the group.
2. Right-click the selected column and select **Column properties**.

The **Table Column Properties** dialog box opens.

3. Click the **Automated Column Properties** tab.
4. From the **Column type** drop-down list, select **Column**.
5. In the **Group processing** area, select the **Group with previous column** check box.

6. Click **OK**.

The **Table Column Properties** dialog box closes.

7. Repeat step 2 through step 6 for each column you want to group, except the first column in the group.
 8. Select the first column in the group.
 9. Right-click the selected column and select **Column properties**.
- The **Table Column Properties** dialog box opens.
10. Click the **Automated Column Properties** tab.
 11. From the **Column type** drop-down list, select **Column**.
 12. Set the repeat properties as necessary. You can set repeat properties only on the first column of a group.
 13. From the **Group rule method** drop-down list, specify how the rule on the first row of the group will control the column inclusion:

To	Do this
Select all columns using a single rule. If the conditions are met, the entire group is included. If any of the conditions are not met, the entire group is excluded.	<ol style="list-style-type: none">a. Select Rule controls all columns in group.b. Click the Rule tab.c. Use the properties on the Rule tab to create the rule.d. Click OK. <p>The Table Column Properties dialog box closes.</p>
Select columns separately using rules on each column	<ol style="list-style-type: none">a. Select None, each column must have rule.b. For each column, open the Table Column Properties dialog box and use the properties on the Rule tab to create the rule for that column.

For information about repeat criteria, see “[Using Data to Create Rows and Columns](#)” on [page 200](#).

For information about creating rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

7.8.4 Grouping Table Rows to Keep Them Together

Grouping table rows lets you keep sets of rows together as the table grows and splits. When rows are grouped, each time the first row in the group is placed, the rows grouped with it are placed as well. Grouping rows allows you to keep information in context when a table splits. For example, suppose that you work for an insurance company and are creating a table that

contains rate information about different cars. In that scenario, you can use row grouping to keep the rows for each type of car together.

If you create a group, you can use rules to select which rows in the group to include in a composed table. This method is more efficient than adding a rule to each row to specify when it is used. You can use a single rule to select up to four rows. In the rule, each row is represented by two numbers. For example, the first row is 01, the second row is 02, the third row is 03, and so on. After defining the groups of rows, you update the table properties to force the groups to stay together during processing. So a rule that states **Include 0103** includes the first and third rows from the group, and a rule that states **Include 0204** includes the second and fourth rows from the group.

To group rows:

1. In Designer, select the row that appears after the row with which you want to group it.
2. Right-click the selected row and click **Row properties**.
3. Click the **Automated Row Properties** tab.
4. In the **Row type** list, select one of the following options:
 - **Not automated**
 - **Automated, based on repeat criteria**
5. In the **Group processing** area, select the **Group with previous row** check box.
6. Click **OK**.
7. Repeat step 1 through step 6 for each row you want to group, except the first row in the group.
8. Select the first row in the group.
9. Right-click the selected row and select **Row properties**.
10. Click the **Automated Row Properties** tab.
11. In the **Row type** list, select **Automated, based on repeat criteria**.
12. Set the repeating properties or section properties as necessary. You can set repeat or section properties on the first row of a group only.
13. In the **Group rule method** list, specify how the rule on the first row of the group controls the row inclusion:

To	Do this
Select rows separately using rules on each column	<ol style="list-style-type: none">a. Select None, each row must have rule.b. Open the Row Properties dialog box for each row.c. Use the properties on the Rule tab to create the rule.

To	Do this
Select all rows using a single rule	<ol style="list-style-type: none">Select Rule controls all rows.Click the Rule tab.Use the properties on the Rule tab to create the rule.
Select individual rows using a single rule	<ol style="list-style-type: none">Select Rule selects one or more group rows.Click the Rule tab.Use the properties on the Rule tab to create the rule.

Note: Up to four rows can be included for each condition in the rule.

14. Click **OK**.
15. Click .
16. Click the **Table** tab.
17. Select the **Keep groups together** check box.
18. Click **OK**.

For more information about repeat criteria and table sections, see *Designing Customer Communications* in the Exstream Design and Production documentation.

7.8.5 Controlling the Number of Widow/Orphan Rows

You can control widow or orphan rows (rows that are separated by page breaks from adjacent rows) to ensure that rows do not appear without enough content to keep them in context. For example, you can prevent only one row of a table from appearing at the bottom of a page, while all of the other rows of the table appear on the next page. When you set the number of widow and orphan rows, you specify the number of rows that must be together when the table is drawn. For example, if you set a widow/orphan setting of two, at least two rows must be together. If the table contains five rows and splits, three rows can appear on one page and two on another.

Widow/orphan settings apply to table sections. You can define different widow/orphan settings for different table sections within the same table.

When controlling the number of widow/orphan rows, keep in mind the following behaviors:

- The widow/orphan setting is ignored for header rows because header rows are always placed with the row that follows them.

- The number you specify for the widow/orphan setting must be equal to or less than half the number of rows in the table. For example, if the table contains nine rows, the widow/orphan setting must be four or less.

Before beginning this task, you must have set up sections in the table.

For information about setting up table sections, see [“Using Table Sections to Organize Table Content” on page 212](#).

To control the number of widow/orphan rows:

1. Select the first row in the table section for which you want to specify the widow/orphan setting.
2. Right-click the selected row and select **Row properties**.
The **Row Properties** dialog box opens.
3. Click the **Automated Row Properties** tab.
4. In the **Table section (set of rows)** area, select the **Widow and orphan rows** check box.
5. In the adjacent box, enter the number of minimum number of rows that can appear by themselves.
6. Click **OK**.

The **Row Properties** dialog box closes.

During processing, the number of rows that must remain together is honored and rows are moved as necessary to keep them together.

7.8.6 Setting a Row to Break

By default, a single row does not break across pages. However, if a table contains rows with a large amount of content and you want to allow a row to break across pages, you can allow the row itself to split. When you allow a row to break, you must also allow each cell in the row to split as well. Table cells cannot be set to split in repeating columns.

To allow a row to break:

1. In Designer, place the cursor in the row you want to allow to break.
2. Right-click and select **Row properties**.
The **Row Properties** dialog box opens.
3. Click the **Row Properties** tab.
4. Select the **Can split** check box.
5. Click **OK**.

The **Row Properties** dialog box closes.

6. Select one or more cells in the row.
7. Right-click the selected cells and select **Cell properties**.

The **Cell Properties** dialog box opens.

8. Click the **Table Cell Properties** tab.
9. From the **Split when composed** drop-down list, select one of the following options:
 - **Does not split**—If the cell is too tall to fit in the position where it is started, the entire row will be moved to the next available flow frame during the engine run.
 - **No split, repeat on each page**—If the row containing the cell splits, the cell contents are repeated in the row that is moved to the next flow frame during the engine run. You can select this setting for a cell only if at least one other cell in the row has the **Split when composed** option set to **Split** (otherwise the row would not split).
 - **Split**—The cell contents split and continue flowing on the following page during the engine run. This option must be set for each cell in the row you want to split. If you do not set the option for every cell, you receive a warning message when you run Table Analyst or when you click off the table. Then, during the engine run, the entire row is moved to the next available flow frame.
10. Click **OK**.

The **Cell Properties** dialog box closes.

7.9 Formatting a Table

The basic structure of a table is defined by its columns and rows. As you design a table, the general menu, button, and shortcut options are available to help you insert, copy, and delete rows and columns. Most of the formatting options available on other design objects are available for tables (for example, you can fill and place lines around the table, rows, columns, and individual cells). In addition, most of the text formatting options available on other types of text containers are available to you to use to format text in a table cell.

Tip: If you must position content within tables, where possible, join table cells and then use tabs to position the content. Fewer table cells result in faster processing time.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

When formatting a table, keep in mind that in order to achieve the most efficient processing times, you should place formatting on as large a portion of the table as possible.

This section discusses the following topics:

- “General Table Formatting” below
- “Row and Column Formatting” on page 232
- “Cell Formatting” on page 236

7.9.1 General Table Formatting

To apply some commonly-used general formatting to an entire table, complete the following tasks as needed:

- “Adding a Border to a Table” below
- “Adding Grid Lines to a Table” below
- “Adding a Legend to a Table” on the next page
- “Changing the Background Color of a Table” on page 232

Adding a Border to a Table

1. Select the table to which you want to add a border.
2. Click . The **Table Properties** dialog box opens.
3. Click the **Table** tab.
4. From the **Frame style** drop-down list, select the type of border you want to add to the table.
5. If you selected **Rounded**, use the **Corners** slider to adjust the degree of rounding.
6. Click **OK**.

The **Table Properties** dialog box closes.

Adding Grid Lines to a Table

1. Select the group of cells to which you want to apply grid lines.
2. Right-click the selected cells and select **Cell properties**. The **Cell Properties** dialog box opens.
3. Click the **Table Cell Properties** tab.
4. From the **Grid lines** drop-down list, select the shape you want the lines to take.

5. In the box below, click the sides that correspond to the cell sides on which you want the grid lines to appear.
6. To change the formatting of the grid lines, double-click in center of the box.

The **Border Properties** dialog box opens.

- a. In the **Line Properties** box, select the line style.
- b. To change the line color, click the color well.

The **Color** dialog box opens.

- c. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

- d. Enter the width of the line of the box below the color well.
- e. Click **OK**.

The **Border Properties** dialog box closes.

7. Click **OK**.

The **Cell Properties** dialog box closes.

Adding a Legend to a Table

1. Select the table to which you want to add a legend.
 2. Click .
- The **Table Properties** dialog box opens.
3. Click the **Table** tab.
 4. Select the **Add legend boxes to rows** check box.
 5. Use the options below the check box to define the legend size, style, and location.
 6. Click **OK**.

The **Table Properties** dialog box closes.

7. Select the first row to which you want to add a legend box.
8. Right-click the selected row and select **Row properties**.

The **Row Properties** dialog box opens.

9. Click the **Row Properties** tab.
10. Select the **Include legend** box check box.
11. In the adjacent color well, select the color of the legend box.

12. Click **OK**.

The **Row Properties** dialog box closes.

Changing the Background Color of a Table

If you want to change the background color of a table, you must make the change on the cell properties rather than on the table properties. You cannot set the fill color of a table, only of individual cells (or a group of cells).

To change the background color of a table:

1. Select the group of cells to which you want to apply a background color.
2. Right-click the selected cells and select **Cell properties**.

The **Cell Properties** dialog box opens.

3. Click the **Table Cell Properties** tab.
4. Select the **Background** check box.
5. Click the color well to specify the color used in the background.

The **Color** dialog box opens.

6. Select or specify the color and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

7. Click **OK**.

The **Cell Properties** dialog box closes.

7.9.2 Row and Column Formatting

This section discusses the following topics:

- “[Common Formatting Tasks for Rows and Columns](#)” on the next page
- “[Alternating the Fill in Automated Rows](#)” on page 234
- “[Adding a Visual Divider to Rows](#)” on page 235

Common Formatting Tasks for Rows and Columns

The following table describes how to carry out common formatting tasks used for rows and columns:

To	Do this
Add a border to a column	<ol style="list-style-type: none">1. Select the column to which you want to add a border.2. Right-click the selected column and select Column properties. The Column Properties dialog box opens.3. Use the Line left and Line right boxes to format the lines that appear on each side of the column.
Add a border to a row	<ol style="list-style-type: none">1. Select the row to which you want to add a border.2. Right-click the selected row and select Row properties. The Row Properties dialog box opens.3. Use the Line above and Line below boxes to format the lines that appear above and below the row.
<p>Tip: To improve the processing speed, use column row lines instead of multiple cell borders.</p>	
Add a column	<ol style="list-style-type: none">1. Select the column that appears either before or after the point where you want to add a column.2. Right-click the selected column and select either Insert column before or Insert column after.
Add a row	<ol style="list-style-type: none">1. Select the row that appears either before or after the point where you want to add a row.2. Right-click the selected row and select either Insert row before or Insert row after.
Copy and paste a column	<ol style="list-style-type: none">1. Select the column you want to copy.2. Right-click the selected column and select Duplicate column.3. Paste the column in the table.
Copy and paste a row	<ol style="list-style-type: none">1. Select the row you want to copy.2. Right-click the selected row and select Duplicate row.3. Paste the row in the table.
Delete a column	<ol style="list-style-type: none">1. Select the column you want to delete.2. Right-click the selected column and select Delete column.

To	Do this
Delete a row	<ol style="list-style-type: none">Select the row you want to delete.Right-click the selected row and select Delete row.
Make columns equal sizes	<ol style="list-style-type: none">Select the columns you want to make equal sizes.Right-click the selected columns and select Distribute columns.
Make rows equal sizes	<ol style="list-style-type: none">Select the rows you want to make equal sizes.Right-click the selected rows and select Distribute rows.

Alternating the Fill in Automated Rows

You can apply coloring to alternate rows to make it easier to read a table. Since rows can be added during production and because the number of rows can change for each customer, Designer lets you automatically apply alternating fill to rows (rather than designing the color manually). The engine applies color to the first row and continues to alternate the fill with no background color throughout the additional rows.

Alternating fill in a table

Summary of Charges		
Date	Location	Amount
1/5/2010	ABC Company	\$23.58
1/8/2010	XYZ Inc	\$15.70
1/14/2010	123 Limited	\$73.37

Note: You cannot alternate the fill color on simple tables and tables that use the serpentine rows that flow to multiple columns.

Before setting up alternating fill, you must select the repeat method for the rows.

For information about defining the repeating method for rows, see “[Repeating a Row Based on Data](#)” on page 200.

To alternate the fill in table rows:

- In Designer, select the table to which you want to apply alternate fill.
- Click .

The **Table Properties** dialog box opens.

3. Click the **Table** tab.
4. Select the **Alternate fill in table rows** check box.
5. Click **OK**.

The **Table Properties** dialog box closes.

6. Highlight the automated row.

7. Click .

The **Color** dialog box opens.

8. Select or create a color for the row.
9. Click **OK**.

The **Color** dialog box closes and the color is applied to the row. When the row is included in the output, every other row will receive the fill color.

Adding a Visual Divider to Rows

Divider rows (sometimes called separator rows) let you place a break in the table after a specified number of rows. You can add divider rows to a table to separate the rows and make it easier for the customer to read the data in the table. For example, if you are creating a statement, you can set up a divider row to appear after every two charges.

Table with divider rows

Summary of Charges		
Date	Location	Amount
1/5/2010	ABC Company	\$23.58
1/8/2010	XYZ Inc	\$15.70
1/14/2010	123 Limited	\$73.37
1/19/2010	The QWERTY	\$3.14
1/22/2010	aeiou&y	\$19.98

When adding divider rows to a table, keep in mind the following behaviors:

- Divider rows automatically align horizontally on multiple column serpentine sections.
- Divider rows can divide only data rows and cannot be placed between data rows and header or footer rows.

To create a divider row:

1. In Designer, select the row you want to use as the divider row.
2. Right-click the selected row and click **Row properties**.

The **Row Properties** dialog box opens.

3. Click the **Automated Row Properties** tab.
4. From the **Row type** drop-down list, select **Repeating divider**.
5. In the **Repeat after number of data rows** box, enter the number of rows you want to appear between each divider row. The row counter resets when a table splits and flows to another page so that you have a complete set of rows at the top of each new page.
6. Click **OK**.

The **Row Properties** dialog box closes.

When the table is composed, a divider row will be placed after the specified number of rows on the page. If the table flows to another page, the count will be reset.

7.9.3 Cell Formatting

This section discusses the formatting topics:

- “[Common Formatting Tasks for Cells](#)” on the next page
- “[Adjusting Cell Widths](#)” on the next page
- “[Joining Cells Automatically](#)” on page 238
- “[Specifying When a Cell is Composed](#)” on page 239

Common Formatting Tasks for Cells

The following table describes how to carry out common formatting tasks for cells:

To	Do this
Add a border to a cell	<ol style="list-style-type: none">1. Select the cell to which you want to add a border.2. Right-click the selected cell and select Cell properties. The Cell Properties dialog box opens.3. Click the Table Cell Properties tab.4. From the Grid lines drop-down list, select the shape you want the cell border to take.5. If you selected Rounded, use the slider to adjust the degree of the rounding.6. Use the Grid lines box to format the lines used to make the border.<ul style="list-style-type: none">• To add or remove lines, click the sides or corners of the Grid line box.• To specify the line style, color, and thickness of individual lines, double click the sides or corners of the Grid line box.• To specify the line style, color, and thickness of all the lines, double-click the center of the Grid line box.
	<p>Tip: To improve the processing speed, use row and column lines instead of multiple cell borders.</p>
Join cells	<ol style="list-style-type: none">1. Select the cells you want to join.2. Right-click the selected cells and select Join cells.
	<p>Tip: You can also set cells to be joined automatically during processing if they contain the same values.</p> <p>For information about setting cells to be joined automatically, see “Joining Cells Automatically” on the next page.</p>
Split cells	<ol style="list-style-type: none">1. Select the cell you want to split.2. Right-click the selected cell and select Split cells.

Adjusting Cell Widths

In most cases, the size of a cell is determined by the width of a column and the height of a row. In some cases, though, you might want to adjust the size of a cell independently of the width of the column. For example, if you are creating a form, you can resize the cells to have areas of different sizes to make it easier to enter the variable data sizes.

Adjustable cell width example

First Name	Last Name	
Address		
City	State	Zip

To adjust the width of a cell:

1. In Designer, select the row in which you want to adjust the cell widths.

Note: You must select each row individually to enable the adjustment of cell widths within the row.

2. Right-click the selected row and select **Row properties**.

The **Row Properties** dialog box opens.

3. Click the **Row Properties** tab.

4. Select the **Cell widths are adjustable** check box.

5. Click **OK**.

The **Row Properties** dialog box closes.

6. Right-click the cell you want to adjust and select **Cell properties**.

The **Cell Properties** dialog box opens.

7. In the **Cell width** box, enter the width of the cell.

8. Click **OK**.

The **Cell Properties** dialog box closes and the cell is updated to reflect the width you entered.

Tip: You can also drag the cell borders on the design page to adjust the cell's width.

Joining Cells Automatically

During design, you can manually join and split cells. In addition, you can set up cells so that cells containing the same value will be joined automatically during processing. For example, you

can set up cells to be joined automatically to prevent the same values from appearing in the table multiple times. The variables you select for the cells do not have to match because, during processing, the values of the variables, not the variables themselves, are compared. If the values match, the cells are joined with a single value.

To set up cells to be joined automatically:

1. In Designer, select the cell you want to set up to be joined automatically.
2. Right-click the selected cell and select **Cell properties**.

The **Cell Properties** dialog box opens.

3. Click the **Table Cell Properties** tab.
4. In the **Autojoin cells** box, specify the variable whose values you want to compare.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Autojoin cells** box.

5. Click **OK**.

The **Cell Properties** dialog box closes.

6. Repeat step 1 though step 5 for each cell you want to join.

Specifying When a Cell is Composed

By default, the engine places cell content when the table is composed. However, if a cell contains a formula that requires information that is not yet available, you can change the compose time of the cell so that the content is composed after the required information is available.

To define when a cell is composed:

1. Select the cell for which you want to specify a compose time.
2. Right-click the selected cell and select **Cell properties**.

The **Cell Properties** dialog box opens.

3. Click the **Table Cell Properties** tab.
4. From the **Compose time** drop-down list, select one of the following options:
 - **When table composed**—The cell content is placed when the table is composed (this is the default option).

- **End of customer**—The cell content is placed when the end of the customer is reached.
 - **End of section/node driven document**—The cell content is placed when the engine reaches the end of the current section or XML node. You can select this option only if you use section data-driven documents or XML node-driven documents.
5. Click **OK**.

The **Cell Properties** dialog box closes

If you selected **End of customer** or **End of section/node driven document**, a late compose indicator appears on the cell to indicate that the cell contents are placed after the table is composed.

7.10 Using Section Data to Create Tables

It is important to understand the differences between table sections and section data. Both are generally used to categorize information and both are ways to control repetitive information. However, section data is used to drive the creation of repetitive data, and section tables are used to present data in a categorized way. While table sections are often used in conjunction with section data, you can create table sections without using section data. You can also use section data to create tables that do not use sections. Using section data to create table sections is similar to creating a normal table with sections.

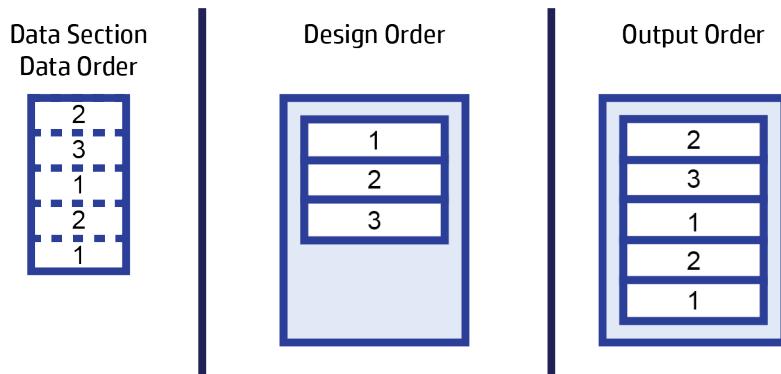
When using section data to create tables, keep in mind the following behaviors:

- While tables remain in the order in which they are designed on the page, table content that is driven by data sections is populated in the engine in the order that the data is processed by the engine. This data processing order makes it important for you to plan how you arrange and flow content on the page compared to when content is processed by the engine.

For more information about engine processing with data sections, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

- As illustrated in the following graphic, when you are using section-based data, the order that the sections occur in the data controls the order of the table sections. All rows used to create each table must be related by sets or groups to a section of data. Therefore, the composed table sections will be ordered according to the data, not the design. When creating complex tables, keep this principle in mind because the table might need to be restructured or have additional rules to compensate for the data order.

Example of the data section order in the data file compared to the design and output



Tip: As you develop and test section data-driven tables, you can use colors in the header and table rows to help you see how the data is affecting the table structure in the output.

- You must indicate the section data on the first row of the table's section (whether the row type is a header, an automated row, or a footer).
- If you use section data in tables that can split and flow, the table will split, flow, and paginate as tables normally do. However, the content of the cells is fixed from the time of the engine run.
- If you need to retain data values (for example, to accumulate totals), you must make accommodations such as double-mapping variables or using formula variables.
- Headers and footers do not appear for customers without related data. Therefore, a table cannot appear with a header and footer but no content.
- The size of a table driven by section data depends on the data in the customer file.
- Tables that are embedded within table cells cannot use data section-driven rows.

For more information about section data, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

7.10.1 Creating a Table Driven by Section Data

When you design tables for use with section data, you must first set up the tables so that they contain the basic structure of the final table, including sections. Next, you use table sections to define areas of a table that are driven by section data. Finally, you define the section data settings as needed for each table section.

To create a table with sections using section data, you must use one of the following table types:

- Automated table with sections
- Automated table with levels
- User table

To create a table driven by section data:

1. In Designer, select the table to which you want to apply section data.
2. Click .

The **Table Properties** dialog box opens.

3. Click the **Table** tab.
4. Select the **Enable data sections** check box.
5. Click **OK**.

The **Table Properties** dialog box closes.

6. Select the first row in the section.
7. Right-click the selected row and select **Row properties**.
The **Row Properties** dialog box opens.
8. Click the **Automated Row Properties** tab.
9. Use the options in the **Table section (set of rows)** area to define the properties of the table section.
10. From the **When to include section** drop-down list, select when to include the section-driven section in the table:

To	Do this
Include the section each time a specified data section is encountered	<ol style="list-style-type: none">Select Named data section, each.In the Data section box, enter the name of the data section. (The name is case-sensitive.)
Include the section the first time a specified data section is encountered	<ol style="list-style-type: none">Select Named data section, first only.In the Data section box, enter the name of the data section. (The name is case-sensitive.)
Include the section after all the data sections for a customer are processed	Select After all data sections (end of customer) .

11. If you want to attach the section to the last section created by the engine (for example, to

create a summary section that follows one or more transaction sections), select the **Add to previous table section (to combine data sections for flow)** check box. This option is not available for headers.

12. Click **OK**.

The **Row Properties** dialog box closes.

For information about table sections, see “[Using Table Sections to Organize Table Content](#)” on [page 212](#).

7.11 Using XML Node Data To Create Tables

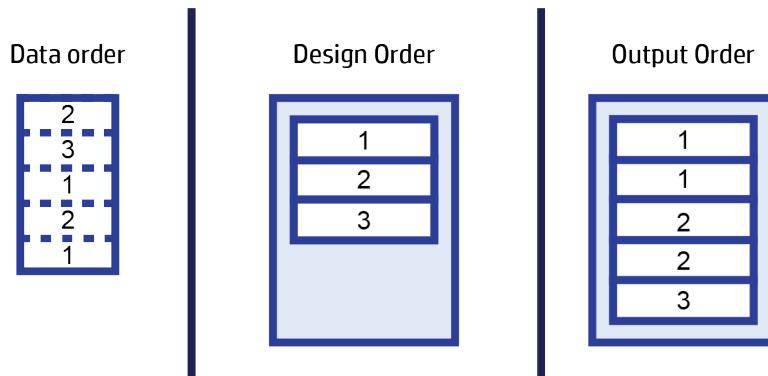
You can use XML nodes to drive the creation of repetitive data in tables. Then, you can use table sections in order to present the XML node data in a categorized way. When using XML nodes to drive the creation of tables, keep in mind the following behaviors:

- While tables remain in the order in which they are designed on the page, table content that is driven by XML nodes is populated in the engine in the order that the data is processed by the engine. This data processing order makes it important for you to plan how you arrange and flow content on the page compared to when content is processed by the engine.

For more information about engine processing with XML nodes, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

- The composed table sections are ultimately ordered based on the order of the table sections in the design, not based on the order of the XML node data. As illustrated in the following graphic, when you are using XML node-based data, the order that the XML nodes occur in the data are ignored, and the order of the table sections in your design control the order of the content in the output. All rows that are used to create each table must be related by sets or by groups to an XML node in the data. When creating complex tables, keep this principle in mind because the table might need to be restructured or have additional rules to compensate for the data order.

Example of the XML node order in the data file compared to the design and output



Tip: As you develop and test XML node-driven tables, you can use colors in the header and table rows to help you see how the data affects the table structure in the output.

- You must indicate the XML node on the first row of the table's section (whether the row type is a header, an automated row, or a footer).
- If you use XML nodes to drive the creation of tables that can split and flow, the table will split, flow, and re-paginate as tables normally do. However, the content of the cells is fixed from the time of the engine run.
- Headers and footers do not appear for customers without related data. Therefore, a table cannot appear with a header and footer but no content.
- The size of a table that is driven by XML nodes depends on the data in the customer driver file.
- Tables that are embedded within table cells cannot use XML node-driven rows.

For more information about XML nodes and schema model data files, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

7.11.1 Creating a Table with Sections that are Driven by XML Nodes

When you design tables with content that is driven by XML nodes, you must first set up the tables so that they contain the basic structure of the final table, including table sections. Next, you use table sections to define the areas of the table that are driven by XML nodes. Finally, you define the section data settings as needed for each table section.

For information about using table sections to organize table content, see *Designing Customer Communications* in the Exstream Design and Production documentation.

To create a table with table sections that are driven using XML nodes, you must use one of the following table types:

- Automated table with sections
- Automated table with levels
- User table

To create a table that is driven by XML nodes:

1. In Designer, select the table to which you want to apply XML nodes.

2. Click .

The **Table Properties** dialog box opens.

3. Click the **Table** tab.

4. Select the **Enable data sections/XML nodes** check box.

5. Click **OK**.

The **Table Properties** dialog box closes.

6. Select the first row in the table section.

7. Right-click the selected row and select **Row properties**.

The **Row Properties** dialog box opens.

8. Click the **Automated Row Properties** tab.

9. Use the options in the **Table section (set of rows)** area to define the properties of the table section.

10. From the **When to include section** drop-down list, select **XML Node**.

11. In the **Location** box, click  and select the XML node that you want to use to drive the inclusion of the table section in the table.

The path to the XML node that you select appears in the **Location** box. Keep in mind that while the XML node path does contain the information that Exstream needs in order to locate the XML node in the data, the path is not a valid XPath location.

12. If you want to attach the section to the last section created by the engine (for example, to create a summary section that follows one or more transaction sections), select the **Add to previous table section (to combine data sections/XML nodes for flow)** check box.
This option is not available for headers.

13. Click **OK**.

The **Row Properties** dialog box closes.

7.12 Automatically Adding Page Totals to a Table

Exstream provides an automated page totaling feature that you can use to automatically include page subtotals on flowing tables. This feature allows you to easily include page subtotals without extensive programming or setting up running totals per page. You can include automated page totals to help orient readers when a table is not contained on one page (for example, on long tables that span multiple pages of an account statement). You can place page totals anywhere in the table, including headers and footers.

To automatically add page totals to a table:

1. In the table to which you want to add page totals, insert a unique scalar variable that stores the page totals. You can insert this variable anywhere in the table, including headers and footers.
2. Click .

The **Table Properties** dialog box opens.

3. Click the **Dynamic Size and Placement** tab.
4. Select the **Can split and flow** check box.
5. Click the **Table** tab.
6. Select the **Add automated page totals** check box.

More options appear.

7. Click .

The **Add Page Total** dialog box opens.

8. From the **Type** drop-down list, select how you want the totals to be calculated:

To	Do this
Allow the total to be calculated automatically using values you specify	Select Automatic sum .
Use a stored value or a unique formula to calculate the total	Select User sum .

If you selected **User sum**, the name of the **Basis** box changes to **Source**.

9. In the **Basis** box (if you chose **Automatic sum**) or the **Source** box (if you chose **User sum**), select the variable that is totaled to create the page total. If you chose **Automatic sum**, this variable must appear on each repeating row of the table to be read.
10. In the **Total** box, select the page total variable you placed in the table in step 1.

11. From the **Method** drop-down list, select how page totals are created using the basis or source variable. The available options depend on whether you selected **Automatic sum** or **User sum** from the **Type** drop-down list. Select one of the following options:

Page total methods

Method	Available with type	Description
Sum Total on previous page	Automatic sum	The sum total of the values of the basis variable used in all rows on the previous page
Sum Total on current page	Automatic sum	The sum total of the values of the basis variable used in all rows on the current page
Complete Sum Total to end of previous page	Automatic sum	The sum total of the values of the basis variable used in all rows from the first row on the first page to the last row of the previous page
Complete Sum Total to end of current page	Automatic sum	The sum total of the values of the basis variable used in all rows from the first row on the first page to the last row of the current page
Running Total on current page	Automatic sum	A running total of the values of the basis variable used in all rows from the first row on the current page to the current row
Full Running Total	Automatic sum	A running total of the values of the basis variable used in all rows from the first row on the first page to the current row
Difference on previous page	User sum	The difference between the value of the source variable at the start of the previous page and at the end of the previous page
Difference on current page	User sum	The difference between the value of the source variable at the start of the current page and at the end of the current page
Last index on previous page	User sum	The value of the source variable on the last row of the previous page
Last index on current page	User sum	The value of the source variable on the last row of the current page
Running difference on current page	User sum	The difference between the value of the source variable on the current row being drawn and the value of the source variable at the start of the current page
Current row index	User sum	The value of the source variable on the current row being drawn

Note: Because the **Last index on previous page**, **Last index on current page**, and **Current row index** methods do not perform computation, you can use string variables for these values. The three methods that enable the use of string variables are row-driven.

12. Click **OK**.

The **Add Page Total** dialog box closes, and the automated page totaling settings appear on the **Table** tab.

13. Click **OK**.

The **Table Properties** dialog box closes.

Tip: You can also use automatic sum page totals to count the number of transactions. Make sure the basis variable always has a value of 1. Then you can set up different totaling methods to count the number of transactions.

7.13 Using Table Sorting to Customize the Order of Customers' Tables

Table sorting is different from table placement. Table placement occurs because of the order in which the tables appear on the page and factors that might cause a table not to be placed at all, such as rules on the table or the rows. Table sorting lets you design all possible tables and then use a table sort key to select the order in which they appear in the output. For example, suppose you are creating an investment portfolio statement, and each customer places a higher priority on different types of investment accounts. You can use table sorting to change which type of account information appears first for each customer. For example, the table containing 401K information might appear first for one customer, while the table containing mutual funds information appears first for another customer. The order in which tables appear can be unique for each customer.

To use table sorting to customize the order of customers' tables, you must complete the following tasks

1. [“Creating a Sort Key Variable” below](#)
2. [“Mapping the Sort Key Variable” on the next page](#)
3. [“Assigning the Table Sort Key to a Table” on the next page](#)

7.13.1 Creating a Sort Key Variable

When you use table sorting to customize the order of tables, you must create a table sort key variable that indicates the order in which the tables should appear. A table sort key variable must be an array variable that contains a list of numbers that designate the order in which you want the tables to appear on the page. The number of elements in the array is dictated by the number of tables that will be affected by the sort key variable.

For information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

7.13.2 Mapping the Sort Key Variable

After creating the sort key variable, you map it to a data file. Each element in the key is associated with an index value. An index value specifies the order in which the table appears in the data file. When the array is read, the data areas dictate the placement of the table. The placement can vary by customer. For example, for the first customer, table 1 (index value 1) is placed fourth and table 2 (index value 2) is placed third, as seen in the following example.

Data file with table sort key array mapped

670348	4	3	2	1
957215	1	0	3	4

1 2 3 4 ● ————— Index value

Tip: You can use a zero in the table sort key array to prevent a table from being placed on a page (if, for example, a customer does not have an account related to the particular table).

7.13.3 Assigning the Table Sort Key to a Table

After mapping the sort key variable to the data file, you assign the variable to a table. When the engine runs, it reads the variable and places the table according to the order specified in the data file.

To assign a table sort key to a table:

1. In Designer, select the first table you want to be affected by the sorting.
 2. Click .
- The **Table Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
 4. From the **Move relative to the object** drop-down list, select **Above**.
 5. In the **Table sort key** box, specify the table sort key array variable.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable you want to use and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Table sort key** box.

6. In the **Index** box, enter the index value of the table. The value is typically the order in the design.
7. Click **OK**.

The **Table Properties** dialog box closes.

8. Repeat step 1 through step 7 for each table you want to be affected by the sorting.

When the tables are composed, they are reordered based on the value mapped in the data file.

7.14 Analyzing Tables for Errors

Because table designs can become complicated, you can use the Table Analyst to identify and resolve errors in your table design. The Table Analyst is a design-time testing tool provided by Designer that checks for errors or potential issues in a table. You can use this tool to verify that the table settings you have specified do not conflict with one another. You can also check for settings that will cause conflicts between the table and other objects on the page.

Tip: When you troubleshoot the use of rows, you can color-code the row types to see when or if they are included.

You can either run the Table Analyst manually as you design the table, or you can set up the Table Analyst to run automatically each time you click off of a table. If you are designing a new table, you might find it easiest to run the Table Analyst manually after you make significant changes to the design, rather than allowing it to run more frequently.

To run the Table Analyst, carry out one of the following tasks, depending on the way you want to run the Table Analyst:

To	Do this
Run the Table Analyst manually	<ol style="list-style-type: none">1. Select the table you want to analyze.2. Right-click the selected table and select Table Analyst.

To	Do this
Run the Table Analyst automatically	<ol style="list-style-type: none">1. In Designer, on the Menu bar, click Tools > Options. opens.2. In The Designer Options dialog box, click the Designer tab.3. In the Design Assist area, select the Run table analyst when table edited check box.4. Click OK. <p>The next time you click away from a table, the Table Analyst runs.</p>

After the Table Analyst runs, a dialog box opens. Any potential errors found during the analysis appear in the dialog box with a brief description.

Sample report from Table Analyst

-  ¹ The table section is to repeat headers on lower levels. However, the table section contains no headers.
 ¹ This table section is to repeat headers on lower levels. However, there are no lower levels.

7.15 Symbols Used in Tables

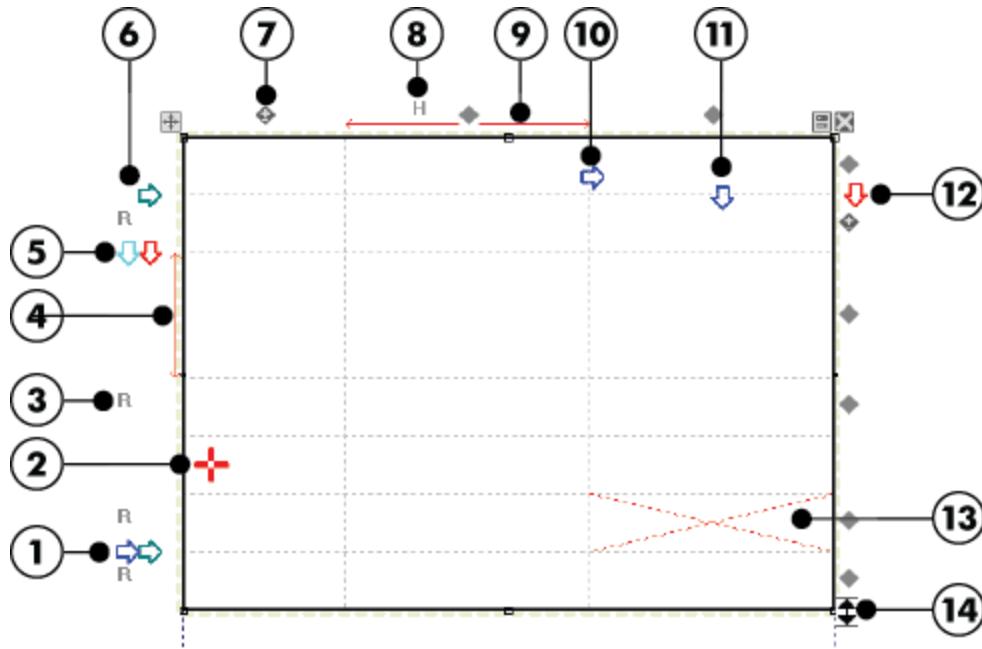
Designer uses many symbols to let you know how the rows and columns in a table are working together to create the table itself. For example, specific symbols are used to indicate how the sections of a table are grouped together. In addition, each type of row and column has its own symbol. The topics in this section can serve as a quick reference for you to use as you design tables so you can tell, at a glance, the properties defined for specific parts of the table. The table symbols are divided into three categories, which this section discusses in the following topics:

- “General Table Symbols” below
- “Row Types” on page 253
- “Column Types” on page 254

7.15.1 General Table Symbols

The following graphic illustrates the symbols available on tables.

Table symbols



The following table describes the available symbols, what they mean, and the requirements or limitations of the features the symbols indicate.

Tip: An explanation of the table symbols is also available in Designer. To see the explanation, from the **Table** menu, select **Explain Table Symbols**.

Table symbols

Number	Description	Requirements/Limitations
1	An automated row that is the beginning of a section. The row causes a page break.	This row cannot be a non-automated row or a divider row. Advanced table sections must be enabled.
2	A row that is a repeat of the previous row	The previous row controls the format, number, and size of repeating rows. The row cannot be selected independently. If there are fewer reference variables than the number of repeated rows you specify, blank rows are added to the table.
3	The row type	Row type options vary depending on the type of table. For information about row symbols, see " Row Types on the next page."
4	A row that automatically resizes during design	This setting affects rows during design time only, unless you clear the Fixed height in Engine check box on the Row Properties tab.

Table symbols, continued

Number	Description	Requirements/Limitations
5	A red arrow indicates a row that is grouped with the previous row. A blue arrow indicates a row that is grouped with a previous row and also indicates that the Keep groups together check box is selected on the Table tab of the table properties.	This row cannot be a header, footer, or divider row. You cannot set repeat criteria or section properties for this row. The row repeats based on a rule on the row itself or on the first row of the group.
6	A row that is the first row of a section. The row does not cause a page break.	This row cannot be a non-automated row or a divider row. Advanced table sections must be enabled.
7	A column with a rule on it	For information about using rules, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.
8	The column type	Column type options vary depending on the type of table. If automated table columns are not enabled, no column type options are available. For information about column symbols, see “ Column Types ” on the next page.
9	A column that automatically resizes during design	A column can resize width only if the table can autosize the width as well and if automated table columns are enabled. The table must have at least one automated column to enable autofit width.
10	A cell that does not wrap and there is overflow text	
11	A cell that does not resize and there is overflow text	
12	The first row of a group of rows	The row must be an automated row and a rule must be on the row itself or on the individual rows in the group.
13	A cell that is set to repeat the same type of data in the previous cell	The number of cells that repeat and how many times they repeat is set on the design cells. Cells with the red x cannot be resized independently.
14	The table cannot have messages placed in the white space between splits in the table	The table must be able to split and flow.

7.15.2 Row Types

The following table describes the types of rows you can add to a table and the symbol that appears in Designer to identify the row type.

Types of rows

Type	Symbol	Description
Header	H	A row that appears at the top of the table and only on the first page on which the table appears
Header, if at top of flow frame	Hpf	A row that appears at the top of a table only if the table is located at the top of a flow frame
Header, if NOT at top of flow frame	Hmf	A row that appears at the top of a table only if the table is located in a flow frame, but not at the top
Repeating header	H+	A row that appears on the top of each page on which the table appears
Repeating header, except first page	H-	A row that appears at the top of a table on each page, except the first on which the table appears
Header, if 1st occurrence on page	Hp	A row that appears at the top of a table section at the first occurrence of the table section on the page
Header, if NOT 1st occurrence on page	Hm	A row that appears at the top of a table section on appearances of the table section other than the first
Not automated	(none)	A row that does not repeat
Automated, based on repeat criteria	R	A row that repeats based on repeat criteria
Repeating divider	D+	A row that repeats after groups of data rows to make the table easier to read
Footer	F	A row that appears at the bottom of a table on the last page the table appears only
Repeating footer	F+	A row that appears at the bottom of a table on each page the table appears
Repeating footer, except last page	F-	A row that appears at the bottom of a table on each page the table appears except the first
Sub-section footer, add after all lower-level sections	Fs	A row that appears after each subsection of a table

7.15.3 Column Types

The following table describes the types of columns you can add to a table and the symbol that appears in Designer to identify the column type.

Types of columns

Type	Symbol	Description
Column	C+	A column that repeats based on repeat criteria.

Types of columns, continued

Header	H	A column that appears at the left of a table and only on the first page on which the table appears
Repeating header	H+	A column that appears at the left of a table on each page on which the table appears
Repeating header except first	H-	A column that appears at the left of a table on each page except the first on which the table appears
Footer	F	A column that appears at the right of a table and only on the last page on which the table appears
Repeating footer	F+	A column that appears at the right of a table on each page on which the table
Repeating footer except last	F-	A column that appears at the right of a table on each page except the last on which the table appears

Chapter 8: Adding Charts to a Design

Charts are visual representations that illustrate relationships between different sets of data or the relationship of a part to a whole. Like other objects in Exstream, charts can be customized for each customer using the customer's unique data. When you create a chart, you associate the chart with data using variables. During production, the data is read and a personalized chart is included in the output.

Exstream offers two different methods for adding charts to a design. One method lets you add and configure a variety of traditional charts using the property settings in Designer. The second method utilizes a design interface for advanced charts that is launched from Designer. The Chart Designer interface shows changes to a chart in real-time and also lets you add interactive features to charts delivered in HTML5 output.

If you have licensed the Dynamic Charting module, then the first step to working with charts is to decide which chart type you want to use. It is important that you understand the benefits of each chart type, and which one will best meet your design and output needs. You can use the following sections to learn more about the different chart types that are available in Exstream, as well as how to add and configure each type of chart:

- “[General Information About Charts](#)” below
- “[Traditional Charts](#)” on page 260
- “[Advanced Charts](#)” on page 354

8.1 General Information About Charts

As you work with charts, keep in mind the following behaviors:

- In order for the chart components to be drawn in the correct proportion, all of the chart information must be present before the chart can be composed. Make sure that the compose time you select for the chart is valid for the way the data is set up.

For information about setting the compose time of objects, see “[Controlling When Objects Are Placed on a Page](#)” on page 395.

- Depending on the output type you use, dotted line styles that you use in a chart might appear slightly differently in Designer than they do in the final output.

Additionally, if you are generating PDF, PDF/A, PDF/VT, or VDX output, you can create bookmarks for charts. These bookmarks will appear in a PDF viewer and allow customers to navigate directly to specific charts. For information about customizing the bookmarks that appear in PDF output for charts, see “[Adding Bookmarks to PDF Output](#)” on page 596.

To help you decide which chart is best for your design, review the following information:

- “[Chart Types](#)” below
- “[The Parts of a Chart](#)” on page 259

8.1.1 Chart Types

Exstream offers a wide variety of chart types that you can use in designs. Many charts are similar in appearance but allow slightly different functionality. For example, several different types of bar charts are available, each with a slightly different appearance or set of functionality.

Note: The floating bar chart type, which was previously used to overlay a line chart on top of a stacked bar chart, is no longer available. In Exstream versions 9.5.201 and later, the functionality available in the floating bar chart has been merged with that of the stacked bar chart. Although the floating bar chart is no longer available for new designs, any floating bar charts used in existing designs will still work. Existing floating bar charts will be automatically converted to stacked bar charts with overlays if they are edited and saved in Designer.

The following table provides an overview of each chart type that you can use in your designs:

Chart types

Type	Symbol	Description
Area		Area charts illustrate changes in data values over time in relation to a whole. Use these charts to compare value changes.
Bar		Bar charts use bars to mark data amounts. Use these charts to compare more than one category of data and to show relationships between groups of data.
Calendar		Calendar charts are driven by date variables. Use these charts to highlight and explode specific calendar dates for emphasis. For example, you might want to highlight a deadline.
Comparative Bar		Comparative bar charts use one bar to show a total amount and a second, segmented bar to show the data that makes up the parts of that total. Use these charts to compare complex combinations of customer data.
Comparative Line		Comparative line charts show two sets of data as a line chart and optionally shade the area between the two lines. Use these charts to show the difference between a current value and a potential net value.

Chart types, continued

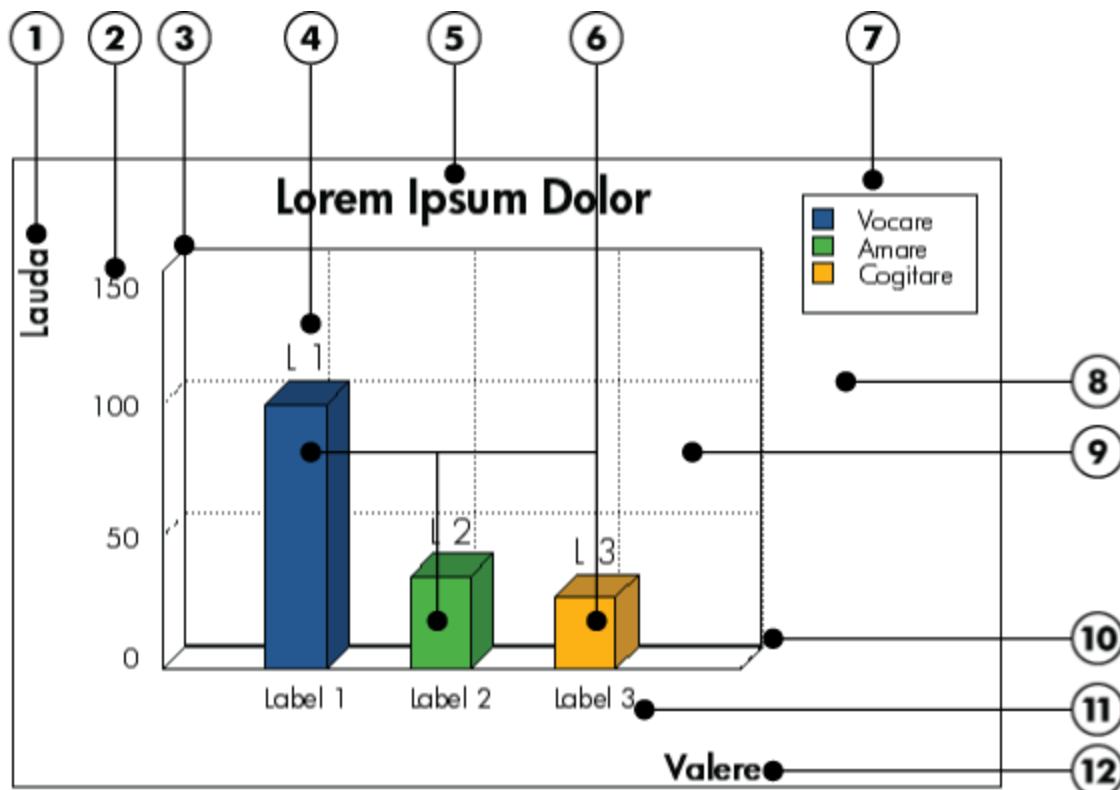
Type	Symbol	Description
Horizontal Bar		Horizontal bar charts use horizontal bars to mark data amounts. Use these charts just as you would bar charts.
Horizontal Stacked Bar		Horizontal stacked bar charts use stacked, horizontal bars to mark data amounts. Use these charts to compare different categories of data, showing some components as fractions or percentages of a whole.
Label		Label charts plot two groups of numbers as a single series of x and y coordinates using a symbol or a label when both axes show data. Use these charts for data that is in uneven intervals or clusters.
Line		Line charts illustrate changes in values over time. Use these charts for discrete or grouped continuous data.
Pie		Pie charts illustrate the relationship of a part to a whole. Each data value creates a part (or slice) of the chart. Use these charts to show a relative proportion of numbers that add up to a total.
Progress		Progress charts split a bar into sections to compare two data values. Use these charts to show a customer how financial planning goals are being reached.
Radar		Radar charts plot an array of information in a line around a related center point. Use these charts when comparing several different factors that all relate to one item. This chart shows areas of relative strength, weakness, and overall performance.
Range		Range charts are bar charts that illustrate ranges of data. Use these charts when data does not need to be anchored to the x-axis. This chart is frequently used in financial documents.
Scattergram		Scattergram charts plot two groups of numbers as a single series of x and y coordinates when both axes show data that changes in value over time. Scattergram charts use a symbol or label to illustrate data points. Use these charts to show how two groups of information are related and can be compared.
Stacked Bar		Stacked bar charts use a stacked bar or multiple stacked bars to mark data amounts. Use these charts to show components as fractions or percentages of a whole. Note: In Exstream versions 9.5.201 and later, the stacked bar chart includes the functionality formerly available in the floating bar chart. Floating bar charts, which were previously used to overlay a line chart on top of a stacked bar chart, are no longer available as a chart type that can be added to a design.

8.1.2 The Parts of a Chart

After you decide which type of chart you want to use in your design, you define the properties of the chart. Because the changes you make to different parts of a chart are reflected in Designer, it is important to be aware of the terminology used to describe the parts of a chart. For example, you can design the axes separately from the chart title and you can see how each would look while designing.

The following illustration identifies the parts of a chart and the terms used to describe them.

Chart areas example



1	Y-axis title
2	Y-axis labels
3	Y-axis

4	Data label
5	Chart title
6	Data series
7	Legend
8	Chart area
9	Plot area
10	X-axis
11	X-axis labels
12	X-axis title

8.2 Traditional Charts

You can use several types of traditional charts in your designs. Many charts are similar in appearance but allow slightly different functionality. For example, different types of bar charts are available, each with a slightly different appearance or set of functionality.

After you decide which type of traditional chart you want to use, the next step is to add a placeholder chart to the design page. Then, you set up the chart's unique properties, such as the data that drives the chart. Next, you add the other parts of the chart, such as the title and legend. Finally, you format the chart to give it the appearance you want (for example, you can add a chart border or background color as needed).

Many charts share similar properties, such as the ability to label the data in a chart. However, since all charts are designed to present data in a unique way, the process of creating and designing a chart will differ slightly between chart types.

This section discusses the following topics:

- “Comparing the Features Available in Traditional Charts” below
- “Adding a Traditional Chart to a Page” on page 264
- “Setting Up a Traditional Bar Chart” on page 265
- “Setting Up a Traditional Pie Chart” on page 275
- “Setting Up a Traditional Line Chart or Comparative Line Chart” on page 284
- “Setting Up a Traditional Area Chart” on page 293
- “Setting Up a Traditional Label Chart” on page 299
- “Setting Up a Traditional Calendar Chart” on page 302
- “Setting Up a Traditional Progress Chart” on page 306
- “Setting Up a Traditional Radar Chart” on page 308
- “Setting Up a Traditional Range Chart” on page 318
- “Setting Up a Traditional Scattergram Chart” on page 324
- “Adding a Title to a Traditional Chart” on page 330
- “Adding a Legend to a Traditional Chart” on page 331
- “Adding and Formatting Traditional Chart Axes” on page 335
- “Formatting Traditional Charts” on page 345

8.2.1 Comparing the Features Available in Traditional Charts

Because some charts allow different functionality than others, before you start designing your chart, make sure that the chart type that you have chosen provides the functionality that you want in your design.

Note: The floating bar chart type, which was previously used to overlay a line chart on top of a stacked bar chart, is no longer available. In Exstream versions 9.5.201 and later, the functionality of the floating bar chart has been merged with that of the stacked bar chart. Although the floating bar chart is no longer available for new designs, any floating bar charts used in existing designs will still work. Existing floating bar charts will be automatically converted to stacked bar charts with overlays if they are edited and saved in Designer.

You can use the following tables to quickly see which features are available for each type of chart.

- “Chart Label Features” on the next page
- “General Formatting Features” on the next page

- “Dynamic Formatting Features” on the next page

Chart Label Features

Chart type	Custom legend/label text	Data labels	Formatted data labels	X-axis labels	Y-axis labels
Pie	X	X			
Line	X	X	X	X	X
Area	X	X	X	X	X
Progress					
Bar	X	X	X	X	X
Stacked bar	X	X	X	X	X
Comparative bar	X	X	X		X
Horizontal bar	X	X	X	X	X
Horizontal stacked bar	X	X	X	X	X
Calendar					
Range	X	X	X	X	X
Label		X		X	X
Radar	X	X			X
Comparative line	X	X	X	X	X
Scattergram	X	X	X	X	X

General Formatting Features

Chart type	3D formatting	Borders	Grid line formatting	Line overlays	Plot area border	Range fill	Shadow formatting
Pie	X	X					X
Line	X	X	X		X	X	X
Area		X	X		X	X	

Chart type	3D formatting	Borders	Grid line formatting	Line overlays	Plot area border	Range fill	Shadow formatting
Progress	X	X					X
Bar	X	X	X	X	X	X	X
Stacked bar	X	X	X	X	X	X	X
Comparative bar	X	X	X		X	X	X
Horizontal bar	X	X	X		X	X	X
Horizontal stacked bar	X	X	X		X	X	X
Calendar							X
Range	X	X	X		X	X	X
Label		X	X		X	X	X
Radar		X	X		X		
Comparative line		X	X		X	X	
Scattergram		X	X	X	X	X	X

Dynamic Formatting Features

Chart type	Conditional colors	Custom baseline values	Custom negative scale factor	Custom tick marks
Pie	X			
Line				X
Area				X
Progress	X			
Bar			X	X
Stacked bar	X	X		X
Comparative bar	X			X
Horizontal bar	X		X	X

Chart type	Conditional colors	Custom baseline values	Custom negative scale factor	Custom tick marks
Horizontal stacked bar	X	X		X
Calendar				
Range	X			X
Label				X
Radar	X			X
Comparative line	X			X
Scattergram	X			X

8.2.2 Adding a Traditional Chart to a Page

The first step in adding a chart to a page is to draw a placeholder chart in the area where you want the chart to appear. Designer always uses a pie chart as the placeholder chart until you specify the chart type you want to use.

To create a traditional chart:

1. In Designer, on the Drawing toolbar, click .

The **Chart Type** dialog box opens.

2. Select **Traditional Chart**.

The pointer changes to  , which indicates that you are placing a chart on the page.

3. Drag the pointer to insert the chart. You can adjust the size and placement of the chart later.

A placeholder pie chart is placed on the page.

4. Select the chart and click .

The **Chart Properties** dialog box opens.

5. Click the **Chart Area** tab.

6. In the **Chart type** box, click the icon. The icon changes to reflect the type of chart you are currently designing.

The **Chart Type** dialog box opens.

7. Select the type of chart you want to use.

8. Click **OK**.

The **Chart Type** dialog box closes and the properties on the **Chart Properties** dialog box are updated to reflect the properties available for the selected chart type.

9. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.3 Setting Up a Traditional Bar Chart

The topics in this section discuss how to set up all of the bar chart types in Exstream, since they behave similarly with only slight differences. This section explains how to set up the following types of bar charts:

- Basic bar charts
- Comparative bar charts
- Stacked bar charts
- Horizontal bar charts
- Horizontal stacked bar charts

Note: The floating bar chart type, which was previously used to overlay a line chart on top of a stacked bar chart, is no longer available. In Exstream versions 9.5.201 and later, the functionality of the floating bar chart has been merged with that of the stacked bar chart. Although the floating bar chart is no longer available for new designs, any floating bar charts used in existing designs will still work. Existing floating bar charts will be automatically converted into stacked bar charts with overlays if they are edited and saved in Designer.

For more information about the differences in the types of bar charts, see “[Chart Types](#)” on [page 257](#).

To set up bar charts, complete the following tasks as needed:

- “[Adding Data to a Bar Chart](#)” on the next page
- “[Labeling the Bars in Bar Chart](#)” on page 268
- “[Formatting the Labels in a Bar Chart](#)” on page 269
- “[Adjusting the Width of Bars in a Bar Chart](#)” on page 271
- “[Adding Borders Around the Bars in a Bar Chart](#)” on page 272
- “[Creating a Custom Starting Point for a Stacked Bar Chart or Horizontal Stacked Bar Chart](#)” on page 272
- “[Adding an Overlay to a Bar Chart or Stacked Bar Chart to Emphasize Data](#)” on page 273

Adding Data to a Bar Chart

Like other objects in Exstream, charts are driven and customized through the use of variables mapped to customer data. In most bar chart types, you use one variable to provide the x-axis values; however, comparative bar charts do not use an x-axis to identify data values. The data that provides the y-values can be controlled by multiple variables or a single array variable. If you use multiple variables to provide the data for the chart, each variable provides the value for one bar. On the other hand, if you choose to use an array variable to provide the data displayed in the chart, each element in the array provides the value for one bar in the chart. If you use an array variable for the data series, each chart type can have up to 10,000 data points.

To add data to a bar chart:

1. In Designer, select the chart to which you want to add data.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. For all bar chart types except comparative bar, use the **X** options to specify the values for the x-axis:
 - a. Select the **X** check box.
 - b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for the x-axis and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **X** box.

5. Use the numbered boxes to define the data series you want to appear in the chart. You can use either an array variable or multiple variables to provide the data in the chart:

To use an array to provide the data in the chart:

- a. In the top half of the dialog box, select the **Use arrays for multiple series**, the **Use arrays for multiple stacks**, or the **All values are stored in one array** check box. (The check box name varies depending on the chart type you are setting up). If you are creating a stacked bar chart, stacks are created for each element in the array.
- b. Select the check box next to the first data series you want to add.

- c. In the adjacent box, click .

The **Select Variable** dialog box opens.

- d. Select the array variable containing the element that provides the value for that data

series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- e. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- f. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- g. Repeat step b through step f for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

To use multiple variables to provide the data in the chart:

- a. Select the check box next to the first data series you want to add.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appear in the **Color** color well.

- f. Repeat step a through step e for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

For information about using conditional colors in charts, see [“Using Data to Customize Colors in Charts” on page 353](#).

6. If you are defining a comparative bar chart, you must select the **>>** check box for each data series you want to appear in the comparison bar. For example, if you want the first data series to appear in its own bar, while the second, third, and fourth data series appear in a second bar for comparison, select the **>>** check box for the second, third, and fourth data series.
7. Click **OK**.

The **Chart Properties** dialog box closes.

The chart on the design page is updated to reflect some of the settings you specified, such as the data series' colors. However, the data in the chart does not reflect actual customer data until the engine runs.

Labeling the Bars in Bar Chart

Unlike many of the other types of charts available in Exstream, bar charts are typically not used to mark specific data points. Instead, they are more suited to illustrate relative positions. For example, a bar chart on a statement might compare the amount in savings during each month of the year. One way to make the data illustrated by a bar chart easier to read is to use data labels on each bar. For example, you might use a data label to label each bar with the amount in the account, while the x-axis label describes the month each bar is representing. By default, data labels appear above each bar.

For information about formatting the labels, see [“Formatting the Labels in a Bar Chart” on the next page.](#)

To label the bars in a bar chart:

1. In Designer, select the chart to which you want to add labels.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Use the options in the **Bar labels** area to specify how the label content is provided:

To	Do this
Use an array to provide the text for all of the labels	<ol style="list-style-type: none">a. From the Bar labels drop-down list, select All labels are in one array.b. Click .c. The Select Variable dialog box opens.d. Select the array variable that provides the label text and click OK. The first element provides the label content for the first data series, the second element provides the label content for the second data series, and so on.e. The Select Variable dialog box closes and the variable you selected appears in the box.

To	Do this
Use a different variable to provide the text for each label	<ol style="list-style-type: none">a. From the Bar labels drop-down list, select Each in different variable.b. Click  . The Select Variable dialog box opens.c. Select the variable that provides the value for that data series and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.

5. Click **OK**.

The **Chart Properties** dialog box closes.

Formatting the Labels in a Bar Chart

You can format the labels in a bar chart to help make them easier to read. For example, you can change the orientation of labels so that they appear slanted and fit within the chart area more easily.

To format the labels on a bar chart:

1. In Designer, select the chart that uses the labels that you want to format.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Use the **Label color** drop-down list in the top portion of the dialog box to change the color of the data labels:

To	Do this
Make all labels black	Select Black .
Make each label match the color of the data series with which it is associated	Select Match series .

To	Do this
Specify individual colors for each label	<ol style="list-style-type: none">Select Set each series. The Data labels color wells appear.Click the color well of the first label for which you want to define the color. The Color dialog box opens.Select or specify the color for the label and click OK. The Color dialog box closes and the color you specified appears in the color well.

5. Under the **Chart type** icon, click . The **Chart Format** dialog box opens.
6. Click the **Data labels** tab.
7. From the **Placement** drop-down list, select where you want the label to appear in relation to the data point.
8. From the **Orientation** drop-down list, select one of the following options to specify the fixed degree orientation of the labels. Some chart types, such as stacked bar charts and horizontal bar charts, do not have as many options as other chart types.
 - **Normal**—Places data labels horizontally above the bars
 - **Face right**—Places data labels vertically above the bars, facing right
 - **Face left**—Places data labels vertically above the bars, facing left
 - **Slant up**—Places the data labels at a 45-degree angle, slanting up
 - **Slant down**—Places the data labels at a 45-degree angle, slanting down
9. If you use long labels, or if data points occur near the minimum or maximum area of the data range, use the **Keep labels inside plot area method** options to specify how labels appear in relation to the plot area:

To	Do this
Place labels according to the option selected in the Placement drop-down list	Select None .
Allow the data range to be adjusted automatically so that labels can be included in the plot area	Select Increase range . <p>Note: Very long labels or labels in a dense area of data points might appear outside of the plot area so that they can be read.</p>

10. If you want to add a background for labels, use the options in the **Background** area:

To	Do this
Allow labels to appear without a background	Select None .
Apply a white background to the label	Select White .
Use the color of the plot area as the background for the label. This option allows the label background to interrupt the grid lines, but might appear less disruptive to the chart design than a white background.	Select Match plot area background .

11. Click **OK**.

The **Chart Format** dialog box closes.

12. Click **OK**.

The **Chart Properties** dialog box closes.

You can also change the font size and formatting of the text in labels. You can use the text editing features in Designer to apply these changes.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

Adjusting the Width of Bars in a Bar Chart

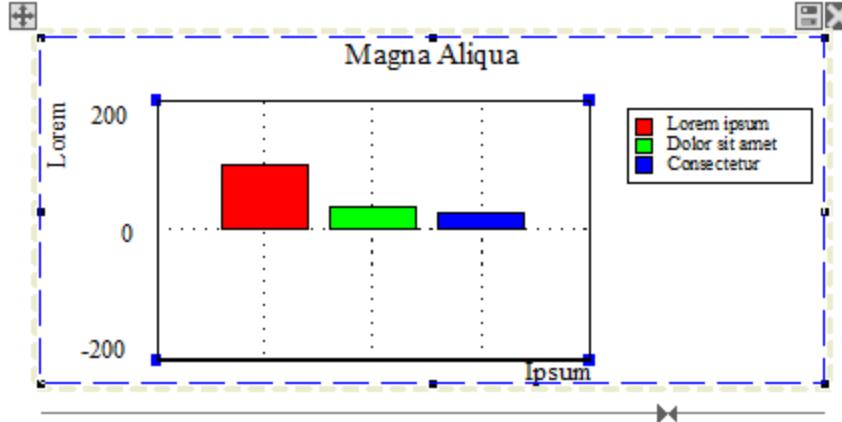
You can adjust the width of the bars in a chart to make them appear thinner or wider. Adjusting the width of bars makes more or less white space appear between the bars in the chart area.

To adjust the width of bars:

1. In Designer, select the chart in which you want to adjust the bar width.

When you select the chart, a black slider bar appears below the chart.

Example of slider bar visible



2. Drag the slider to the right or left to adjust the bar width.

The chart in the design adjusts to reflect the changes you make with the slider.

Adding Borders Around the Bars in a Bar Chart

You can add lines around the bars to help them stand out from the chart background. You can also change the color of the lines that appear around bars to help separate bars from each other if there is no white space between them.

To add lines around the bars:

1. In Designer, select the bar chart to which you want to add lines.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Select the **Lines** check box.
 5. Use the adjacent color well to specify the color of the lines that appear around the bars.
 - a. Click the color well.

The **Color** dialog box opens.

- b. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

6. In the adjacent box, enter width of the lines that appear around the bars.
7. Click **OK**.

The **Chart Properties** dialog box closes.

Creating a Custom Starting Point for a Stacked Bar Chart or Horizontal Stacked Bar Chart

If you are creating a stacked bar chart or a horizontal stacked bar chart, you can specify a custom starting point for the bars. For example, if the lowest value of each bar in the chart is 800, you can change the starting point from zero to 800. All of the bars will then start at the lowest point of the chart, making it easier for customers to see the comparisons between the data.

Note: The floating bar chart type, which previously offered the ability to set a custom starting point, is no longer available. In Exstream versions 9.5.201 and later, the functionality of the floating bar chart has been merged with that of the stacked bar chart. Although the floating bar chart is no longer used for new designs, any floating bar charts used in existing designs will still work. Existing floating bar charts will be automatically converted to stacked bar charts with overlays if they are edited and saved in Designer.

To create a custom starting point for stacked bar or horizontal stacked bar charts:

1. In Designer, select the chart in which you want to define a unique starting point.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. On the lower part of the dialog box, click  in the **Baseline** box.

The **Select Variable** dialog box opens.

5. Select the variable that provides the value on which the bars start.

The **Select Variable** dialog box closes and the variable appears in the **Baseline** box.

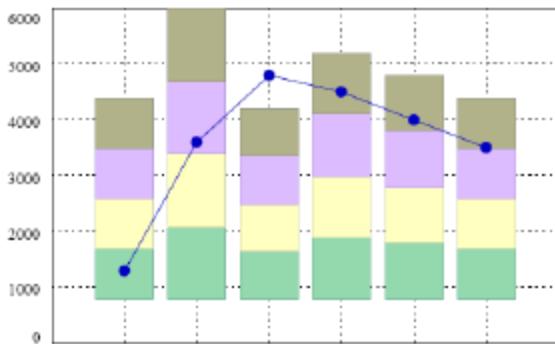
6. Click **OK**.

The **Chart Properties** dialog box closes.

Adding an Overlay to a Bar Chart or Stacked Bar Chart to Emphasize Data

You can add an overlay to a bar chart or stacked bar chart to plot points on the chart that are not plotted by the bars. An overlay consists of a simplified line chart that is placed on top of the bar chart so that the data presented in the line chart appears over the bar chart. For example, you might use the bars in a stacked bar chart to illustrate the profit generated in each quarter of consecutive fiscal years. You can add an overlay to illustrate the profit goals for each year, so you can easily see how the actual revenue compares to the target revenue.

Example of overlay on a stacked bar chart with a custom starting point



Note: The floating bar chart type, which was previously used to overlay a line chart on top of a stacked bar chart, is no longer available. In Exstream versions 9.5.201 and later, the functionality of the floating bar chart has been merged with that of the stacked bar chart. Although the floating bar chart is no longer used for new designs, any floating bar charts used in existing designs will still work. Existing floating bar charts will be automatically converted to stacked bar charts with overlays if they are edited and saved in Designer.

To create an overlay for a bar or stacked bar chart:

1. In Designer, select the bar chart or stacked bar chart to which you want to add an overlay.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.



4. On the lower left side of the dialog box, click .

The **Overlay Chart Properties** dialog box opens.

5. If the x and y values are in a single array variable, select the **Arrays alternate x/y data values** check box. The array variable must provide the coordinates in the format of x1, y1, x2, y2, etc. For example, if the variable provides the values 1,2,1,1,3,4 then the following data points are plotted: 1,2; 1,1; 3,4. The first coordinate is 1,2, the second coordinate is 2,3, etc.

6. Use the boxes on the lower half of the dialog box to define the data series you want to appear on the overlay.

- a. Select the check box next to the first data series you want to add.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the data for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** box adjacent to the data series box.

The **Color** dialog box opens.

- e. Select the color you want to use to represent the data series and click **OK**.

The **Color** dialog box closes and the color you selected appears in the **Color** box.

- f. If you used multiple variables to provide the overlay data points, repeat step a through step e to add as many variables as needed.

7. Click **OK**.

The **Overlay Chart Properties** dialog box closes.

Overlays allow you use several of the standard chart features to customize the appearance of the overlay. You carry out the same tasks to format an overlay as you do to format the main chart areas. You can use the properties on the **Overlay Chart Properties** dialog box to carry out the following tasks for an overlay:

Overlay formatting options

Formatting task	For information
Add a legend for the overlay data	See " Adding a Legend to a Traditional Chart " on page 331.
Format the lines used in the overlay	See " Formatting the Lines in a Line or Comparative Line Chart " on page 290.
Use conditional colors to customize the overlay colors based on conditions	See " Using Data to Customize Colors in Charts " on page 353.

8.2.4 Setting Up a Traditional Pie Chart

Because pie charts have a very different appearance from most other chart types, the tasks you carry out to add a pie chart to your design are also unique when compared to the tasks you use to set up other chart types.

To set up pie charts, complete the following tasks as needed:

- ["Adding Data to a Pie Chart" on the next page](#)
- ["Labeling the Slices in a Pie Chart" on page 277](#)
- ["Adjusting the Tilt of a Pie Chart" on page 279](#)

- “Emphasizing a Specific Slice in a Pie Chart” on page 280
- “Sorting the Slices in a Pie Chart” on page 281
- “Filtering the Slices in a Pie Chart” on page 283

Adding Data to a Pie Chart

Pie charts are driven and customized through the use of variables mapped to customer data. The data you use to drive a chart can be controlled by multiple variables or by a single array variable. If you use multiple variables to provide the data for the chart, each variable provides the value for one slice of the pie. On the other hand, if you use an array variable to provide the data displayed in the chart, each element in the array provides the value for one slice in the chart. If you use an array variable for the data series, the data cannot exceed 300 data points.

To add data to a pie chart:

1. In Designer, select the chart to which you want to add data.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Use the options on the bottom portion of the dialog box to define the data you want to appear in the chart. You can use either an array variable or multiple variables to provide the data in the chart:

To use an array to provide the data in the chart:

- a. Select the **All values are stored in one array** check box.
- b. In the **Values** box, click .

The **Select Variable** dialog box opens.

- c. Select the array variable containing the element that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

To use multiple variables to provide the data in the chart:

- a. Select the check box next to the first data series you want to add.

- b. In the adjacent box, click  .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appear in the **Color** color well.

- f. Repeat step a through step e for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

For information about using conditional colors in charts, see [“Using Data to Customize Colors in Charts” on page 353](#).

5. Click **OK**.

The **Chart Properties** dialog box closes.

Labeling the Slices in a Pie Chart

You can place labels near slices to make it easier for customers to determine the amount represented by each slice. For example, if you use a pie chart to illustrate the allocations of a customer's investments, you can add labels that provide the actual dollar amount that is invested in each type of fund.

Because legends and labels are controlled by the same properties, you must add a legend to the pie chart before adding labels to the chart. However, you can make the legend content empty if you do not want it to appear in the final output.

For information about adding a legend to a chart, see [“Adding a Legend to a Traditional Chart” on page 331](#).

To label the slices in a pie chart:

1. In Designer, select the chart to which you want to add labels.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Legend/Label Properties** dialog box opens.

5. In the **Labels** area, select an option from the **Label line method** drop-down list to specify whether a line is drawn from the slice to the label:

To	Do this
Add labels without a connecting line	Select Off .
Always use a line to connect labels with the appropriate slice	<ol style="list-style-type: none">Select On.Click the Line color color well to specify the color of the connecting line. The Color dialog box opens.Select or specify the color you want to use and click OK. The Color dialog box closes and the color you selected appears in the Line color color well.In the Line width box, enter the width of the connecting line.
Include connecting lines if the labels can be included without the labels overlapping	<p>Note: If you select this option, some customers might receive connecting lines, while others do not.</p> <ol style="list-style-type: none">Select Auto.Click the Line color color well to specify the color of the connecting line. The Color dialog box opens.Select or specify the color you want to use and click OK. The Color dialog box closes and the color you selected appears in the Line color color well.In the Line width box, enter the width of the connecting line.

6. From the **Contents** drop-down list, select the type of information you want to be used as the label:

To	Do this
Use the text entered in the Legend labels area on the Chart Area tab as the label content	Select Label . For information about specifying text that can be used for both legend and label content, see " Adding Legend Content Using the Legend Labels Area " on page 331.
Use the percentage of the total as the label	Select Percentage .
Use the actual value of the slice as the label	Select Value .
Create a custom label (for example, force the label text to break at a specified point)	<ol style="list-style-type: none">a. Select Custom.b. In the adjacent box, enter text and character combinations as necessary to specify the custom label. If you use \t, \r, or \n, select the Wrap text check box in the general formatting area to make sure that text that extends past one line appears correctly. <p>For information about the character combinations you can use, see "Legend Character Combinations" on page 335.</p> <p>For information about allowing legends and labels to wrap, see "Adding a Legend Using the Legend/Label Properties Dialog Box" on page 333.</p>

7. If you use long labels, select the **Keep labels inside plot area method** check box to keep the labels inside the plot area.
8. Click **OK**.

The **Legend/Label Properties** dialog box closes.

9. Click **OK**.

The **Chart Properties** dialog box closes.

Adjusting the Tilt of a Pie Chart

You can easily adjust the angle at which a pie chart appears in order to give the chart a unique appearance, especially if you have formatted the chart to be 3D.

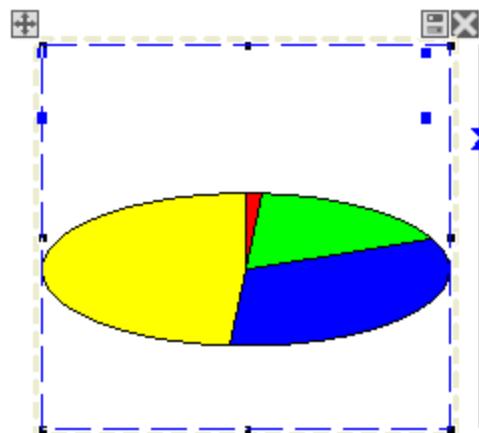
For information about making a chart 3D, see "[Making a Chart 3D](#)" on page 351.

To adjust the tilt of a pie chart:

1. In Designer, select the chart for which you want to adjust the tilt.

When you select the chart, a blue slider bar appears next to the chart.

Example of a blue slider on a chart



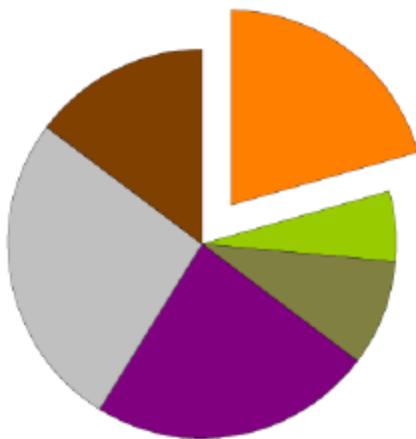
2. Drag the slider up or down to adjust the tilt.

The chart in the design is adjusted to reflect the changes that you make with the slider.

Emphasizing a Specific Slice in a Pie Chart

If you want to emphasize a specific slice in a pie chart, you can adjust its placement so it appears separately from the rest of the pie (exploded). For example, suppose you are designing a statement that discusses a specific type of account in a customer's portfolio. You can make the slice that represents that account stand out from the rest of the pie to help customers see, at a glance, which piece of data is being referenced.

Example of emphasized slice



To emphasize a specific slice in a pie chart:

1. In Designer, select the chart that contains the slice you want to emphasize.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Next to the data series you want to emphasize, select the **>>** check box.

5. Click .

The **Advanced Pie Chart Properties** dialog box opens.

6. In the **Explode level** box, enter the percentage of the slice's size by which you want the slice to be moved away from the rest of the pie.

7. Click **OK**.

The **Advanced Pie Chart Properties** dialog box closes.

8. Click **OK**.

The **Chart Properties** dialog box closes.

Sorting the Slices in a Pie Chart

You can specify the order you want the slices to appear in the chart. For example, you might choose to arrange them from largest to smallest, so it is easy for customers to see how which data series are larger than others. Regardless of the order of sorting you use, the pie slices are always placed in the chart starting at the 12 o-clock position.

To sort the slices in a pie chart:

1. In Designer, select the pie chart that contains the slices you want to sort.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Advanced Pie Chart Properties** dialog box opens.

5. From the **Sort slices** drop-down list, select the way you want the slices to be sorted:

To	Example	Do this
Sort slices in the order in which they are entered in the data series area. No additional slice or color sorting takes place.		Select None .
Sort slices from largest to smallest and determine slice colors by placement. The slice placed first receives the first fill color specified in the data series area, and so on.		Select Largest to smallest .
Sort slices from largest to smallest and determine slice colors by placement. The slice placed first receives the first fill color specified in the data series area, and so on.		Select Smallest to largest .
Sort slices from largest to smallest and retain the color with which slices are associated in the data series area		Select Largest to smallest, with styles .
Sort slices from smallest to largest and retain the color with which they are associated in the data series area		Select Smallest to largest, with styles .

6. Click **OK**.

The **Advanced Pie Chart Properties** dialog box closes.

7. Click **OK**.

The **Chart Properties** dialog box closes.

Filtering the Slices in a Pie Chart

Filtering the slices in a pie chart allows you to make the chart easier to read by limiting the amount of data that is presented in the chart. For example, you can consolidate many small slices into one slice that represents all of the values. Combined slices are always placed as the last pie slice in the chart, regardless of the sort slice settings on the chart.

To filter the slices in a pie chart:

1. In Designer, select the pie chart in which you want to filter slices.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Click .

The **Advanced Pie Chart Properties** dialog box opens.

5. Use the options on the bottom half of the dialog box to specify how you want to filter the slices:

To	Do this
Exclude slices with a value smaller than a specified filter amount	<ol style="list-style-type: none">a. From the Filter Method drop-down list, select By value: if less than filter amount.b. In the Filter amount box, enter a value.
Exclude slices with a value smaller than a specified filter amount, up to a specified total amount of excluded slices	<ol style="list-style-type: none">a. From the Filter Method drop-down list, select By value: if less than amount to max.b. In the Filter amount box, enter a value.c. In the Filter total box, enter a value.
Exclude slices with a percentage smaller than a specified filter amount	<ol style="list-style-type: none">a. From the Filter Method drop-down list, select By percent: if less than filter amount.b. In the Filter amount box, enter a value.
Exclude slices with a percentage smaller than a specified filter amount, up to a specified total amount of filtered slices	<ol style="list-style-type: none">a. From the Filter Method drop-down list, select By percent: if less than amount to max.b. In the Filter amount box, enter a value.c. In the Filter total box, enter a value.

6. Use the rest of the options on the dialog box to specify how filtered values are combined:

To	Do this
Remove the filtered slices from the chart and adjust the remaining percentages to total 100 percent	From the Filter action drop-down list, select Discard filtered colors .
Combine the filtered slices into a single slice	<ol style="list-style-type: none">From the Filter action drop-down list, select Combine.In the Filter label box, enter the label to apply to the combined slice.Click the Fill color color well to specify a color for the combined slice.If the chart is formatted to be 3D, click the Edge color color well to specify a color for the edge of the combined slice.
Combine the filtered slices into a single slice and explode it	<ol style="list-style-type: none">From the Filter action drop-down list, select Combine.In the Filter label box, enter the label to apply to the combined slice.Click the Fill color color well to specify a color for the combined slice.If the chart is formatted to be 3D, click the Edge color color well to specify a color for the edge of the combined slice.

For information about making a chart 3D, see “[Making a Chart 3D](#)” on page 351.

7. Click **OK**.

The **Advanced Pie Chart Properties** dialog box closes.

8. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.5 Setting Up a Traditional Line Chart or Comparative Line Chart

The topics in this section discuss how to set line charts and comparative line charts, since both of these chart types behave similarly with only slight differences.

For more information about the differences in line and comparative line charts, see “[Chart Types](#)” on page 257.

To set up line or comparative line charts, complete the following tasks as needed:

- “[Adding Data to a Line Chart](#)” on the next page
- “[Adding Data to a Comparative Line Chart](#)” on page 287

- “Formatting the Lines in a Line or Comparative Line Chart” on page 290
- “Labeling the Data in a Line or Comparative Line Chart” on page 291

Adding Data to a Line Chart

In a line chart, the data points are marked in the plot area and a line connects each series to help illustrate the change in its value over time. You can supply the data for a line chart in one of two ways:

- **All values are in one array**—One array variable provides the coordinates in the format of x_1 , y_1 , x_2 , y_2 , and so on. For example, if the variable provides the values 1,2,1,1,3,4, then the following data points are plotted: 1,2; 1,1; 3,4. The first coordinate on the chart is 1,2, the second coordinate is 2,3, and so on. You must select the **Arrays alternate x/y values** option if you use this type of variable.
- **Array provides x-axis points**—The x variable provides the values of the x-axis and you use one or more array variables to provide each y point.

If you use an array variable to provide the data, the chart can contain up to 10,000 data points.

You can also use a scalar variable to add a straight line to a chart. For example, you might want to include one straight line to indicate sales goals, so customers can easily see the contrast between actual sales and the sales goals.

To add data to a line chart:

1. In Designer, select the chart to which you want to add data.
2. Click  .
The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Use the numbered boxes to define the data series you want to appear in the chart. You can either use array variables or separate variable to provide the x and y values:

To use array variables to provide the x and y values:

- a. In the top half of the dialog box, select the **Arrays alternate x/y data values** check box.
- b. Select the check box next to the first data series you want to add.
- c. In the adjacent box, click  .

The **Select Variable** dialog box opens.

- d. Select the array variable containing the element that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- e. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- f. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- g. Repeat step b through step f for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

To use separate variables to provide the x and y values:

- a. Select the **X** check box.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Select the check box next to the first y-value data series you want to add.

- e. In the adjacent box, click .

The **Select Variable** dialog box opens.

- f. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- g. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appear in the **Color** color well.

- h. Repeat step d through step g for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

5. Click **OK**.

The **Chart Properties** dialog box closes.

Adding Data to a Comparative Line Chart

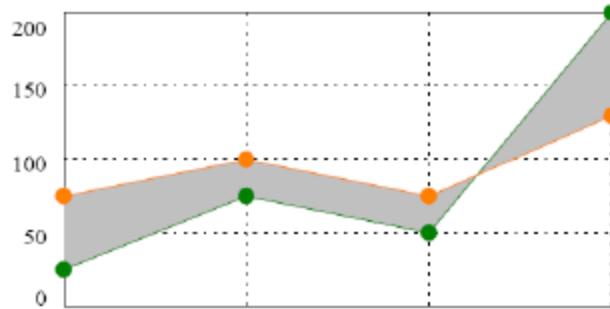
In a comparative line chart, you specify two data series that are compared to each other. In a line chart, the data points are marked in the plot area and a line connects each series to help illustrate the change in its value over time. You can supply the data for a line chart in one of two ways:

- **All values are in one array**—One array variable provides the coordinates in the format of x_1, y_1, x_2, y_2 , etc. For example, if the variable provides the values 1,2,1,1,3,4 then the following data points are plotted: 1,2; 1,1; 3,4. The first coordinate is 1,2, the second coordinate is 2,3, etc. You must select the **Arrays alternate x/y values** if you use this type of variable.
- **Array provides x-axis points**—The x variable provides the values of the x-axis and you use one or more array variables to provide each y point.

If you use an array variable to provide the data, the chart can contain up to 10,000 data points.

You can also use a scalar variable to represent a straight line on the chart. For example, you might want to include one straight line to indicate sales goals so customers can easily see the contrast between actual sales and the sales goals.

Example of comparative line chart



To add data to a comparative line chart:

1. In Designer, select the chart to which you want to add data.
2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Use the numbered boxes to define the data series you want to appear in the chart. You can either use array variables or separate variables to provide the x and y values:

To use array variables to provide the x and y values:

- a. Select the **Arrays alternate x/y data values** check box in the top half of the dialog box.

- b. In the first data series box, click .

The **Select Variable** dialog box opens.

- c. Select the array variable containing the element that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- f. Repeat step b through step e for each data series (up to 30) that you want to define.

To use separate variables to provide the x and y values:

- a. Select the **X** check box.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the x values and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. In the first data series box, click .

The **Select Variable** dialog box opens.

- e. Select the variable that provides the value for that data series and click **OK**.

- f. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- g. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appear in the **Color** color well.

- h. Repeat step d through step f for each data series (up to 30) that you want to define.

For information about using conditional colors in charts, see [“Using Data to Customize Colors in Charts” on page 353](#).

5. Use the color options to specify the color of line that represents the data series:

To	Do this
Specify a unique color for each data series	<ol style="list-style-type: none">a. Click the color well adjacent to the data series for which you want to define the color. The Color or the Conditional Color dialog box opens, depending on your selections for applying color to the chart.b. Select or specify the color you want to use for the data series and click OK. The dialog box closes and the color you selected appears in the color well.c. Repeat step a and step b for both data series. <p>For information about using conditional colors in charts, see “Using Data to Customize Colors in Charts” on page 353.</p>
Specify the same color for both data series	<ol style="list-style-type: none">a. Click the Line button. The Color Adjustment dialog box opens.b. From the drop-down list, select how you want the data series color to appear:<ul style="list-style-type: none">• Same color as face color—The edge color matches the data series color.• Darker—The edge color is a percentage darker than the face color.• Lighter—The edge color is a percentage lighter than the face color.• Inverse—The edge color is a contrasting color from the face color.• Inverse (black or white)—The edge color is either black or white, depending on which color provides more contrast to the face color.• Set all edge colors same as first edge—All colors are the same.c. If you selected Darker or Lighter, enter the percentage by which you want the shading to be adjusted in the Percent darker or lighter (0-100) box.d. Click OK. The Color Adjustment dialog box closes.

6. Repeat step 4 and step 5 for the other data series that you want to include in the chart.
7. Use the **Shaded area** color well to specify a color that appears between the two lines:
 - a. Click the **Shaded area** color well.
The **Color** or **Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

- b. Select or specify the color you want to use and click **OK**.

The dialog box closes and the color appears in the **Shaded area** color well.

8. Click **OK**.

The **Chart Properties** dialog box closes.

Formatting the Lines in a Line or Comparative Line Chart

For both types of line charts, you can control the appearance of the lines that represent each data series.

To format the lines in a line chart:

1. In Designer, select the chart to which you want to apply line formatting.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Use the **Line style** box to define the appearance of the line:

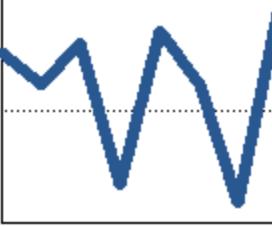
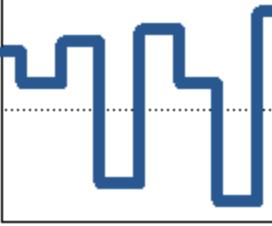
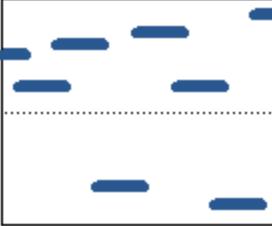
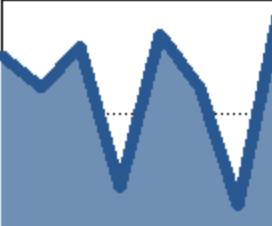
- a. Click the **Line style** box.

The **Chart Line Style** box opens.

- b. In the **Line style** box, select the style you want to use.
- c. In the **Line weight** box, enter the thickness of the line.
- d. From the **Symbol** drop-down list, select the character you want to use to represent data points.
- e. In the **Symbol size** box, enter the size of the symbol you want to use.
- f. Click **OK**.

The **Chart Line Style** box closes, and a sample of the line formatting appears in the **Line style** box.

5. From the adjacent drop-down list, select how the lines are drawn between data points:

To	Example	Do this
Place a connected line between data points on the chart. If there is no data for a data series, it is assumed to be zero.		Select Line .
Place a line that steps at 90-degree angles from one point to the next on the chart		Select Step .
Place a short, horizontal line at each data point for a data series. For best results, use a color for the data series that contrasts with the plot area background.		Select Cap .
Force the data series to start at the first non-zero value in the data. If there are zero values in the data, the resulting chart looks like one created with the Line option.		Select Line0 .

6. Click **OK**.

The **Chart Properties** dialog box closes.

Labeling the Data in a Line or Comparative Line Chart

One way to make the data illustrated by a line chart easier to read is to use labels to help users see, at a glance, the actual value of each data point. Labels might be helpful if the chart has several data series (lines), or if it indicates data points that are especially important for the customer to see. By default, the label content is the value of each data point; however, for comparative line charts, you can provide custom label content.

To label the data in a line or comparative line chart:

1. In Designer, select the chart to which you want to add labels.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
 4. Under the **Chart type** icon, click .
- The **Chart Format** dialog box opens.
5. Click the **Data labels** tab.
 6. Select the **Show data labels** check box.
 7. Use the options on the **Data labels** tab to define the labels that appear on the chart:

To	Do this
Change the location where the labels are placed	From the Placement drop-down list, select the location you want.
Allow the spacing of the labels to be adjusted automatically so that they do not overlap	Select the Avoid collisions check box.
Allow only the last label for each point in a data series appear on the chart	Select the Show only the last data point label check box.
Make accommodations for long labels or labels for data near the minimum or maximum ranges <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f8ff;">Note: Very long labels or labels in dense area of data points might appear outside the plot area so they can be read.</div>	From the Keep labels inside plot area method area, select one of the following options <ul style="list-style-type: none">• None—The labels are placed based on the option selected from the Placement drop-down list.• Increase range—The data range is adjusted automatically so that labels can be included in the plot area.• Move labels—The labels are adjusted automatically so that they fit within the plot area.
Add a background to the labels	<ol style="list-style-type: none">a. From the Fill type drop-down list, select one of the following options:<ul style="list-style-type: none">• None—Allow labels to appear without a background.• White—Apply a white background to the label.• Match plot area background—Use the color of the plot area as the background for the label. This option allows the label background to interrupt the grid lines, and might appear less disruptive to the chart design than a white background.b. If you selected White, use the options in the Border area to format the border of the background.

8. If you are formatting the labels on a comparative line chart, you can use the two additional properties to define label properties that are specific to comparative line charts:

To	Do this
Specify one or both of the data series to which you want to add labels	From the Data series for labels drop-down list, select one of the following options to specify the data series to be used for data labels: <ul style="list-style-type: none">• Primary—The first data series• Secondary—The second data series• Both primary and secondary—The first and second data series
Use a variable to provide unique content for the labels	a. In the Override label value box, click  . The Select Variable dialog box opens. b. Select the variable that provides the label content and click OK . The Select Variable dialog box closes and the variable you selected appears in the Override label value box.

9. Click **OK**.

The **Chart Format** dialog box closes.

10. Click **OK**.

The **Chart Properties** dialog box closes.

You can also change the font size and formatting of the text in labels. You can use the text editing features in Designer to apply these changes.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

8.2.6 Setting Up a Traditional Area Chart

To set up area charts, complete the following tasks as needed:

- “[Adding Data to an Area Chart](#)” on the next page
- “[Adding Lines to an Area Chart to Emphasize a Data Series](#)” on page 296
- “[Labeling the Data in an Area Chart](#)” on page 298

Adding Data to an Area Chart

In an area chart, the data points are marked in the plot area, and the area between the baseline and the data point is filled with color. You can supply the data for an area chart in one of two ways:

- **All values are in one array**—One array variable provides the coordinates in the format of x_1, y_1, x_2, y_2 , and so on. For example, if the variable provides the values $1, 2, 1, 1, 3, 4$, then the following data points are plotted: $1, 2$; $1, 1$; $3, 4$. The first coordinate is $1, 2$, the second coordinate is $2, 3$, and so on. You must select the **Arrays alternate x/y values** if you use this type of variable.
- **Array provides x-axis points**—The x variable provides the values of the x-axis and you use one or more array variables to provide each y point.

If you use an array variable to provide the data, the chart can contain up to 10,000 data points.

You can also use a scalar variable to add a straight line to a chart. For example, you might want to include one straight line to indicate sales goals, so customers can easily see the contrast between actual sales and the sales goals.

To add data to an area chart:

1. In Designer, select the chart to which you want to add data.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Use the numbered boxes to define the data series you want to appear in the chart. You can either use array variables or separate variables to provide the x and y values:

To use array variables to provide the x and y values:

- a. In the top half of the dialog box, select the **Arrays alternate x/y data values** check box.
- b. Select the check box next to the first data series you want to add.

- c. In the adjacent box, click .

The **Select Variable** dialog box opens.

- d. Select the array variable containing the element that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- e. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- f. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- g. Repeat step b through step f for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

To use separate variables to provide the x and y values:

- a. Select the **X** check box.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the X values and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Select the check box next to the first y-value data series that you want to add.

- e. In the adjacent box, click .

The **Select Variable** dialog box opens.

- f. Select the variable that provides the value for that data series and click **OK**.

- g. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- h. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appear in the **Color** color well.

- i. Repeat step d through step h for each data series (up to 30) that you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

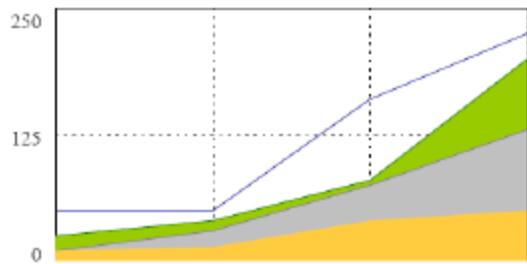
5. Click **OK**.

The **Chart Properties** dialog box closes.

Adding Lines to an Area Chart to Emphasize a Data Series

One way to present data in an area chart is to use lines to represent one or more of the data series. This method of presenting data is especially useful in a chart that contains so many data series that it becomes difficult to read. For example, if you want to emphasize the target value to which you are comparing the other areas, you can use a line to represent the target amount data series.

Example of area chart with line



1. In Designer, select the chart to which you want to add lines.
2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. For each data series that you want to represent with a line, select the **Line** check box.
5. Use the **Line style** box to define the appearance of the line:
 - a. Click the **Line style** box.
The **Chart Line Style** box opens.
 - b. In the **Line style** box, select the style that you want to use.
 - c. In the **Line weight** box, enter the thickness of the line.
 - d. From the **Symbol** drop-down list, select the character that you want to use to represent data points.
 - e. In the **Symbol size** box, enter the size of the symbol that you want to use.
 - f. Click **OK**.

The **Chart Line Style** box closes, and a sample of the line formatting appears in the **Line style** box.
6. From the adjacent box, select how the lines are drawn between data points:

To	Example	Do this
Place a connected line between data points on the chart. If there is no data for a data series, it is assumed to be zero.		Select Line .
Place a line that steps at 90-degree angles from one point to the next on the chart		Select Step .
Place a line that steps at 90-degree angles from one point to the next, and fill the area from the zero line up or down to the data value. If there are no negative numbers in the data series, or if the data series is not filled, the results are the same as those using the Step option.		Select StepFill0 .
Place a short, horizontal line at each data point for a data series. For best results, use a color for the data series that contrasts with the plot area background.		Select Cap .
Force the data series to start at the first non-zero value in the data. If the first non-zero value is negative, this value is shown as long as the y-axis range can accommodate negatives. If there are zero values in the data, the resulting chart looks like one created with the Line option.		Select Line0 .

7. Click **OK**.

The **Chart Properties** dialog box closes.

Labeling the Data in an Area Chart

One way to make the data illustrated by an area chart easier to read is to use labels to help users see, at a glance, the actual value of each data point. Labels might be especially helpful if the area chart has several data series, or if the chart contains data points that are important for the customer to see. The value of each data point is used as the label content.

To label the data in an area chart:

1. In Designer, select the chart to which you want to add labels.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Under the **Chart type** icon, click .

The **Chart Format** dialog box opens.

5. Click the **Data labels** tab.

6. Select the **Show data labels** check box.

7. Use the options on the **Data labels** tab to define the labels that appear on the chart:

To	Do this
Change the location where the labels are placed	From the Placement drop-down list, select the location you want.
Allow the spacing of the labels to be adjusted automatically so that they do not overlap	Select the Avoid collisions check box.
Allow only the last label for each point in a data series to appear on the chart	Select the Show only the last data point label check box.
Make accommodations for long labels or labels for data near the minimum or maximum ranges	<p>From the Keep labels inside plot area method drop-down list, select one of the following options:</p> <ul style="list-style-type: none">• None—Labels are placed based on the option selected from the Placement drop-down list.• Increase range—The data range is adjusted automatically so that labels can be included in the plot area.• Move labels—The labels are adjusted automatically so that they fit within the plot area.

Note: Very long labels or labels in dense area of data points might appear outside the plot area so they can be read.

To	Do this
Add a background to the labels	<ol style="list-style-type: none">a. From the Fill type drop-down list, select one of the following options:<ul style="list-style-type: none">• None—Allow labels to appear without a background.• White—Apply a white background to the label.• Match plot area background—Use the color of the plot area as the background for the label. This option allows the label background to interrupt the grid lines, and might appear less disruptive to the chart design than a white background.b. If you selected White, use the options in the Border area to format the border of the background.

8. Click **OK**.

The **Chart Format** dialog box closes.

9. Click **OK**.

The **Chart Properties** dialog box closes.

You can also change the font size and formatting of the text in labels. You can use the text editing features in Designer to apply these changes.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

8.2.7 Setting Up a Traditional Label Chart

To set up label charts, complete the following tasks as needed:

- [“Adding Data to a Label Chart” below](#)
- [“Formatting the Labels on a Label Chart” on page 301](#)

Adding Data to a Label Chart

Specifying data for a label chart is different from defining the data for other chart types. For other chart types, the data creates values and then the values are plotted in the chart’s plot area. In contrast, for label charts, the data provides the x/y locations of a data point. You use separate variables to provide the label content that appears at each data point in the chart. To add the data to a label chart, you specify an array variable for the x-axis and an array variable for the y-axis. The elements in the arrays are combined to create a single point on the chart. Therefore, the two arrays must have the same number of elements. The chart can contain up to 10,000 data points.

The labels in a label chart are made up of a label symbol and a label caption. Typically, you might use a symbol, such as a star or circle, to serve as the label content, and descriptive text

as the caption content. However, you can use any type of content for the symbol and caption content.

To add data to a label chart:

1. In Designer, select the chart to which you want to add data.
2. Click . The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. In the **X** box, specify the array variable that controls the x coordinates of the labels.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable you want to use and click **OK**.

The **Select Variable** dialog box closes.

5. Repeat step 4 for the **Y** box, to specify the array variable that controls the y coordinates of the labels.
6. In the **Symbol** box, specify the variable that controls the character or text that appears at the data point on the chart. The default character is an asterisk (*). The variable that you select must meet the following requirements:
 - The variable can be either a string scalar or a string array variable.
 - If you use an array variable, the variable must be the same size as the variable that you use for the **X** and **Y** coordinates.
 - If the variable uses a formula, you must select the **As needed** option from the **Compute time** drop-down list.

For more information about setting the engine timing for a variable, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

7. In the **Caption** box, specify the variable that controls the descriptive text (the label) that appears at the data point on the chart. The variable that you select must be a string array and must be the same size as the variable that you use for the **X** and **Y** coordinates.
8. For each data series, use the adjacent color well to select the color used to represent the data.
 - a. Click the color well.

The **Color** dialog box opens.

- b. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

9. Click **OK**.

The **Chart Properties** dialog box closes.

Formatting the Labels on a Label Chart

You can format the labels in a label chart to help make them easier to read. For example, you can prevent labels that are long or close together from overlapping.

To format the labels:

1. In Designer, select the chart to which you want to apply label formatting.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. From the **Caption orientation** drop-down list, select one of the following options to control how the label content appears relative to the data point:
 - **Normal**—The caption text appears horizontally above a data point.
 - **Face right**—The caption text appears at a 90-degree angle above the data point and faces to the right.
 - **Face left**—The caption text appears at a 90-degree angle above the data point and faces to the left.
 - **Normal, caption below**—The caption text appears horizontally below the data point.
 - **Face right, caption below**—The caption text appears at a 90-degree angle below the data point and faces to the right.
 - **Face left, caption below**—The caption text appears at a 90-degree angle below the data point and faces to the left.
 5. Click .
- The **Chart Format** dialog box opens.
6. Click the **Data labels** tab.
 7. Use the options on the **Data labels** tab to define how labels appear on the chart:

To	Do this
Allow the spacing of the labels to be adjusted automatically so that they do not overlap	Select the Avoid collisions check box.
Make accommodations for long labels or labels for data near the minimum or maximum ranges	From the Keep labels inside plot area method area, select one of the following options: <ul style="list-style-type: none">• None—Labels are placed based on the option selected from the Caption orientation drop-down list.• Increase range—The data range is adjusted automatically so that labels can be included in the plot area.• Move labels—The labels are adjusted automatically so that they fit within the plot area.
Add a background to the labels	<ol style="list-style-type: none">a. From the Fill type drop-down list, select one of the following options:<ul style="list-style-type: none">• None—Allow labels to appear without a background.• White—Apply a white background to the label.• Match plot area background—Use the color of the plot area as the background for the label. This option allows the label background to interrupt the grid lines, and might appear less disruptive to the chart design than a white background.b. If you selected White, use the options in the Border area to format the border of the background.

8. Click **OK**.

The **Chart Format** dialog box closes.

9. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.8 Setting Up a Traditional Calendar Chart

To set up calendar charts, complete the following tasks as needed:

- “[Adding Data to a Calendar Chart](#)” below
- “[Emphasizing Specific Dates in a Calendar Chart](#)” on page 304
- “[Adding Lines Around the Dates in a Calendar Chart](#)” on page 305

Adding Data to a Calendar Chart

Calendar charts allow you to use a calendar to emphasize one or more dates in a month. Calendar charts display only one month per chart. The first variable you associate with a

calendar chart indicates which month of which year the chart should display. If you specify a variable that contains data for a different month than the first data series, that data is ignored. Each date referenced by a variable appears in a color you specify. You can also format the date numbers so they are easier to see when the date is colored.

Unlike other chart types that allow you to select multiple types of data, you must always use date variables in calendar charts. The variable you use also cannot be an array. If you use an array, only the first element in the variable is used and the others are ignored.

To add data to a calendar chart:

1. In Designer, select the chart to which you want to add data.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. In the **1** box, specify the variable that contains the first date, the month, and the year to be displayed in the calendar
 - a. Click . The **Select Variable** dialog box opens.

- b. Select the variable that provides the month and four-digit year to be represented by the calendar. If the variable you select does not specify a year, the current year is used.
- c. Click **OK**.

- The **Select Variable** dialog box closes and the variable you selected appears in the **1** box.
5. Use the other numbered boxes to specify the variables that indicate the dates to appear in the calendar. The dates provided by the variables must be in the same month as the month specified in the data series; otherwise, they do not appear on the calendar.
 6. For each data series, use the adjacent color well to specify the color in which that date appears.

- a. Click the **Color** color well.

The **Color** dialog box opens.

- b. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color appears in the **Color** color well.

7. For each data series, use the text color options to specify the color used for the date information:

To	Do this
Specify a unique color for each data series	<ol style="list-style-type: none">a. Click the color well adjacent to the data series for which you want to define the text color. The Color dialog box opens.b. Define the color you want to use for the data series and click OK. The Color dialog box closes and the color you selected appears in the color well.c. Repeat step a and step b for both data series.
Specify the same color for all of the data series	<ol style="list-style-type: none">a. Click the Text button. The Color Adjustment dialog box opens.b. From the drop-down list, select how you want the text color to appear:<ul style="list-style-type: none">• Same color as face color—The edge color matches the face color.• Darker—The edge color is a percentage darker than the face color.• Lighter—The edge color is a percentage lighter than the face color.• Inverse—The edge color is a contrasting color from the face color.• Inverse (black or white)—The edge color is either black or white, depending on which color provides more contrast to the face color.• Set all edge colors same as first edge—All colors are the same.c. If you selected Darker or Lighter, enter the percentage by which you want the shading to be adjusted in the Percent darker or lighter (0-100) box.d. Click OK. The Color Adjustment dialog box closes.

8. If you must define more than six dates, click the **Series** arrow buttons and repeat step 7 as needed.
9. Click **OK**.

The **Chart Properties** dialog box closes.

Emphasizing Specific Dates in a Calendar Chart

You can draw attention to specific dates in a calendar by making them larger than the other dates. For example, suppose the calendar illustrates the dates on which transactions for a customer's account were made. You can emphasize the date on which payment was due for an account. In the following illustration, three dates are called out in the calendar, but the 26th was made larger to emphasize it.

Example of specific date emphasized

February						
S	M	T	W	T	F	S
	1		3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

To emphasize specific dates in a calendar chart:

1. In Designer, select the calendar chart in which you want to emphasize a date.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. For each date that you want to emphasize, select the **>>** check box.
5. Click **OK**.

The **Chart Properties** dialog box closes.

Adding Lines Around the Dates in a Calendar Chart

You can add lines around the dates in a calendar to help make each day easier to see. You can also change the color of the lines that appear around the dates to use a color that complements the color scheme of the calendar. By default, lines appear around the dates when you create a calendar chart, but if this formatting has been disabled, you can reinstate it.

To add lines around the dates:

1. In Designer, select the calendar chart to which you want add lines around dates.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Select the **Lines** check box.
5. Use the adjacent color well to specify the color of the lines that appear around the dates.
 - a. Click the color well.

The **Color** dialog box opens.

- b. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color appears in the color well.

6. In the adjacent box, enter the width of the lines.

7. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.9 Setting Up a Traditional Progress Chart

To set up progress charts, complete the following tasks as needed:

- [“Adding Data to a Progress Chart” below](#)
- [“Adding Values and Percentages to a Progress Chart” on the next page](#)

Adding Data to a Progress Chart

Because a progress chart illustrates only two values, the data you add to a progress chart is very simple: the actual amount and the goal amount.

To add data to a progress chart:

1. In Designer, select the chart to which you want to add data.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Use the **Goal** options to specify the goal amount.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the goal amount. If you select an array variable, only the first value is read and the other elements are ignored.
- c. Click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Goal** box.

- d. Click the **Color** color well to specify the color used to represent the data.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select or specify the color you want to use and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

5. Use the **Actual** options to specify the amount that has been achieved toward the goal.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the progress amount. If you select an array variable, only the first value is read and the other elements are ignored.
- c. Click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Actual** box.

- d. Click the **Color** color well to specify the color used to represent the data.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select or specify the color you want to use and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

6. Click **OK**.

The **Chart Properties** dialog box closes.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

Adding Values and Percentages to a Progress Chart

You can add additional information to a progress chart to make it easy for customers to see the actual amounts illustrated by the chart. You can add actual values, the percentages illustrated, or both.

To add values and percentages to a progress chart:

1. In Designer, select the progress chart to which you want to add values and percentages.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. To include the percentage of the goal that has been reached on the chart, select the **Show percentage** check box. The percentage appears in parentheses.

5. To include the actual value of the target amount and progress amount, select the **Show values** check box.
6. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.10 Setting Up a Traditional Radar Chart

To set up radar charts, complete the following tasks as needed:

- “[Adding Data to a Radar Chart](#)” below
- “[Formatting the Data in a Radar Chart](#)” on the next page
- “[Labeling the Data in a Radar Chart](#)” on page 313
- “[Adding Grid Lines to a Radar Chart](#)” on page 315
- “[Changing the Shape of a Radar Chart](#)” on page 316
- “[Defining How the Radar Axis Lines Appear](#)” on page 317

Adding Data to a Radar Chart

In a radar chart, the y-axis starts in the center of the circle, and the x-axis surrounds the y-axis. Data points are placed on the chart just as they are in other chart types.

1. In Designer, select the chart to which you want to add data.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Use the **Axis** options to define the value for the y-axis.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the value of the y-axis and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Axis** box.

5. Use the other options on the lower part of the dialog box to define the data points that you want to appear in the chart:

To	Do this
Use an array to provide the data in the chart.	<ol style="list-style-type: none">Select the Use arrays for multiple series check box.Select the check box next to the first data series you want to add.In the adjacent box, click  . The Select Variable dialog box opens.Select the array variable containing the element that provides the value for that data series and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.Repeat step b through step d for each data series (up to 30) that you want to define. If you must define more than six data series, click the Series arrow buttons to access the properties for the next data series.
Use multiple variables to provide the data in the chart	<ol style="list-style-type: none">Select the check box next to the first data series you want to add.In the adjacent box, click  . The Select Variable dialog box opens.Select the variable that provides the value for that data series and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.Repeat step a through step c for each data series (up to 30) that you want to define. If you must define more than six data series, click the Series arrow buttons to access the properties for the next data series.

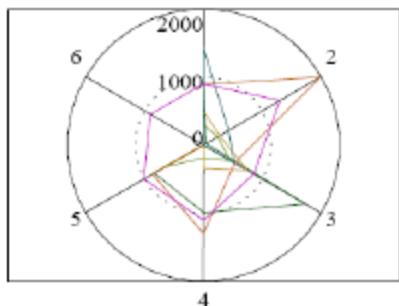
6. Click **OK**.

The **Chart Properties** dialog box closes.

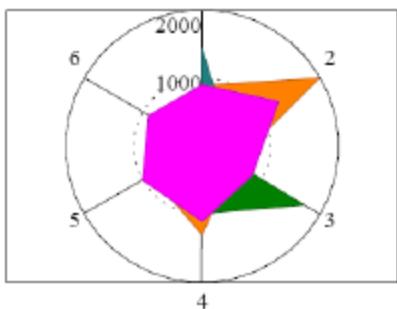
Formatting the Data in a Radar Chart

Radar charts provide extensive formatting options that you can use to make sure that the appearance of multiple data series does not make the chart hard to read. For example, depending on the number of data series that appear in the chart, you might want to use a fill color to help illustrate the data.

Example of radar chart with no fill color



Example of radar chart with fill color



To format the data in a radar chart:

1. In Designer, select the chart that contains the data you want format.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.

4. Use the options on the **Chart Area** tab to define the appearance of the data in the chart. You can either fill data areas with specified colors, use a blend of colors to illustrate where data overlaps, or use lines and no fill color:

To	Do this
Fill data areas with a specified color (from the minimum to maximum area)	<ol style="list-style-type: none">a. Select the Fill series area check box. A Line check box becomes available for each data series. If you want a line to appear instead of the filled area, select the Line check box for the data series.b. Click the Color color well adjacent to a data series. The Color or Conditional Colors dialog box opens, depending on your selections for applying color to the chart.c. Specify or select the color that you want to use to represent the data series and click OK. The dialog box closes and the color that you selected appears in the Color color well.d. Click the Edge color well to select the color that appears on the outside lines of the data area. The Color or Conditional Colors dialog box opens.e. Specify or select the color that you want to use as the data area outline and click OK. The dialog box closes and the color that you selected appears in the Color color well.f. Repeat step b through step e for each data series.

To	Do this
Fill data areas with a specified color and use a blend of the colors to illustrate where the data overlaps	<ol style="list-style-type: none">a. Select the Fill series area check box. A Line check box becomes available for each data series. If you want a line to appear instead of the filled area, select the Line check box for the data series.b. Select the Blend series colors check box.c. Click the Color color well adjacent to a data series. The Color or Conditional Colors dialog box opens, depending on your selections for applying color to the chart.d. Specify or select the color that you want to use to represent the data series and click OK. The dialog box closes and the color that you selected appears in the Color color well.e. Click the Edge color well to select the color that appears on outside lines of the data area. The Color or Conditional Colors dialog box opens.f. Specify or select the color that you want to use as the data area outline and click OK. The dialog box closes and the color that you selected appears in the Color color well.g. Repeat step c through step f for each data series.
Use lines and no fill color	<ol style="list-style-type: none">a. Click the Color color well adjacent to a data series. The Color or Conditional Colors dialog box opens, depending on your selections for applying color to the chart.b. Specify or select the color that you want to use to represent the data series and click OK. The dialog box closes and the color that you selected appears in the Color color well.c. Click the Edge color well to select the color that appears on outside lines of the data area. The Color or Conditional Colors dialog box opens.d. Specify or select the color you want to use as the data area outline and click OK. The dialog box closes and the color you selected appears in the Color color well.e. Select the Lines check box.f. Click the Line style box to specify the width and style of the line.g. Repeat step a through step f for each data series.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

5. Click **OK**.

The **Chart Properties** dialog box closes.

Labeling the Data in a Radar Chart

You can include labels on a radar chart to make it easier for customers to see the value of specific data points. Because legends and labels are controlled by the same properties, you must add a legend to the radar chart before adding labels to the chart. However, you can make the legend content empty if you do not want it to appear in the final output.

For information about adding a legend to a chart, see “[Adding a Legend to a Traditional Chart](#)” on [page 331](#).

To label the data in a radar chart:

1. In Designer, select the chart to which you want to add grid lines.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Legend/Label Properties** dialog box opens.

5. In the **Labels** area, select an option from the **Label line method** drop-down list to specify whether a line is drawn from the data point in the chart to the label:

To	Do this
Add labels without a connecting line	Select Off .
Always use a line to connect labels with the appropriate data point	<ol style="list-style-type: none">a. Select On.b. Click the Line color color well to specify the color of the connecting line.c. Select or specify the color that you want to use and click OK. The Color dialog box closes and the color that you selected appears in the Line color color well.d. In the Line width box, enter the width of the connecting line.

To	Do this
Include connecting lines if the labels can be included without the labels overlapping	<p>a. Select Auto.</p> <p>b. Click the Line color color well to specify the color of the connecting line.</p> <p>The Color dialog box opens.</p> <p>c. Select or specify the color that you want to use and click OK.</p> <p>The Color dialog box closes and the color that you selected appears in the Line color color well.</p> <p>d. In the Line width box, enter the width of the connecting line.</p>

6. From the **Contents** drop-down list, select the type of information that you want to be used as the label:

To	Do this
Use the text entered in the Legend labels area on the Chart Area tab as the label content	Select Label .
Use the percentage of the total as the label	Select Percentage .
Use the actual value of the data point as the label	Select Value .
Create a custom label	<p>a. Select Custom.</p> <p>b. In the adjacent box, enter text and character combinations as necessary to specify the custom label. If you use \t, \r, or \n, you must select the Wrap text check box in the general formatting area to make sure that text that extends past one line appears correctly.</p> <p>For information about the character combinations you can use, see "Legend Character Combinations" on page 335.</p> <p>For information about allowing legends and labels to wrap, see "Adding a Legend Using the Legend/Label Properties Dialog Box" on page 333.</p>

7. If you use long labels, select the **Keep labels inside plot area** check box to keep the labels inside the plot area.

8. Click **OK**.

The **Legend/Label Properties** dialog box closes.

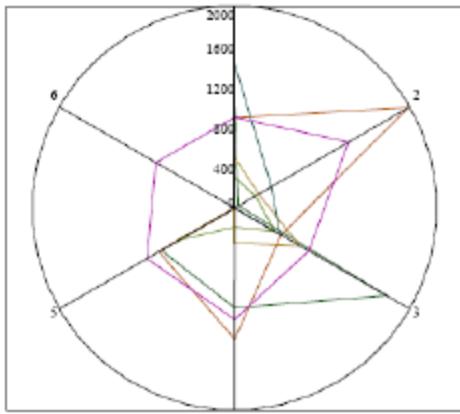
9. Click **OK**.

The **Chart Properties** dialog box closes.

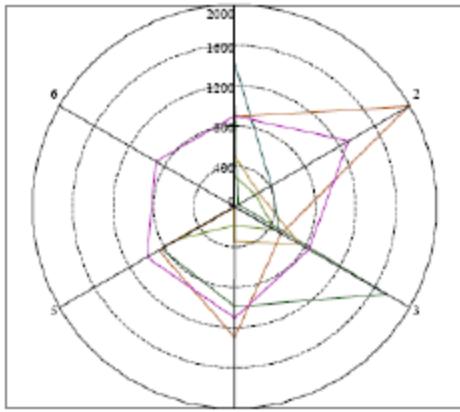
Adding Grid Lines to a Radar Chart

You can add grid lines to make the data in a radar chart easier to read, and you can customize how these grid lines appear.

Example of radar chart without grid lines



Example of radar chart with grid lines



To add grid lines to a radar chart:

1. In Designer, select the chart to which you want to add grid lines.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Click .

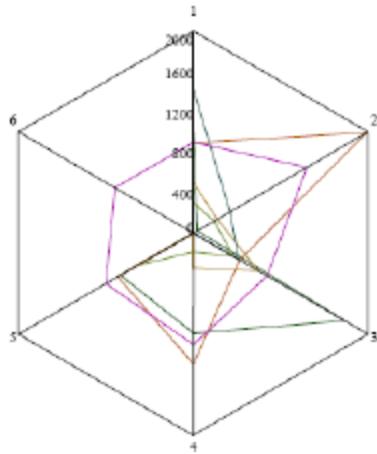
The **Chart Format** dialog box opens.

5. Click the **Plot area** tab.
6. In the **Grid line and axis** area, select the **Show y grid lines** check box.
7. Use the boxes below to specify the appearance of the grid lines.
8. From the **Grid display level** drop-down list, select one of the following options to specify how the grid lines and values appear on the chart:
 - **Low**—Grid lines and axis labels appear behind the data series line.
 - **Medium**—Grid lines appear behind the data series line and axis labels appear in front of the data series line
 - **High**—Grid lines appear behind the axis labels but in front of the data series line.
9. From the **Y-axis zero value line** drop-down list, select one of the following options to specify how the format of the line:
 - **None**—No line is added.
 - **Grid line format**—The line matches the rest of the grid line.
 - **Solid line**—The line has the same color and thickness, but is solid.
10. Click **OK**.
The **Chart Format** dialog box closes.
11. Click **OK**.
The **Chart Properties** dialog box closes.

Changing the Shape of a Radar Chart

By default, radar charts are circular. However, you can change the shape of the chart so it takes on a polygon shape. When you change the shape of a radar chart, the number of sides in the polygon is based on the number of data series you define for the chart. For example, if you define six data series, the radar chart is drawn in the shape of a hexagon.

Example of a radar chart in a polygon shape



To change the shape of a radar chart:

1. In Designer, select the chart you want to change.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Click .

The **Chart Format** dialog box opens.

5. In the **Grid lines and axis** area, select the **Polygon radar** check box.
6. Click **OK**.

The **Chart Format** dialog box closes.

7. Click **OK**.

The **Chart Properties** dialog box closes.

When the chart is drawn, it is drawn in a polygon shape, rather than a circle. The polygon has one side per series in the data.

Defining How the Radar Axis Lines Appear

Because the axis lines on a radar chart intersect the data lines, you can define how they appear in relation to the lines representing the data series. For example, you can set up the axis lines to appear in front of the data series to help make it easier to see the axis information.

To define how the radar axis lines appear:

1. In Designer, select the chart for which you want to define the axis line appearance.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Chart Format** dialog box opens.

5. Click the **Plot area** tab.

6. From the **Axes display level** drop-down list, select one of the following options:

- **Low**—The axis is drawn behind the axis labels and the data series lines.

- **High**—The axis is drawn in front of the axis labels and the data series lines.

7. Click **OK**.

The **Chart Format** dialog box closes.

8. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.11 Setting Up a Traditional Range Chart

To set up range charts, complete the following tasks as needed:

- “[Adding Data to a Range Chart](#)” below
- “[Labeling the Data in a Range Chart](#)” on page 320
- “[Formatting the Labels in a Range Chart](#)” on page 320
- “[Moving the X-Axis Labels to the Bars in a Range Chart](#)” on page 322
- “[Adjusting the Width of the Bars in a Range Chart](#)” on page 323
- “[Adding Borders Around the Bars in a Range Chart](#)” on page 323

Adding Data to a Range Chart

When you add the data to a range chart, you specify the data in two series: one for the high range and one for the low range. If you want to include more than one bar in the chart, you can use array variables to provide the data. You can also specify an optional x-axis to provide x-axis data. The chart can contain up to 10,000 data points.

If the data contains negative values, the bars in the chart use the negative number as the low range, as long as the y-axis range accommodates negative values.

To add data to a range chart:

1. In Designer, select the chart to which you want to add data.
2. Click . The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. If you want to include an x-axis on the chart, use the **X** options.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the x-axis value.
- c. Click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **X** box.

5. Use the **1** options to specify the high or low range. You can define either range first.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the range amount and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **1** box.

- c. Click the **Color** color well to specify the color used to represent the data.

The **Color or Conditional Color** dialog box opens.

- d. Select or specify the color you want to use and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

6. Repeat step 5 for the other range.

7. Click **OK**.

The **Chart Properties** dialog box closes.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.

Labeling the Data in a Range Chart

One way to make the data illustrated by a range chart easier to read is to use labels to help users see, at a glance, the actual value of each data point.

To label the data in a range chart:

1. In Designer, select the chart to which you want to add labels.
2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Use the options in the **Bar labels** area to specify how the label content is provided:

To	Do this
Use an array to provide the text for all of the labels	<ol style="list-style-type: none">a. From the Bar labels drop-down list, select All labels are in one array.b. Click .The Select Variable dialog box opens.c. Select the array variable that provides the label text and click OK. The first element provides the label content for the first data series, the second element provides the label content for the second data series, and so on.The Select Variable dialog box closes and the variable you selected appears in the box.
Use a different variable to provide the text for each label	<ol style="list-style-type: none">a. From the Bar labels drop-down list, select Each in different variable.b. Click .The Select Variable dialog box opens.c. Select the variable that provides the value for that data series and click OK.The Select Variable dialog box closes and the variable you selected appears in the box.

5. Click **OK**.

The **Chart Properties** dialog box closes.

Formatting the Labels in a Range Chart

You can specify the text color that is used for the data label, as well as other formatting properties, such as the placement or background color.

To format the labels on a range chart:

1. In Designer, select the chart for which you want to format the labels.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Use the **Label color** drop-down list in the top portion of the dialog box to change the color of the text in the data labels:

To	Do this
Make all labels black	Select Black .
Make each label match the color of the data series with which it associated	Select Match series .
Specify individual colors for each label	<ol style="list-style-type: none">a. Select Set each series. The Data labels color well appears.b. Click the color well. The Color dialog box opensc. Select or specify the color for the label and click OK. The Color dialog box closes and the color that you specified appears in the color well.

5. Under the Chart type icon, click .

The **Chart Format** dialog box opens.

6. Click the **Data labels** tab.
7. From the **Placement** drop-down list, select where you want the data point to be placed.
8. From the **Orientation** drop-down list, select the fixed degree orientation of the labels:
 - **Normal**—Places data labels horizontally above the bars
 - **Face right**—Places data labels vertically above the bars, facing right
 - **Face left**—Places data labels vertically above the bars, facing left
 - **Slant up**—Places the data labels at a 45-degree angle, slanting up
 - **Slant down**—Places the data labels at a 45-degree angle, slanting down
9. If you use long labels or data points occur near the minimum or maximum of the data range, use the **Keep labels inside plot area method** options to specify how labels appear in relation to the plot area:

To	Do this
Place labels according to the option selected in the Placement drop-down list	Select None .
Allow the data range to be adjusted automatically so that labels can be included in the plot area	Select Increase range . Note: Very long labels or labels in dense area of data points might appear outside the plot area so they can be read.

10. If you want to add a background for labels, use the options in the **Background** area:

To	Do this
Allow labels to appear without a background	Select None .
Apply a white background to the label	Select White .
Use the color of the plot area as the background for the label. This option allows the label background to interrupt the grid lines, and might appear less disruptive to the chart design than a white background.	Select Match plot area background .

11. Click **OK**.

The **Chart Format** dialog box closes.

12. Click **OK**.

The **Chart Properties** dialog box closes.

You can also change the font size and formatting of the text in labels. You can use the text editing features in Designer to apply these changes.

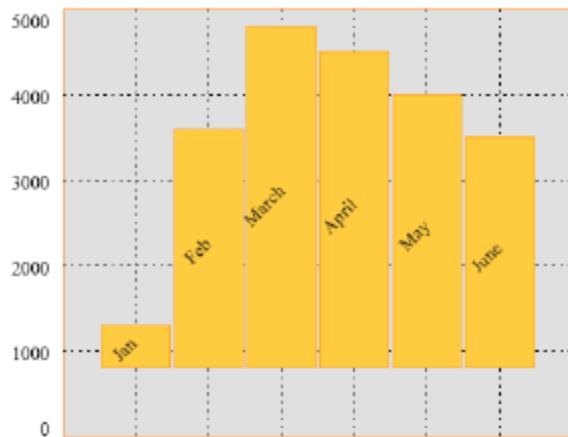
For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

Moving the X-Axis Labels to the Bars in a Range Chart

Because the bars in a range chart might not be close the corresponding labels, you can choose to place the labels on the bars in the chart. When you place the labels on the bars, customers can easily see the label associated with each bar. The formatting changes you make on the X-axis tab of the Chart Format dialog box affect the labels, whether the labels are in the standard position or in the bars.

For information about formatting the x-axis labels, see “[Adding Labels to the X-Axis](#)” on page 340.

Example of x-axis labels in bars



To add labels to the bars in a range chart:

1. In Designer, select the chart in which you want to format the labels.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Select the **X-labels in bars** check box.
 5. Click **OK**.

The **Chart Properties** dialog box closes.

Adjusting the Width of the Bars in a Range Chart

You can adjust the width of the bars in a chart to make them appear thinner or wider. Adjusting the width of bars makes more or less white space appear between the bars in the chart area.

To adjust the width of bars:

1. In Designer, select the chart in which you want to adjust the bar width.

When you select the chart, a black slider bar appears below the chart.

2. Drag the slider to the right or left to adjust the bar width.

The chart in the design is adjusted to reflect the changes you make with the slider.

Adding Borders Around the Bars in a Range Chart

You can add lines around the bars to help them stand out from the chart background. You can also change the color of the lines that appear around bars to help separate bars from each other

if there is no white space between them.

To add lines around the bars:

1. In Designer, select the bar chart to which you want to add lines.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Select the **Lines** check box.
5. Use the adjacent color well and measurement box to specify the color and width of the borders that appear around the bars.
6. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.12 Setting Up a Traditional Scattergram Chart

To set up scattergram charts, complete the following tasks as needed:

- “[Adding Data to a Scattergram Chart](#)” below
- “[Labeling the Data in a Scattergram Chart](#)” on page 327
- “[Adding Crosshairs to Emphasize a Data Point](#)” on page 329

Adding Data to a Scattergram Chart

Because scattergram charts are a combination of line and label charts, you can consider the process of adding data to a scattergram chart as two processes in one: adding data to the line portion, and adding data to the label portion. The label portion of a scattergram chart is added using an overlay. In order for all of the data points to appear on the scattergram chart, you must have an equal number of data series defined for the line and label portions of the chart.

The data you use to drive a chart can be controlled by multiple variables or by a single array variable. If you use an array variable to provide the data displayed in the chart, you define the properties of each element in the array (rather than the properties of separate variables). If you use an array variable to provide the data, the chart can contain up to 10,000 data points. The array variables must specify the x and y positions for each point in alternating placement (for example, x1, y1, x2, y2).

To add data to a scattergram chart:

1. In Designer, select the chart to which you want to add data.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Use the **X** options to specify the values for the x-axis:
 - a. Select the **X** check box.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for the x-axis and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **X** box.

5. Use the other options on the bottom portion of the dialog box to define the data you want to appear in the line portion of the chart. You can either use an array variable or multiple variables to provide the data in the chart:

To use an array to provide the data in the chart:

- a. Select the **Arrays alternate x/y data values** check box.
- b. Select the check box next to the first data series you want to add.
- c. In the adjacent box, click .

The **Select Variable** dialog box opens.

- d. Select the array variable whose element provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- e. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- f. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- g. Repeat step b through step f for each data series (up to 30) you want to define. If you must define more than six data series, click the **Series** arrow buttons to access the properties for the next data series.

To use multiple variables to provide the data in the chart:

- a. Select the check box next to the first data series that you want to add.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for that data series and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the box.

- d. Click the **Color** color well adjacent to the data series box.

The **Color or Conditional Color** dialog box opens, depending on your selections for applying color to the chart.

- e. Select the color you want to use to represent the data series and click **OK**.

The dialog box closes and the color you selected appears in the **Color** color well.

- f. Repeat step a through step e for each data series (up to 30) you want to define. If you must define more than six data series, click the Series arrow buttons to access the properties for the next data series.

For information about using conditional colors in charts, see “[Using Data to Customize Colors in Charts](#)” on page 353.



6. Click .

The **Overlay Chart Properties** dialog box opens.

7. Use the **X** options to specify the x-axis location of the label. The variable you specify for this value must be an array and must have the same number of elements as the variable specified for the y-axis location.

- a. Select the **X** check box.

- b. In the adjacent box, click .

The **Select Variable** dialog box opens.

- c. Select the variable that provides the value for the x-axis and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **X** box.

8. Use the **Y** options to specify the y-axis location of the label. The variable you specify for this value must be an array and must have the same number of elements as the variable specified for the x-axis location.

9. In the **Symbol** box, specify the variable that controls the character or text that appears at the data point on the chart. The variable must be a string array that indicates the coordinates specified by the **X** and **Y** options.
10. In the **Caption** box, specify the variable that controls the descriptive text (the label) that appears at the data point on the chart. The variable must be a string array that indicates the coordinates specified by the **X** and **Y** options.
11. From the **Caption Orientation** drop-down list, select one of the following options to specify how the caption appears relative to the data label:
 - **Normal**—The caption text appears horizontally above a data point.
 - **Face right**—The caption text appears at a 90-degree angle above the data point and faces to the right.
 - **Face left**—The caption text appears at a 90-degree angle above the data point and faces to the left.
 - **Normal, caption below**—The caption text appears horizontally below the data point.
 - **Face right, caption below**—The caption text appears at a 90-degree angle below the data point and faces to the right.
 - **Face left, caption below**—The caption text appears at a 90-degree angle below the data point and faces to the left.

12. Click **OK**.

The **Chart Overlay Properties** dialog box closes.

13. Click **OK**.

The **Chart Properties** dialog box closes.

Labeling the Data in a Scattergram Chart

Scattergram charts can contain two types of content that helps label the information displayed in the chart: the overlay chart captions and data labels. The caption content can be any type of text you provide using the caption variable. The data labels, on the other hand, provide the actual value of each data point. Data labels can help make the scattergram chart easier for customers to read since they can easily see the value of the data points, without having to use the grid lines to estimate the value.

You can also specify formatting properties for the labels in a scattergram chart, such as the placement or background color.

To label the data in a scattergram chart:

1. In Designer, select the chart to which you want to add labels.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Under the **Chart type** icon, click .

The **Chart Format** dialog box opens.

5. Click the **Data labels** tab.
6. Select the **Show data labels** check box.
7. Use the options on the **Data labels** tab to define the appearance of the labels:

To	Do this
Change the location where the labels are placed	From the Placement drop-down list, select an option.
Allow the spacing of the labels to be adjusted automatically so that they do not overlap	Select the Avoid collisions check box.
Allow only the last label for each point in a data series to appear on the chart	Select the Show only the last data point label check box.
Make accommodations for long labels or labels for data near the minimum or maximum ranges	From the Keep labels inside plot area method area, select one of the following options: <ul style="list-style-type: none">• None—Labels are placed based on the option selected from the Placement drop-down list.• Increase range—The data range is adjusted automatically so that labels can be included in the plot area• Move labels—The labels are adjusted automatically so that they within the plot area.
Add a background to the labels	<ol style="list-style-type: none">a. Select the White radio button.b. Use the options in the Border area to format the border of the background.

8. Click **OK**.

The **Chart Format** dialog box closes.

9. Click **OK**.

The **Chart Properties** dialog box closes.

You can also change the font size and formatting of the text in labels. You can use the text editing features in Designer to apply these changes.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

Adding Crosshairs to Emphasize a Data Point

Crosshairs are two intersecting lines that draw attention to a specific data point in a scattergram chart. For example, suppose a chart illustrates risk and return values. You can use a crosshair to emphasize a value that has a lower risk and higher return. You can include only one crosshair per chart.

To add a crosshair to emphasize a data point:

1. In Designer, select the chart to which you want to add crosshairs.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Chart Format** dialog box opens.

5. Click the **Crosshair** tab.

6. Specify how you want the location of the crosshair to be determined:

To	Do this
A specified static value indicates the crosshair location	<ol style="list-style-type: none">From the Type drop-down list, select Static.In the X data point value box, enter the data point on which you want to center the horizontal line.In the Y data point value box, enter the data point on which you want to center the vertical line.
A variable indicates the crosshair location	<ol style="list-style-type: none">From the Type drop-down list, select Variable.In the X data point value box, specify the integer, floating, or currency variable that provides the data point on which you want to center the horizontal line.In the Y data point value box, specify the integer, floating, or currency variable that provides the data point on which you want to center the vertical line.

Note: The **X data point value** box appears as the **X data point value (yyyymmddhhnnss)** box if you selected a date variable for the x-axis value and **Time** from the **Label method** drop-down list on the **X-axis** tab. You must enter the static format (for example, enter 200807111513124 for 11 July 2008 15:31:24). If the date variable for the x-axis is in the format of year, month, and day, then use zeros for the time (for example, enter 20080711000000 for 11 July 2008).

7. Use the **Line properties** options to specify the line style, color, and weight.

8. Click **OK**.

The **Chart Format** dialog box closes.

9. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.13 Adding a Title to a Traditional Chart

Chart titles allow you to label the chart with descriptive text. You can make chart titles static text or variables, so that charts can have unique names for individual customers.

To add a chart title:

1. In Designer, select the chart to which you want to add a title.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. From the **Title** drop-down list, select how you want the title text to be provided:

To	Do this
Use specified static text as the title	<ol style="list-style-type: none">a. Select Text.b. In the adjacent box, enter the title of the chart.
Use variable text as the title	<ol style="list-style-type: none">a. Select Variable.b. In the adjacent box, click . <p>The Select Variable dialog box opens.</p> <ol style="list-style-type: none">c. Select the variable that provides the title text and click OK. <p>The Select Variable dialog box closes and the variable you selected appears in the box</p>

5. Click **OK**.

The **Chart Properties** dialog box closes.

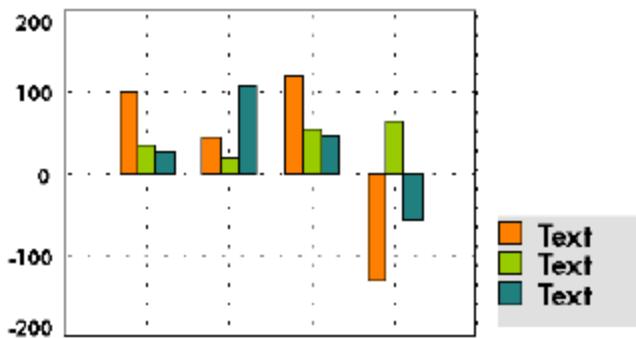
You can change the formatting of the chart title the same way you format other text using the formatting tools in Designer.

For information about formatting text, see “[Adding Text to a Design](#)” on page 140.

8.2.14 Adding a Legend to a Traditional Chart

Legends are used to interpret data and to identify specific information on a chart. Legends appear in the chart area and help you identify colors associated with particular data series. You can use legends in coordination with labels to provide different types of information, or you might choose to use only legends or only labels. For example, you might choose to use a legend to provide information about the month represented by each slice in a pie chart, and labels to provide information about the money spent during each month.

Example of chart with a legend



There are two ways to add content to the chart legend:

- **Using the Legend labels area on the Chart Properties dialog box**—This method allows you to provide variable text to be used as the legend content. You can also use these properties to provide one set of content that can be used for both legend and data labels for several types of charts. The legend content you specify using this method is made up of pre-defined text, which you cannot format beyond the basic text formatting abilities in Designer.
- **Using the Legend/Label Properties dialog box**—This method allows you to either use the text provided in the **Legend labels** area or more customized label content, which you create. For example, you can choose to use the actual values of the chart as the legend content and the values will be automatically populated in the chart legend when the chart is created. You can also apply more formatting to the legend content entered here, such as specifying the color of the legend background and the spacing between lines.

Adding Legend Content Using the Legend Labels Area

1. In Designer, select the chart to which you want to add a legend.
2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.

4. From the **Legend** drop-down list, select one of the following options to position the legend in the chart area:
 - **Bottom**—Positions the legend in the bottom of the chart area
 - **Left**—Positions the legend in the left of the chart area
 - **Right**—Positions the legend in the right of the chart area
 - **Manual**—Lets you click and drag the legend anywhere in the chart area

The **Legend labels** area appears in the bottom portion of the **Chart Properties** dialog box.

5. Use the **Legend labels** options to specify how the data labels are populated:

For this population method	Do this
One data label per data series	<ol style="list-style-type: none">a. Select Static.b. In the box below, enter the text used for the first data series label.c. Repeat step b for as many data series as needed. <p>If you use the Static option to provide the legend content for pie and radar charts, the text in the Legend labels boxes can be used to supply text for both the chart legends and labels when you define their properties on the Legend/Label Properties dialog box. However, if you choose an option other than Label from the Contents drop-down list, the text in the Legend labels boxes does not appear on the chart.</p>
One variable defines labels for all data series	<ol style="list-style-type: none">a. Select All labels are in one array.b. Click the variable box below to select a variable.
Each data series has its own variable for labels	<ol style="list-style-type: none">a. Select Each in different variable.b. Click the variable box next to each data series to select a variable.

Note: The label content you specify in the **Legend labels** area can be overridden by the label content you specify on the **Legend/Label Properties** dialog box.

6. For a line chart, comparative line chart, or scattergram chart, use the **Legend Label Order** variable box to specify the variable that controls the order in which legend labels appear.
7. Click **OK**.

The **Chart Properties** dialog box closes.

Adding a Legend Using the Legend/Label Properties Dialog Box

1. In Designer, select the chart to which you want to add a legend.
2. Click .
The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. From the **Legend** drop-down list, select one of the following options to position the legend in the chart area:
 - **Bottom**—Positions the legend in the bottom of the chart area
 - **Left**—Positions the legend in the left of the chart area
 - **Right**—Positions the legend in the right of the chart area
 - **Manual**—Lets you click and drag the legend anywhere in the chart area

The  button becomes available.

5. Click .
6. The **Legend/Label Properties** dialog box opens.
7. From the **Contents** drop-down list, specify the content that you want to appear in the legend:

To	Do this
Use the label specified in the Legend labels area on the Charts Area tab	Select Label .
Use a percentage (for pie charts only)	<ol style="list-style-type: none">a. Select Percentage.b. From the Percentage digits drop-down list, select the number of digits to include in the percentage computation box.
Use the value of the bar, slice, or point	Select Value .
Use a custom legend	<ol style="list-style-type: none">a. Select Custom.b. In the adjacent box, enter the text and character combinations that provide the content you want to appear in the legend. <p>For information about the controls you can use, see "Legend Character Combinations" on page 335.</p>

7. Use the options in the **Legend** area to format the legend:

To	Do this
Add a border around the legend area	Select the Border check box.
Add color to the background of the legend	<ol style="list-style-type: none">Clear the Background is transparent check box.Use the color well to specify the color used for the background.
Set the number of columns in which the legend information appears	Select the number of columns in which you want the data to appear from the Columns drop-down list.
Control how multiple lines of legend text are spaced	<p>Select one of the following options from the Spacing drop-down list:</p> <ul style="list-style-type: none">• Automatic—The spacing for the legend is automatically set using the formatting options and the space available.• Single space—Lines are single-spaced.• Space and a half—Lines are one and-one-half-spaced.• Double space—Lines are double-spaced.• Triple space—Lines are triple-spaced.
Change the size of the legend	<ol style="list-style-type: none">Select the Custom legend box size check box.Use the Height and Width boxes to specify the size of the legend. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Tip: You can also resize the legend by clicking and dragging on the design page.</p></div>
Reverse the order of legend entries so they match the order of stacked bars (in a comparative bar chart only)	Select the Reverse order legend entries check box.

8. To wrap long legend labels to another line, complete the following steps:
 - Select the **Wrap text** check box.
 - To indent the second and any subsequent lines, select the **Hanging wrap** check box.
 - In the **Tab positions** boxes, enter the tab position(s).

Note: These settings also apply to labels on pie and radar charts, if used.

9. Click **OK**.

The **Legend/Label Properties** dialog box closes.

10. Click **OK**.

The **Chart Properties** dialog box closes.

Legend Character Combinations

When you select **Custom** from the **Contents** drop-down list, a box and a list of options appear. The list shows the controls you can enter in the box to set custom formatting of the chart legend. To create a custom legend, enter a combination of the controls in the list and/or your own text.

Custom legend control options

Option	Definition
\L	Uses the label
\%	Uses the percentage
\#	Uses the value
\t	Produces a left tab
\r	Produces a right tab
\h	Creates a hanging tab
\n	Forces the remaining text in the legend to go to a new line

Note: If you use \t, \r, or \n, you must select the **Wrap text** check box in the general formatting area.

8.2.15 Adding and Formatting Traditional Chart Axes

Chart axes provide information, such as titles and labels, to help identify the value and type of data that appears in a chart and to give context to the data. Most chart types use axes; however, pie charts, progress charts, and calendar charts do not use axes since they display data differently. Other chart types, such as comparative bar charts or radar charts, do not use two axes, because only one is necessary to label the values. Axes appear on charts by default, but you can choose to remove them if you do not want them to appear. You can also customize many properties of the axes to give the chart the appearance you want.

Most charts use two axes: x- and y-axes. X-axes label how the data in a data series is measured, and y-axes label the value of the data in a data series. For example, if you are designing a chart that illustrates the amount of money a customer has in a savings account per month, the x-axis might label the months, and the y-axis might label the amount in the account.

Typically, the x-axis is the horizontal axis and the y-axis is the vertical axis. However, on horizontal bar and horizontal stacked bar charts, the axes are reversed.

To add and format the axes on a chart, complete the following tasks as needed:

- “[Adding an Axis](#)” below
- “[Controlling the Axis Range](#)” on the next page
- “[Formatting the Tick Marks](#)” on page 339
- “[Adding Labels to the X-Axis](#)” on page 340
- “[Adding Labels to the Y-Axis](#)” on page 342

Adding an Axis

By default, axes are enabled for charts. However, if they have been disabled, you can use this task to reinstate them.

Radar charts have some additional formatting options that can affect the appearance of the axis.

For information about adding an axis to a radar chart, see “[Defining How the Radar Axis Lines Appear](#)” on page 317.

1. In Designer, select the chart to which you want to add an axis.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Click . The **Chart Format** dialog box opens.
5. Click the **X-axis** tab to add an x-axis or the **Y-axis** tab to add a y-axis.
6. Select the **Show axis** check box.
7. Use the **Title type** drop-down options to provide a title for the axis:

To	Do this
Use specified static text as the axis title	<ol style="list-style-type: none">Select Text.In the adjacent box, enter the title of the axis.

To	Do this
Use variable text as the axis title	<ol style="list-style-type: none">a. Select Variable.b. In the adjacent box, click . <p>The Select Variable dialog box opens.</p> <ol style="list-style-type: none">c. Select the variable the provides the axis title and click OK. <p>The Select Variable dialog box closes.</p>

8. For the y-axis, you can specify where the axis appears in relation to the chart. From the **Axis position** drop-down list, select on which side of the chart the axis appears.
9. Click **OK**.
The **Chart Format** dialog box closes.
10. Click **OK**.
The **Chart Properties** dialog box closes.

Controlling the Axis Range

This task describes how to control the ranges that appear on the chart axis. Keep in mind that these options do not control the data that appears on the chart; they control only the descriptions of the data through the axis. In addition to controlling the axis range on a y-axis, you can also control the magnitude of the scale to help accommodate large numbers.

To control the axis range:

1. Select the chart that contains the axis you want to modify.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Click .

The **Chart Format** dialog box opens.

5. Click the **X-axis** tab to modify the x-axis or the **Y-axis** tab to modify the y-axis.
6. From the **Range method** drop-down list in the center of the dialog box, select the one of the following options to specify the range of values shown on the axis:

To	Do this
Manually specify the minimum and maximum values to appear on the chart	<ul style="list-style-type: none"> a. Select Specified. b. In the Minimum box, enter the smallest value to appear on the axis. c. In the Maximum box, enter the largest value to appear on the axis. <p>If you select the Specified option, data points that fall beyond the range stop at the chart boundary. If the data occurs within the range, the line begins at the chart boundary.</p>
Allow the range values to be automatically rounded to the nearest logical whole number based on the minimum and maximum data values and the number of tick marks.	<p>Select Automatic.</p> <p>This option calculates even spacing and allows for an extra space between the first and last data values and the plot area border.</p>
Allow the maximum range value to be automatically rounded to the nearest logical whole number, while the minimum value is always zero	<p>Select Auto, with 0 minimum.</p> <p>If you select this option and the data contains negative values, they do not appear below the x-axis.</p>
Use the minimum and maximum data values for each customer as the minimum and maximum chart values	<p>Select Data range.</p>
Use a variable to control the minimum and maximum values	<ul style="list-style-type: none"> a. Select Variable. b. Use the box below to select the variable that controls the range. The variable must be an array, in which the first element represents the minimum value and the second element represents the maximum value. A third, optional element represents the number of ticks to include on the axis. <p>If you select the Variable option, data points that fall beyond the range stop at the chart boundary. If the data occurs within the range, the line begins at the chart boundary.</p>

7. If you are modifying the y-axis and you want to change the scale used in the axis (for example, to accommodate very large numbers), select one of the following options from the **Reduce magnitude** drop-down list:

To	Do this
Use the data as the axis values	Select No - build scale normally .
Reduce the axis values to the lowest magnitude of thousands, millions, or billions. For example, if the data range goes up to five million, you can use this setting to allow the y-axis labels to appear as 1 to 5.	Select Yes - make scale 1 to 10 .
Reduce the axis values to the lowest magnitude of thousands, millions, or billions, and update the axis title to indicate the scale reduction. The axis title uses the text entered in the Numeric magnitudes area in the properties for each language.	Select Yes, and add label to y title .

8. If you are formatting a bar or horizontal bar chart, you can adjust the size of the negative scale to place more or less emphasis on data with negative values. In the **Negative scale factor** box, enter a scale factor from 1–100. The negative scale is reduced in comparison to the positive scale by an amount proportionate to the number you specify.
9. Click **OK**.
The **Chart Format** dialog box closes.
10. Click **OK**.
The **Chart Properties** dialog box closes.

Formatting the Tick Marks

Tick marks are lines that appear on the axes to help make the relationship between data points and axes values clearer. Tick marks can make it easier for customers to determine the value of a data point that occurs between axes labels.

To control the tick marks in a chart:

1. Select the chart in which you want to modify the tick marks.
2. Click .
The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Click .
The **Chart Format** dialog box opens.
5. Click the **X-axis** tab to modify the x-axis or the **Y-axis** tab to modify the y-axis.
6. Use the **Tick style** drop-down list to specify how the tick marks appear on the axis:

To	Do this
Prevent any tick marks from appearing on the axis	Select No ticks .
Place tick marks outside the plot area border	Select Outside .
Place tick marks across the plot area border	Select Cross .
Place tick marks inside the plot area border	Select Inside .

7. If you selected any option other than **No ticks** from the **Tick style** drop-down list, use the options on the **Number of ticks** drop-down list to specify how many ticks marks appear on the axis. Not all options are available for every chart type, and some options are specific to the x- or y-axis.

To	Do this
Allow the appropriate number of tick marks to be determined automatically based on the customer data	Select Automatic .
Allow the appropriate number of tick marks to be determined automatically based on the customer data. The number of tick marks is padded as needed so that the data points appear inside the plot area. This option is available for the x-axis only.	Select Auto, padded .
Specify the number of ticks	<ol style="list-style-type: none">Select Specified.In the adjacent box, enter the number of tick marks that you want to appear on the axis.
Place a tick mark for each data value in the chart. When you select this option, the y-axis labels are drawn only for the values in the data and the chart is drawn to fill the height of the chart area. This option is available for the y-axis of a comparative bar chart only.	Select Auto, one per value .

8. For the x-axis on a line chart, area chart, comparative line chart, or scattergram chart, you can control how many grid lines are drawn in comparison to the number of ticks placed on the axis. In the **Grid skip interval** box, enter the number of tick marks for which a grid line is drawn. For example, to generate one grid line every five tick marks, enter 5.
9. Click **OK**.
The **Chart Format** dialog box closes.
10. Click **OK**.
The **Chart Properties** dialog box closes.

Adding Labels to the X-Axis

By default, labels are included for the x-axis on all chart types that include an x-axis. You can choose to remove the labels, or you can customize the content that appears in a label. By default, the labels are placed at each tick mark and the value at that location is used as the label content. However, you can change all of these settings, in addition to changing the formatting of labels to provide specific types of information in the axes labels. The type of data that appears in the chart affects the options for labeling the axis. For example, if the data in the chart is provided by currency variables, you can choose to label the axis with a currency scale so that the labels are formatted as currency. On the other hand, if the axis marks dates, you can choose to label the axis with a time scale. You can change the scale type of the x-axis for area charts, comparative line charts, label charts, line charts, and scattergram charts.

To add labels to the x-axis:

1. In Designer, select the chart to which you want to add axis labels.
2. Click .

The **Chart Properties** dialog box opens.

3. Click .

The **Chart Format** dialog box opens.

4. Click the **Chart Area** tab.
5. Click the **X-axis** tab.
6. Carry out the following steps to specify the source of the label content:

To	Do this
Use data as the label content	From the Label method drop-down list, select one of the following options to specify the type of data used in the labels: <ul style="list-style-type: none">• Use data as labels—This option is the default setting, which is available for all data types.• Numeric scale—This option is available if the data is provided by a floating, integer, or currency variable.• Time scale—This option is available if the data is provided by a date variable.
Use custom content as the label content	Use the Alternate labels box to specify a variable that provides the label content. The variable must be an array string, floating, or date variable.

For information about formatting labels using a numeric scale or time scale, see [“Formatting Numeric Axis Labels” on page 343](#) or [“Formatting Time Axis Labels” on page 345](#).

7. From the **Label orientation** drop-down list, select one of the following options to specify the angle of the label:
 - **Normal**—The label is placed horizontally below the x-axis.
 - **Face right**—The label is placed vertically below the x-axis, facing right.
 - **Face left**—The label is placed vertically below the x-axis, facing left.
 - **Face right, align right**—The label is placed vertically below the x-axis, facing right and aligned with the x-axis (not the chart area border).
 - **Slant up**—The label is placed at a 45-degree angle below the x-axis, slanting up.
 - **Slant down**—The label is placed at a 45-degree angle below the x-axis, slanting down.
8. By default, labels are placed adjacent to grid lines (and tick marks, if they are enabled for the chart). If you want the labels to be placed between the grid lines, select the **Position labels between lines** check box.
9. Click **OK**.

The **Chart Format** dialog box closes.

10. Click **OK**.

The **Chart Properties** dialog box closes.

Adding Labels to the Y-Axis

By default, labels are included for the y-axis on all chart types that include a y-axis. You can choose to remove the labels, or you can change the formatting of labels to provide specific types of information in the axes labels. For example, if the data in the chart is provided by currency variables, you can choose to label the axis with a currency scale so that the labels are formatted as currency. On the other hand, if the axis marks dates, you can choose to label the axis with a time scale.

To add labels to the y-axis:

1. In Designer, select the chart to which you want to add axis labels.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. Click .
- The **Chart Format** dialog box opens.
5. Click the **Y-axis** tab.
 6. Select the **Show labels on y-axis** check box to include the y-axis labels.
 7. Carry out the following steps to specify the source and formatting of the label content:

To	Do this
Use data as the label content	<p>From the Scale type drop-down list, select Automatic unless you want to change the formatting of the content based on the data type.</p> <p>For information about formatting labels using a numeric scale or time scale, see "Formatting Numeric Axis Labels" on the next page or "Formatting Time Axis Labels" on page 345.</p>
Use custom content as the label content	Use the Alternate labels box to specify a variable that provides the label content. The variable must be an array string, floating, or date variable.

8. If you are formatting the y-axis on a line or area chart, select the **Show labels on y-axis** check box to include the y-axis labels.
 9. Click **OK**.
- The **Chart Format** dialog box closes.
10. Click **OK**.
- The **Chart Properties** dialog box closes.

Formatting Numeric Axis Labels

You can control the formatting of labels on charts that display numeric data and the x variable is an integer, float, or currency variable. (You must select **Numeric scale** from the **Label method** drop-down list on the x-axis properties to change the formatting of labels on the x-axis). You can control the label formatting on the x-axis for these chart types: area, comparative line, label, line, and scattergram. You can change the formatting for labels on the y-axis for all types of charts.

To format numeric axis labels:

1. From the **Scale type** drop-down list, select the option that matches the variable type used to control the data series value. The option you select helps filter the appropriate formatting options based on the data type.
2. From the **Format** drop-down list, select the formatting you want to use for numbers. The following table lists the formatting options available for each data type.

Format	Variable type(s)
Absolute Value	Integer and Float
Alpha Lower (a, b, c)	Integer
Alpha Upper (A, B, C)	Integer
Custom	Integer, Float, and Currency
Fixed Decimal	Float and Currency
Fixed Decimal with Currency	Integer, Float, and Currency
Fixed or Integer	Float and Currency
Fixed or Integer with Currency	Float and Currency
General Number	Integer, Float, and Currency
Percentage	Integer and Float
Percentage x 100	Float
Roman Lower (i, ii, iii)	Integer
Roman Upper (I, II, III)	Integer
Significant Decimal	Float and Currency
Text Lower (one, two)	Integer

Format	Variable type(s)
Text Mixed (One, Two)	Integer
Text Upper (ONE, TWO)	Integer
Use Locale Specification	Float and Currency

3. If you selected one of the following options from the **Format** drop-down list, continue to step 4 to specify additional formatting options as needed. Otherwise, the formatting of the labels is complete.
 - **Fixed Decimal**
 - **Fixed Decimal with Currency**
 - **Fixed or Integer**
 - **Fixed or Integer with Currency**
 - **Percentage**
 - **Percentage x 100**
 - **Significant Decimal**
4. From the **Digits** drop-down list, select the number of digits that appear the right of the decimal point.
5. From the **Decimal** drop-down list, select the character that appears as the separator. Or, to use a different character, click inside the box and enter a character to use as a decimal separator.
6. From the **Negative** drop-down list, select how negative numbers appear.
7. To specify the character that appears as a thousands separator:
 - a. Select the **Thousands** check box.
 - b. From the drop-down list below, select the character that appears as the separator. Or, to use a different character, click inside the box and enter a character to use as a decimal separator.
8. Click **OK**.

The **Chart Format** dialog box closes.
9. Click **OK**.

The **Chart Properties** dialog box closes.

Formatting Time Axis Labels

You can control the formatting of labels on charts that display time or date data and the x variable is a date variable. (You must select **Time scale** from the **Label method** drop-down list on the x-axis properties to change the formatting of labels on the x-axis). You use the options at the bottom of the **Chart Format** dialog box to change the label formatting for time axis labels. Before beginning this task, make sure that the axis is set up and the appropriate axis tab is selected on the **Chart Format** dialog box.

To format time axis labels:

1. From the **Interval** drop-down list, specify the time interval you want the labels to use. If you want the labels to be placed between the grid lines, select **Automatic**.
2. If you want the year to be added to a month or quarter label, select the **Always display year** check box. For example, if you use a quarter label, the label might appear as Q1 2009 rather than appearing as Q1.
3. If you want to create labels for an entire cycle of a time period, select the **Complete time periods** check box. For example, if you specify the time period to be in months and select the **Complete time periods** check box, the labels range from January to December, even if the data starts in February.
4. Use the **Years**, **Quarters**, **Months**, **Days**, and **Hours** drop-down list to specify how the different time measurements appear in the labels.
5. Click **OK**.

The **Chart Format** dialog box closes.

6. Click **OK**.

The **Chart Properties** dialog box closes.

8.2.16 Formatting Traditional Charts

To format a chart, complete the following tasks as needed:

- “[Adding a Title to a Traditional Chart](#)” on page 330
- “[Adding a Background Color to a Chart](#)” on the next page
- “[Adding a Border to a Chart](#)” on page 347
- “[Adding a Border to the Plot Area](#)” on page 347
- “[Adding a Shadow to a Chart](#)” on page 348
- “[Emphasizing a Range in the Data](#)” on page 349
- “[Formatting the Grid Lines in the Plot Area](#)” on page 351

- “[Making a Chart 3D](#)” on page 351
- “[Resizing a Chart](#)” on page 353
- “[Using Data to Customize Colors in Charts](#)” on page 353

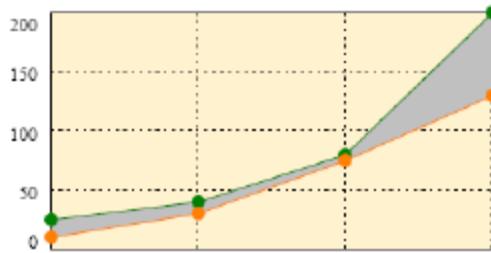
In addition to these tasks, Exstream provides several engine switches you can use to perform run-time formatting of charts. For example, you can use a switch to center the bottom tick label and override the default tick spacing.

For information about the switches you can use to control the appearance of charts, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

Adding a Background Color to a Chart

Many chart types allow you to add a background color to a chart. You can add a background color to help add contrast to the chart data or to add emphasis to the chart on the page.

Example of chart with background color



To add a background color to a chart:

1. In Designer, select the chart to which you want to add a background color.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Click . The **Chart Format** dialog box opens.
5. Click the **Plot area** tab.
6. In the **Background** area, select the **Fill color** check box.
7. Click the color well below the **Fill color** check box to select the color for the background. The **Color** dialog box opens.
8. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

9. If the chart is 3D, click the **3D Edge fill color** color well to select the color for the 3D edge.
10. Click **OK**.

The **Chart Format** dialog box closes.

11. Click **OK**.

The **Chart Properties** dialog box closes.

Adding a Border to a Chart

You can add a border to a chart to help separate the chart from surrounding text. When you add a border to a chart, the border lines appear around the entire chart area, including the chart title and the legend, if the chart has one. The border lines do not replace the axis lines. You can also add a border to the plot area of the chart.

For information about adding a border to the plot area, see “[Adding a Border to the Plot Area](#)” below.

To add a border to a chart:

1. In Designer, select the chart to which you want to add a border.
 2. Click .
- The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
 4. From the **Border** drop-down list, select one of the following options to specify the type of border you want to add:
 - **Full**—Lines are added to all four sides of the chart.
 - **Top line**—A line is added above the chart.
 - **Bottom line**—A line is added below the chart.
 - **Top and bottom**—A line is added above and below the chart.
 5. Click **OK**.
- The **Chart Properties** dialog box closes.

Adding a Border to the Plot Area

In addition to adding a border to the chart area, you can also add a border to the plot area. A plot area border surrounds the plot area only. It does not surround the other parts of the chart, such as the chart title or axes titles.

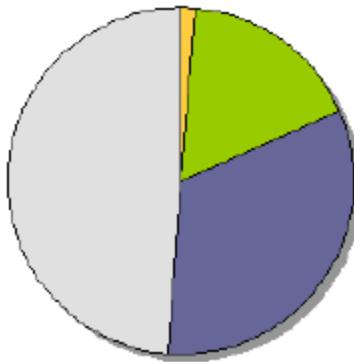
To add a border to the plot area:

1. In Designer, select the chart to which you want to add a plot area border.
2. Click . The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Click . The **Chart Format** dialog box opens.
5. Click the **Plot area** tab.
6. In the **Border** area, from **Style** drop-down list, select one of the following options to specify how you want the border to appear around the plot area:
 - **Full**—The border appears on all four sides of the chart, even if you choose not to include an axis.
 - **Left**—The border appears only on the x-axis and y-axis if you choose to include the axes.
7. Use the other options in the **Border** area to control the appearance of the border lines.
8. Click **OK**. The **Chart Format** dialog box closes.
9. Click **OK**. The **Chart Properties** dialog box closes.

Adding a Shadow to a Chart

You can add a shadow to a chart to give it dimension on the page.

Example of a chart with a shadow



1. In Designer, select the chart to which you want to add a shadow.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Select the **Shadow** check box.

5. Click the adjacent color well.

The **Color** dialog box opens.

6. Select or specify the color you want to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

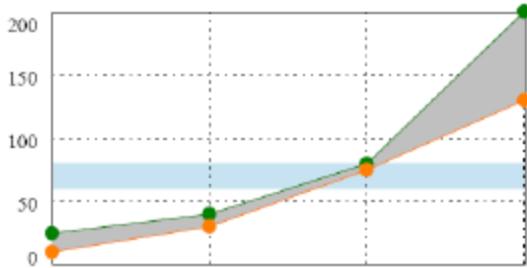
7. Click **OK**.

The **Chart Properties** dialog box closes.

Emphasizing a Range in the Data

You can add a range fill to many types of charts to emphasize specific areas of data. For example, if the chart compares the value of five stocks, you can add a range fill to emphasize the stocks valued between 60 and 80 dollars. You cannot emphasize a range of data in pie, calendar, or radar charts.

Example of a chart with range emphasized



To emphasize a range in the data:

1. In Designer, select the chart in which you want to emphasize a data range.

2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.

4. Click .

The **Chart Format** dialog box opens.

5. Click the **Plot area** tab.
6. Use the options in the **Background range fill** area to specify the range to be emphasized and how it is formatted:

To	Do this
Emphasize a specified static range	<ol style="list-style-type: none">a. From the Type drop-down list, select Static.b. In the Minimum value box, enter the smallest value of the range to be emphasized.c. In the Maximum value box, enter the largest value of the range to be emphasized.
Emphasize a variable range	<ol style="list-style-type: none">a. From the Type drop-down list, select Variable.  The Select Variable dialog box opens.b. In the Minimum value box, click . The Select Variable dialog box opens.c. Select the variable that provides the smallest value of the range to be emphasized.d. Click OK. The Select Variable dialog box closes and the variable you selected appears in the Minimum value box.  The Select Variable dialog box opens.e. In the Maximum value box, click . The Select Variable dialog box opens.f. Select the variable that provides the largest value of the range to be emphasized.g. Click OK. The Select Variable dialog box closes and the variable you selected appears in the Maximum value box.

7. Select one of the **Axis** radio buttons to indicate the axis to which you want to apply the fill:
 - **X-axis**—Adds range fill to values on the x-axis and appears parallel to the y-axis
 - **Y-axis**—Adds range fill to values on the y-axis and appears parallel to the x-axis
8. Click the **Color** color well to select the color of the fill.
The **Color** dialog box opens.
9. Select or specify the color you want to use and click **OK**.
The **Color** dialog box closes and the color you selected appears in the **Color** color well.
10. Click **OK**.
The **Chart Format** dialog box closes.
11. Click **OK**.
The **Chart Properties** dialog box closes.

Formatting the Grid Lines in the Plot Area

By default, grid lines appear in the plot area to help customers easily see how the data in the chart relates to values on the axes. You can control the formatting of grid lines, or you can disable them completely. For example, you can change the color of the grid lines to make them easier to see with the colors used in the chart data series.

To format the grid lines in the plot area:

1. In Designer, select the chart to which you want to add grid lines.
2. Click .
The **Chart Properties** dialog box opens.
3. Click the **Chart Area** tab.
4. Under the **Chart type** icon, click .
The **Chart Format** dialog box opens.
5. Click the **Plot area** tab.
6. In the **Grid line and axis** area, select the check box for each axis on which you want grid lines to appear. If you do not want grid lines to appear on an axis, clear the check box for that axis.
7. Use the other options in the **Grid line and axes** area to control the appearance of the grid lines.
8. If the chart contains both positive and negative values, you can add a line at the zero value on the y-axis. Select one of the following options from the **Y-axis zero value line** drop-down list:
 - **Grid line format**—The line matches the rest of the grid lines.
 - **Solid line**—The line has the same color and thickness, but is solid.
9. Click **OK**.
The **Chart Format** dialog box closes.
10. Click **OK**.
The **Chart Properties** dialog box closes and the grid lines are added at each label point in the chart.

Making a Chart 3D

1. In Designer, select the chart you want to make 3D.
2. Click .

The **Chart Properties** dialog box opens.

3. Click the **Chart Area** tab.
4. Select the **3D** check box.

Additional options on the chart properties become available for you to format the edges of the 3D areas.

5. Click **OK**.

The **Chart Properties** dialog box closes.

6. You can use the **Edge** options on the **Chart Properties** dialog box to specify a color for the 3D areas:

To	Do this
Specify a unique color for each data series	<ol style="list-style-type: none">a. Click the Edge color well adjacent to the data series for which you want to define the color. The Color or the Conditional Color dialog box opens, depending on your selections for applying color to the chart.b. Define the color you want to use for the data series and click OK. The dialog box closes and the color you selected appears in the Edge color well.c. Repeat step a and step b for all the data series. <p>For information about using conditional colors in charts, see "Using Data to Customize Colors in Charts" on the next page.</p>
Specify the same color for all the data series	<ol style="list-style-type: none">a. Click the Edge button.b. The Color Adjustment dialog box opens.c. From the drop-down list, select how you want the data series color to appear:<ul style="list-style-type: none">• Same color as face color—The edge color matches the face color.• Darker—The edge color is a percentage darker than the face color.• Lighter—The edge color is a percentage lighter than the face color.• Inverse—The edge color is a contrasting color from the face color.• Inverse (black or white)—The edge color is either black or white, depending on which color provides more contrast to the face color.• Set all edge colors same as first edge—All edge colors match the first edge color.d. If you selected Darker or Lighter, enter the percentage by which you want the shading to be adjusted in the Percent darker or lighter (0-100) box.e. Click OK. The Color Adjustment dialog box closes.

7. Click **OK**.

The **Chart Properties** dialog box closes.

To adjust the thickness (or dimension) of the chart, click the chart and then drag the red slider that appears next to the chart.

Resizing a Chart

You can use the handles in Designer to change the size of a chart. Two different types of handles are available, depending on the way you want to adjust the size of the chart:

To	Do this
Resize the entire chart area to increase the space the chart uses on the page	<ol style="list-style-type: none">1. Select the chart.2. Use the major sizing handles in the Designer and drag the border of the chart area as needed. <p>For more information about resizing objects in Designer, see "Resizing an Object" on page 377.</p>
Resize the plot area of the chart to increase or decrease the size of the plot area within the chart area	<ol style="list-style-type: none">1. Select the plot area of the chart.2. Use the blue resizing handles in Designer and drag them as needed. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Tip: If you cannot see the blue resizing handles, adjust the size of the entire chart area until the blue handles are visible.</p></div>

Using Data to Customize Colors in Charts

Conditional colors allow you to change the color for a data series based on the value of the condition you set. Using conditional colors on charts is the same as using conditional colors with other types of text. For example, if you set conditional colors for a data series, the specified color is applied to the data series when the condition you set is true.

To set up a chart to use conditional colors, you must select the **Conditional colors** check box on the **Chart Area** tab of the chart properties. Then, as you define the colors used in the chart's data series, the **Conditional Colors** dialog box opens (instead of the **Color** dialog box). The **Conditional Colors** dialog box lets you set up the conditions and the colors used for each condition. You can use conditional colors on all chart types except for label and calendar charts.

For information about setting up the conditional color values, see "[Using Data to Customize Colors](#)" on page 386.

When you use conditional colors to customize charts, and you use the **Greater than** or **Less than** options as the condition, it is important to add the conditions in a specific order. After the first condition has been satisfied the, conditional processing stops. Therefore, make sure the order of your conditions (whether least to greatest or greatest to least) will produce the color you need.

8.3 Advanced Charts

You can use the Chart Designer add-in to create advanced charts for AFP, HTML5, PDF, PDF/A, PDF/VT, or PostScript output. Some advanced chart add-ins are included when you install Designer. You can also check [My Support](#) for new and updated add-ins that you can download and install separately as soon as they become available.

In output, advanced charts are rendered using the Scalable Vector Graphic (SVG) format, which provides a crisp appearance with sharp colors, smooth gradients, clean edges, distinct borders, and well-defined data points. When advanced charts are used in HTML5 output, you can add dynamic chart effects such as pop-up tooltips or highlighting, so that customers can interact with the chart in their web browser.

Tip: If your application includes output types that are not supported by advanced charts, consider using design layers. Add one design layer with advanced charts, and another design layer with traditional charts (for the output types that are not supported by advanced charts). For more information about using design layers, see [“Using Design Layers to Accommodate Non-Printing or Output-Specific Objects” on page 38](#).

To add an advanced chart object to your design and begin configuring the properties of the chart, complete the following tasks as needed:

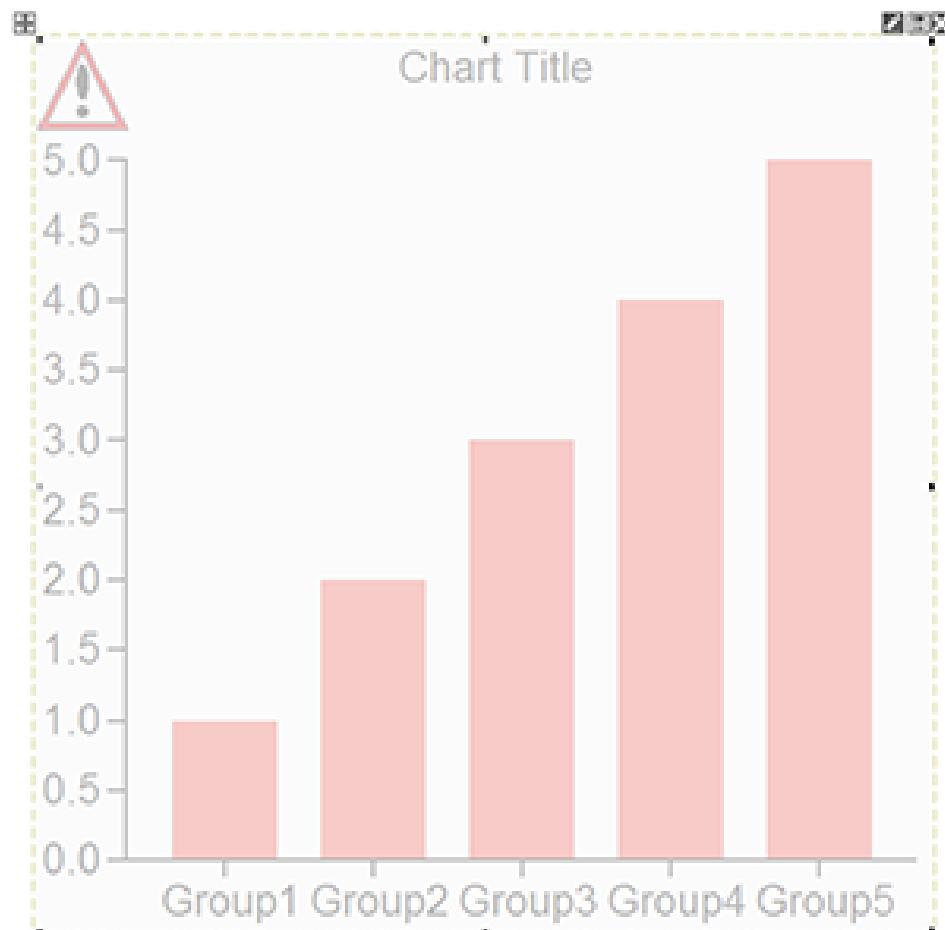
- [“Adding an advanced chart object to a page” below](#)
- [“Designing the chart and adding data” on the next page](#)[“Adding an advanced chart object to a page” below](#)
- [“Configuring the object properties of the chart” on page 356](#)

Adding an advanced chart object to a page

1. In Designer, on the Drawing Objects toolbar, click .
2. In the **Insert a Chart** dialog box, click the advanced chart type that you want to use.

A new advanced chart object is placed on the page.

New advanced bar chart object



Note: When you see the symbol in an advanced chart object, it indicates that the chart needs to be opened and saved in the Chart Designer interface. This symbol appears when you create a new advanced chart object, or when you change the dimensions of an advanced chart on the design page.

Designing the chart and adding data

1. In Designer, double-click the advanced chart object that you want to edit to open the Chart Designer.
2. Use the Chart Designer interface to configure the design properties of your advanced chart, to add data to your chart, and to add dynamic features to charts that will appear in HTML5 output.

For information about a particular chart type, click **Help** within the Chart Designer interface of the chart you are working on.

Configuring the object properties of the chart

1. In Designer, click the advanced chart object that you want to configure.
2. To open the **Advanced Chart Properties** dialog box, click .
3. Use the settings in the **Advanced Chart Properties** dialog box to configure the object properties of your advanced chart, such as where the chart is placed in your design, engine composition time, and rules.

Chapter 9: Embedding Objects in a Design

Exstream supports embedding objects within the following design objects that can contain text: paragraph objects, table cells, text boxes, and text messages. The most common reason for embedding objects is to closely align text with an image. For example, you might want text to wrap around an image in an email newsletter that you send to your customers.

You can embed any of the supported objects by placing the cursor inside the parent object and then using the Drawing Objects toolbar or **Insert** menu to add the embedded object. You can then make selections on the **Embed Properties** dialog box to complete your design.

You can embed objects in one of the following ways:

- **Inline Embedded Objects**—Place an embedded object at the exact position of the cursor.
- **Linked Embedded Objects**—Place an embedded object in a relative position to an anchor point in the parent object, so that the embedded object (an image, for example) can move horizontally and vertically to maintain its relative position. Text and other embedded objects do not wrap around linked embedded objects.
- **Floating Embedded Objects**—Place an embedded object to the left or right of an anchor point in the parent object. Text and other embedded objects wrap around floated embedded objects.

Exstream supports multiple levels of inline and floating embeds. That is, you can embed an object within a text object and then embed an object within that embedded object, and so on. You can also place more than one embedded object within the same text object. For example, you can embed two images inside a text box.

When you embed objects, they are not re-sized if the object in which they are embedded is re-sized. That is, if you increase the size of a text box by 20%, an image embedded in the text box will remain the same size as when it was embedded.

Additionally, if you delete an object that contains embedded objects, all of the objects embedded within it are also deleted.

You cannot create a rule for or reference a rule from an embedded object. However, you can control an inline embedded object with a rule by applying a text rule to the text that anchors it.

The following table lists the objects that can be embedded and the supported embed methods for each design context.

Types of embeds supported in Exstream

Embedded object	Paragraph objects	Table cells	Text boxes	Text messages
Barcode	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Button	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Chart (advanced and traditional)	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Check box	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Image	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Message frame	Inline	Inline, Linked	Inline, Linked	Inline
Tip: Embedded frames cannot overflow, so the frame must be the correct size for the intended output. Also, text messages must be in a campaign before they can be placed in an embedded message frame.				
Radio button	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Shape	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Signature button	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Signature field	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating

Types of embeds supported in Exstream, continued

Embedded object	Paragraph objects	Table cells	Text boxes	Text messages
Table	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating
Text box	Inline, Floating	Inline, Floating, Linked	Inline, Floating, Linked	Inline, Floating

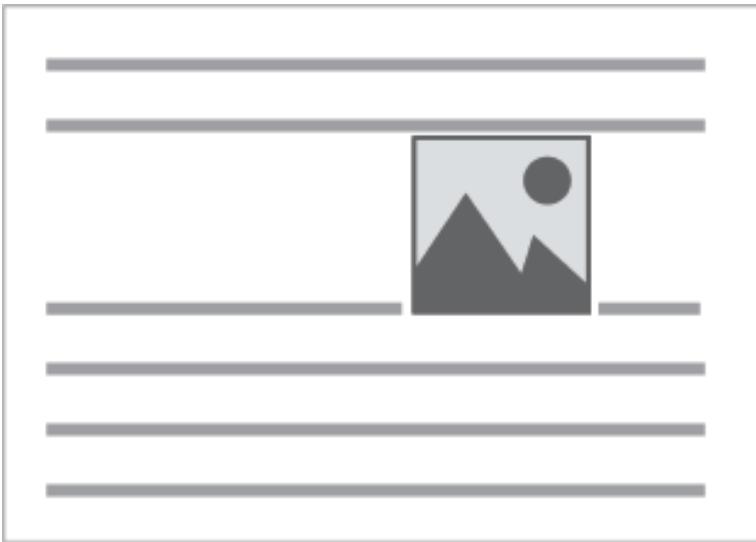
This chapter discusses the following topics:

- “[Inline Embedded Objects](#)” below
- “[Linked Embedded Objects](#)” on the next page
- “[Floating Embedded Objects](#)” on page 362

9.1 Inline Embedded Objects

When you create an "inline" embedded object, the embedded object is placed at the exact position of the cursor where you inserted the object. The embedded object increases the line height of the text the same way in which a large text character would. For example, if you embed an image inline within a text box, it might appear like this in the output:

Example of an inline embedded image



To embed an inline object:

1. Place the cursor in the text where you want the object to appear inline within the text.
2. Using the Drawing Objects toolbar or the **Insert** menu, add the object you want to embed.
3. On the **Embed Properties** dialog box, from the **Embed** list, select **Inline (within text)**.
4. Optionally, you can define left, right, top, and bottom margins. These define the distance between the text and the embedded object.
5. Click **OK**.

9.2

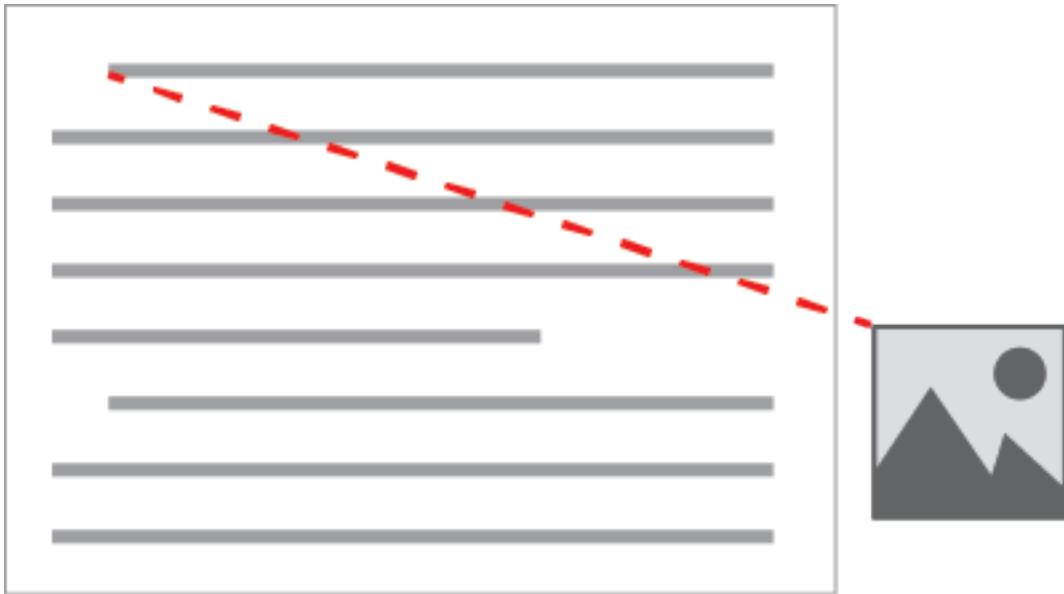
9.3 Linked Embedded Objects

When you create a "linked" embedded object, Designer creates an anchor point in the text. This anchor point determines the relative position of the embedded object to the text. Linked embedded objects can move horizontally or vertically on the page relative to the position of the text paragraph that contains the anchor point.

You can position linked embedded objects anywhere on the page, not just within the text. For example, you might want an image to appear next to a text message. As you move the linked

embedded object on the page in Designer, you'll see a red dashed line to indicate where the anchor point location in the text connects to the embedded object.

Example of a linked embedded object



To embed a linked object:

1. Place the cursor in the text where you want the object to be anchored.
2. Using the Drawing Objects toolbar or the **Insert** menu, add the object you want to embed.
3. On the **Embed Properties** dialog box, complete the following steps based on how you want the embedded object to move relative to the anchor text:

To let the embedded object move this way	Do this
Horizontally and vertically with the anchored text	<ol style="list-style-type: none">From the Embed method drop-down list, select Linked.In the Horizontal offset box, enter the horizontal distance you want to maintain between the embedded object and the anchored text.In the Vertical offset box, enter the vertical distance you want to maintain between the embedded object and the anchored text.
Vertically with the anchored text	<ol style="list-style-type: none">From the Embed method drop-down list, select Linked - move up/down only.In the Vertical offset box, enter the vertical distance you want to maintain between the embedded object and the anchored text.
Horizontally with the anchored text	<ol style="list-style-type: none">From the Embed method drop-down list, select Linked - move left/right only.In the Horizontal offset box, enter the horizontal distance you want to maintain between the embedded object and the anchored text.

4. From the **Anchor Point** area, select a radio button to choose where to connect the anchor point to the embedded object.
5. Optionally, from the **Connector line** options, select a style, color, and thickness to apply to the line that connects the object to the anchor point.
6. Click **OK**.

Note: You can re-position the embedded object on the design page using the  handle. The embedded object will remain anchored to the text and move horizontally and vertically based on the settings you select on the **Embed Properties** dialog box.

9.4 Floating Embedded Objects

When you create a "floating" embedded object, Designer creates an anchor point in the text. The embedded object is then positioned to the left or right of the anchor point, and the text wraps around the object.

Example of a floating embedded object positioned to the left



Example of a floating embedded object positioned to the right



When you embed a floating object, you can also specify a "clear" setting to refine the positioning of the embedded objects in the design.

Floating embedded objects are supported for the following output drivers:

- AFP
- HTML (using container designs)
- IJPDS
- MIFB
- PCL
- PDF
- PDF/A-2a
- PDF/VT
- PostScript
- PPML
- TIFF
- VIPP
- XML (multi-channel)

Important: Floating embedded objects are not supported on language layers for right-to-left languages. In HTML output, floating embedded objects are not supported in text paragraphs that have borders.

To embed a floating object:

1. Place the cursor in the text where you want the object to be anchored.
2. Using the Drawing Objects toolbar or the **Insert** menu, add the object you want to embed.
3. On the **Embed Properties** dialog box, from the **Embed method** list, select **Float**.
4. Optionally, you can define left, right, top, and bottom margins. These values define the distance between the embedded object and the text that wraps around it.

Tip: If you embed a floating object in a list, set margins on the embedded object so that the list content does not overlap it.

5. From the **Position** list, select **Left** or **Right** to specify where to position the embedded object relative to the text.
6. From the **Clear** list, select an option to determine where preceding embedded objects are allowed to float relative to the current floating embedded object:
 - **None**—The preceding embedded objects can float on either the left or the right of the current embedded floating object. This is the default.
 - **Left**—The preceding embedded objects cannot float on the left side of the current embedded floating object.
 - **Right**—The preceding embedded objects cannot float on the right side of the current embedded floating object.
 - **Both**—The preceding embedded objects cannot float on either the left or the right side of the current embedded floating object.
7. Click **OK**.

For more information about how clear settings affect floating embedded objects and the text that wraps around them, see the following topics:

- “[How Clear Settings Affect Floating Objects](#)” below
- “[Applying Clear Settings to Text Paragraphs](#)” on page 366

9.4.1 How Clear Settings Affect Floating Objects

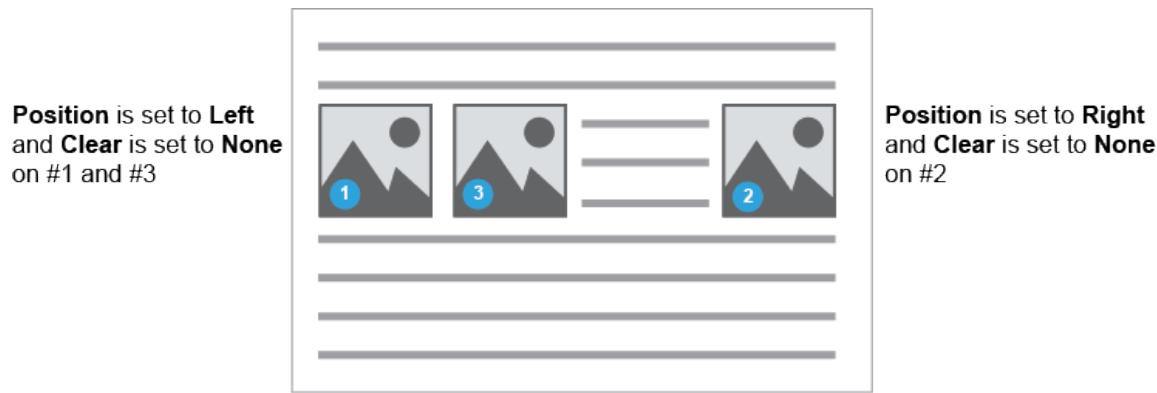
The **Clear** setting on the **Embed Properties** dialog box affects the positioning of a floating embedded object relative to the objects that *precede* it in the design.

For example, if you "clear left" on an embedded object, the position of the object is adjusted based only on the position of preceding objects that are floated left. However, if you "clear both" on an embedded object, the position of the object is adjusted relative to preceding objects that are floated either left or right.

The **Clear** setting *not* affect the positioning of a floating embedded object relative to the subsequent objects in the design.

In the following examples, the numbers represent the order in which the objects were embedded in the text box. Without any clear settings applied, the embedded objects wrap around each other in the same way that text wraps around the floating embedded object.

Example of multiple floating embedded objects within the same text box with no clear settings applied



If you set **Clear** to **Left**, then #2 is positioned below #1 in the design.

Example of how a "clear left" setting affects embedded object positioning



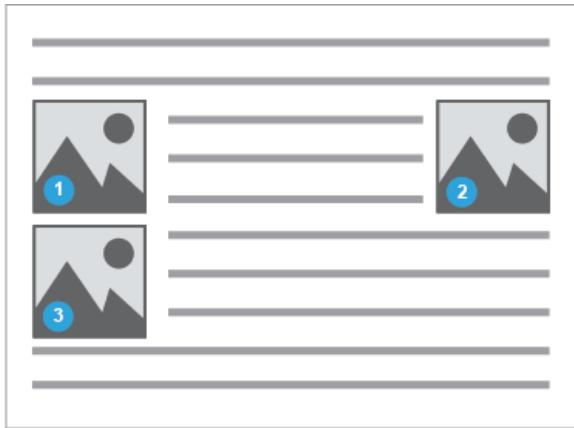
Notice that wrapping still occurs between #2 and #3; this is because #2 is floated to the right and was not cleared. However, if you set **Clear** to **Both**, then #3 is positioned below both #1 and #2.

Example of how a "clear both" setting affects embedded object positioning

Position is set to **Left** and **Clear** is set to **None** on #1

Position is set to **Left** and **Clear** is set to **Both** on #3

Position is set to **Right** and **Clear** is set to **None** on #2



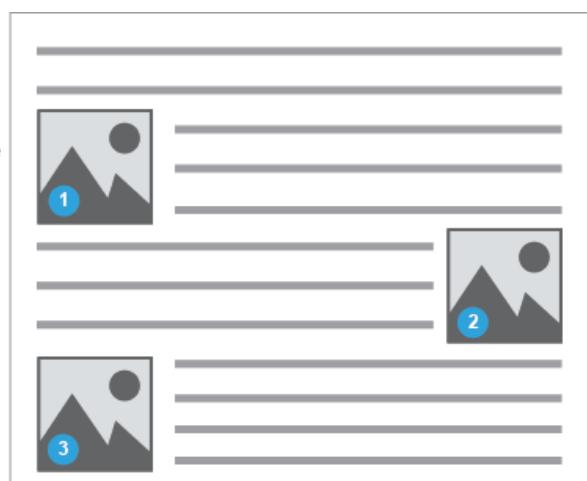
When you have multiple floating embedded objects within the same parent object, with a combination of float and clear settings, it's important to keep in mind the order in which the objects are embedded, since clear settings on floating embedded objects apply only to the objects that precede it in the design. For example, in the following graphic, the "clear left" setting on #2 affects only its relative position to #1, not to #3; the "clear both" setting on #3 affects its relative position to #1 and #2.

Example of how multiple clear settings affect embedded object positioning

Position is set to **Left** and **Clear** is set to **None** on #1

Position is set to **Left** and **Clear** is set to **Both** on #3

Position is set to **Right** and **Clear** is set to **Left** on #2



9.4.2 Applying Clear Settings to Text Paragraphs

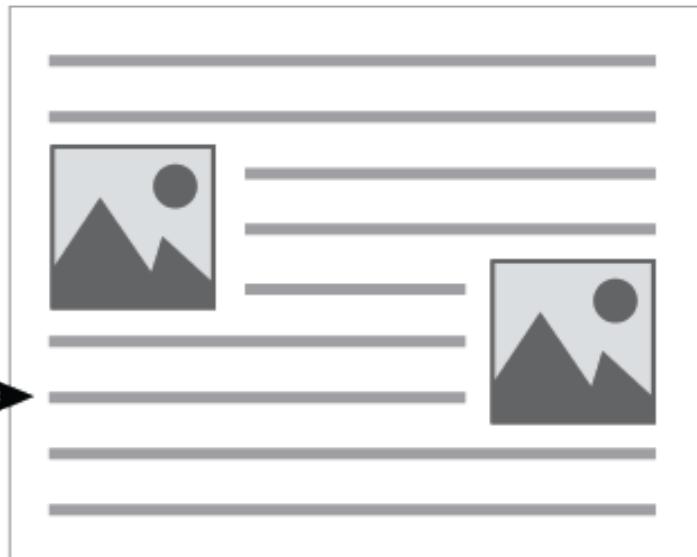
Applying a clear setting to a text paragraph lets you determine whether a text paragraph continues to float around embedded objects that *precede* it in the design. For example, if you "clear left" on a text paragraph, the text no longer wraps around preceding embedded objects that are floated left, but continues to wrap around the preceding objects that are floated right.

However, if you "clear both" on a text paragraph, the text no longer wraps around any of the preceding embedded objects, whether they are floated left or right.

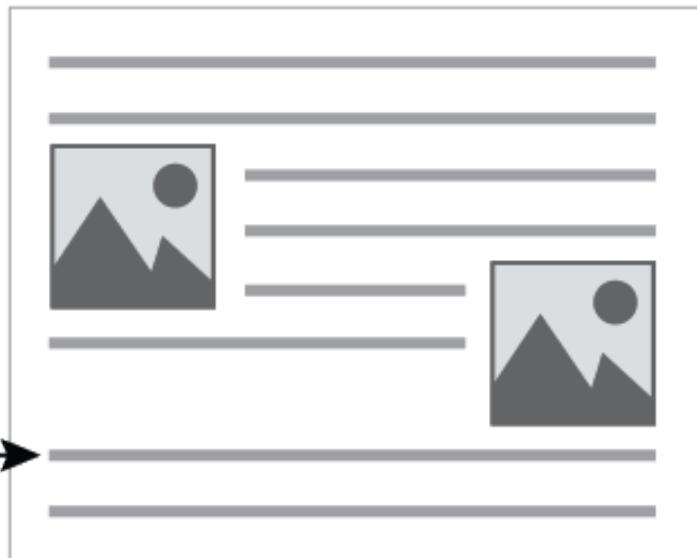
You can also adjust the distance between a "cleared" text paragraph and the preceding floating embedded object by setting options for paragraph spacing on the text paragraph properties, or by setting margins on the embedded objects.

How clear settings affect the text position in a design with floating embedded objects

Clear is set to None
on the text paragraph



Clear is set to Right
on the text paragraph



You can apply clear settings to text paragraphs within Designer or to text paragraph styles within a style sheet.

For more information about styles and style sheets, see the *System Administration* in the Exstream Design and Production documentation guide.

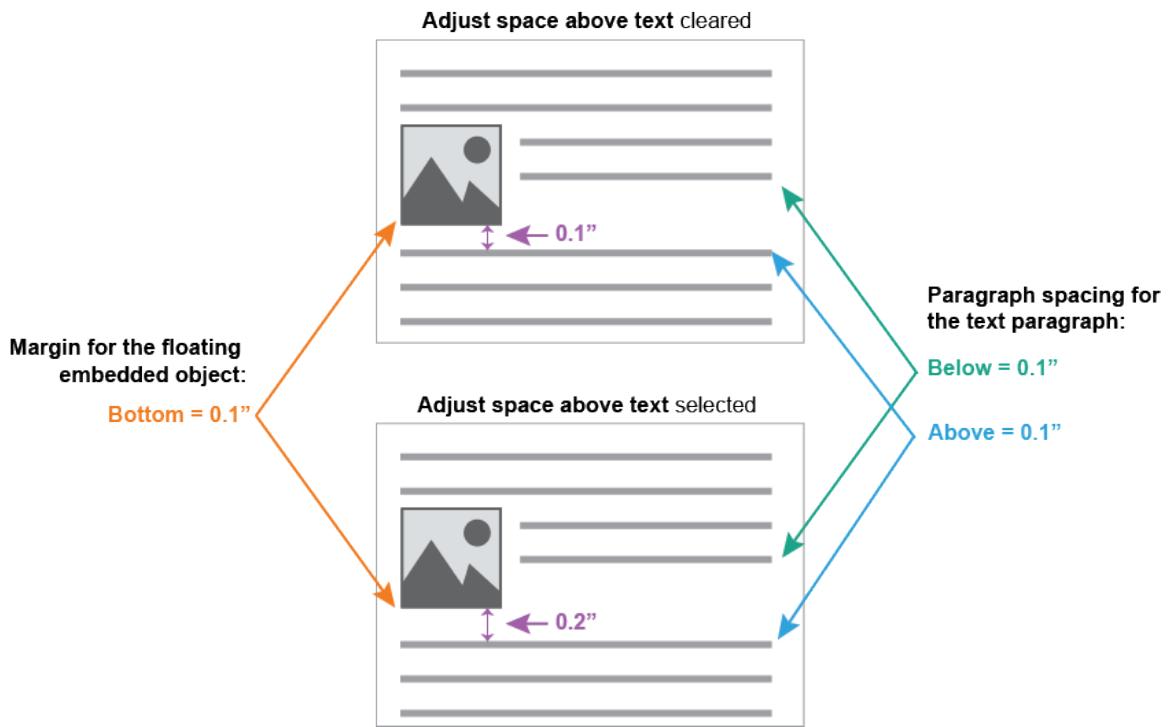
To apply a clear setting to a text paragraph:

1. Place the cursor in the text paragraph, right-click, and select **Text paragraph properties**.
2. In the **Float options** area, from the **Clear** list, select an option to determine where embedded objects are allowed to float relative to the text:
 - **None**—The preceding embedded objects can float to the left or right of the text paragraph. This is the default.
 - **Left**—The preceding embedded objects cannot float on the left side of the text paragraph.
 - **Right**—The preceding embedded objects cannot float on the right side of the text paragraph.
 - **Both**—The preceding embedded objects cannot float on either the left or the right side of the text paragraph.

Note: Selections made from the **Clear** list do not apply to objects that are embedded within the current or subsequent text paragraph.

3. In some cases, you might need to adjust the spacing between floating embedded objects and the text paragraphs that follow them. If you made a selection other than **None** from the **Clear** list, you can use the **Adjust space above text** check box to change how the spacing above the current text paragraph will be calculated:
 - Clear the check box to use whichever is greater: the value entered in the **Above** box for the current text paragraph or the value entered in the **Below** box for the preceding text paragraph. In other words, when the check box is cleared, the spacing is calculated between the current and preceding text paragraphs.
 - Select the check box to add the value in the **Above** box for the current text paragraph to whichever is greater: the value entered in the **Below** box for the preceding text paragraph or to the value entered in the **Bottom margin** box of the embedded floating object. In other words, when the check box is selected, the spacing is calculated between the current text paragraph and the preceding embedded object.

The following illustration provides an example of how the **Adjust space above text** check box affects the spacing above a text paragraph:



Note that there are alternative design approaches to controlling the spacing. In the previous example, you could increase the bottom margin on the embedded object properties to achieve the same result.

Chapter 10: General Administrative and Formatting Tasks for Design Objects

While most of the design objects you will use to customize your design make use of unique properties, many of the administrative and formatting tasks in Designer apply to most, if not all, design objects. For example, regardless of the type of object, you use the same method to select and apply color. This chapter serves as a general reference tool that you can use as you work with different types of objects in Designer. This chapter also discusses administrative tasks that you perform in the same way for all objects in a design, such as setting an object's compose time.

This chapter discusses the following topics:

- “[Naming an Object](#)” below
- “[Adjusting the Placement of Content and Objects](#)” on the next page
- “[Adding a Border and Fill to an Object](#)” on page 379
- “[Adding Color to an Object](#)” on page 380
- “[Embedding Objects in a Design](#)” on page 357
- “[Controlling When Objects Are Placed on a Page](#)” on page 395
- “[Reusing Design Objects Through the Use of Components](#)” on page 397

10.1 Naming an Object

When you add a design object to a page, Designer gives it a default name based on the object's type. For example, the default name for a table is Table. An object's name appears in the Outline Viewer in Designer so you can easily see all of the objects used in the current design. The object name is also used throughout Exstream in reporting and messages, such as engine messages or trace/watch/debug reports. Therefore, you should give each object a unique, descriptive name to help you identify the object when it appears in reports or troubleshooting messages.

To name an object:

1. Select the object you want to name.
 2. Click .
- The **<Object> Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.

4. In the **Reference name** box, enter a name for the object.
5. Click **OK**.

The **<Object> Properties** dialog box closes.

10.2 Adjusting the Placement of Content and Objects

After you add objects to a design, you can arrange the way they are placed in the design. Sometimes you might need to make very detailed adjustments to the placement of objects to ensure that they fit together well with other objects on the design. Designer provides many tools you can use to adjust the placement of content and objects.

To adjust the placement of content and objects, complete the following tasks as needed:

- “[Aligning Objects](#)” below
- “[Distributing Objects](#)” on the next page
- “[Grouping Objects](#)” on page 374
- “[Moving an Object](#)” on page 374
- “[Nudging an Object](#)” on page 375
- “[Reordering an Object](#)” on page 376
- “[Resizing an Object](#)” on page 377
- “[Rotating an Object](#)” on page 377
- “[Skewing an Object](#)” on page 378

These tasks apply to all the design objects with which you can interact in Designer.

10.2.1 Aligning Objects

Aligning objects allows you to move an object relative to another object. For example, you can align the left edge of a text box with the left edge of a table so the text in both objects makes an even edge along the page.

To align objects:

1. In Designer, select the object with which you want to align other objects. For example, if you want to adjust the placement of a text box so it is in line with a table, select the table.
2. Hold down SHIFT and select the objects you want to align.

3. On the Position toolbar, click the appropriate button:

To	Do this
Align the left side of the selected objects	Click 
Align the right side of the selected objects	Click 
Align the top of the selected objects	Click 
Align the bottom of the selected objects	Click 
Align the objects vertically on the center	Click 
Align the objects horizontally on the center	Click 

The objects are aligned in the design.

10.2.2 Distributing Objects

You can distribute objects in a design so that they appear spaced evenly within the space they occupy. For example, if you include three shapes at the bottom of a page to serve as a bottom border for the page, you can distribute the lines horizontally to ensure that they are spaced evenly.

To distribute objects:

1. In Designer, hold down SHIFT and select the objects you want to distribute.
2. On the Position toolbar, click the appropriate button:

To	Do this
Distribute objects so they are spaced evenly horizontally	Click 
Distribute objects so they are spaced evenly vertically	Click 

The objects are distributed in the design.

10.2.3 Grouping Objects

You can group the objects in a design to make it easier to adjust their location without changing their relative spacing or their size. For example, suppose you want to add a text box at the top of your design. To add the text box to a design, you must move all the other page objects down the page. Rather than moving each object individually, you can group the objects and move them together.

Keep in mind the following behaviors when grouping objects:

- Each object in a set of grouped objects must be formatted individually. You cannot apply formatting to all of the objects in a group at one time.
- To apply rules to grouped objects, do one of the following:

To	Do this
Set individual rules on each object within a group	Select individual objects within the group and apply rules to each object as needed.
Set a single rule that controls all objects in the group	Select all objects in the group and apply a single rule to the group. Note: If you place a rule on a group of objects, the rule that is applied to the group of objects takes precedence over any rules that are applied to the individual objects in that group.

- If you want the group to be relative to an object above it, the object must be above all the objects in the group. Otherwise, only the grouped objects below the object will move relative to it.

To group objects:

1. In Designer, hold down SHIFT and select the objects you want to group together.
2. Right-click the selected objects and select **Group > Group**.

The handles on the objects change appearance to indicate they belong to a group.

To ungroup the objects so that you can apply formatting or set rules on the individual objects, right-click the group and select **Group > Ungroup**.

10.2.4 Moving an Object

You can easily move objects in a design by selecting the  icon and dragging the object to a new location. However, Designer also lets you place objects in a precise location using the horizontal and vertical position of objects. For example, if you are designing a page that will be printed on a pre-printed letterhead, you can use the horizontal and vertical position information to

ensure that objects are located in the exact position required and will not overlap the pre-printed areas.

If you want to move objects incrementally, you can nudge them, rather than moving them using this method.

For information about nudging objects, see “[Nudging an Object](#)” below.

To move objects:

1. In Designer, select the object you want to move.

2. Click .

The **<Object> Properties** dialog box opens.

3. Click the **Placement** tab.

4. In the **Horizontal position** box, enter the distance from the left edge.

5. In the **Vertical position** box, enter the distance from the top edge.

6. Click **OK**.

The **<Object> Properties** dialog box closes and the object moves to the position you specified.

10.2.5 Nudging an Object

You can move objects incrementally by nudging them. Unlike moving objects, which can help you move objects from one area of a design to another, nudging objects lets you make very small adjustments to an object's location.

To nudge an object:

1. In Designer, select the object you want to nudge.
2. On the Position toolbar, click the appropriate button:

To	Do this
Nudge the object to the right	Click  .
Nudge the object to the left	Click  .
Nudge the object up	Click  .
Nudge the object down	Click  .

The object moves as you click the button.

If the increment by which the object is moved is too large or small, you can adjust the nudge increment.

For information about adjusting the nudge increment, see “[Adjusting the Nudge Increment](#)” below.

Adjusting the Nudge Increment

If the default nudge increment is too large or small, you can adjust those settings. The nudge increment you set affects all objects you open in Designer, not just the design you have open when you make the adjustment.

To adjust the nudge increment:

1. In Designer, from the **Tools** menu, select **Options**.

The **Designer Options** dialog box opens.

2. Click the **Grid Control** tab.
3. In the **Nudge size** box, enter the size of the nudge increment.
4. Click **OK**.

The **Designer Options** dialog box closes.

10.2.6 Reordering an Object

If an object overlaps another object in the design, you can reorder the objects to move one object to the front of or behind another object. For example, if you overlap an image with a text box, you can reorder the text box so it appears on top of the image.

To reorder an object:

1. In Designer, select the object you want to reorder.
2. Click the appropriate button in the Position toolbar.

To	Do this
Move the object in front of all objects	Click
Move the object to the back of all objects	Click

To	Do this
Move the object forward one layer	Click  .
Move the object back one layer	Click  .

10.2.7 Resizing an Object

You can easily resize objects clicking an object's handle and dragging it to make the object either larger or smaller. However, Designer also allows you to resize objects to a precise size. For example, if, due to printing requirements, you need a table to be exactly five inches wide, you can easily resize the table to be exactly five inches wide.

To resize an object:

1. In Designer, select the object you want to resize.
2. Right-click the selected object and select **Object Properties**.

The **<Object> Properties** dialog box opens.

3. Click the **Placement** tab.
4. If you want the object to retain its proportions as you resize, select the **Lock Proportions** check box. The check box setting also affects the objects if you resize it by dragging its handles.
5. Use the other options on the **Placement** tab to resize the object.

To	Do this
Enter precise measurements for the width and height of the object	In the Width box and Height box, enter the measurements.
Change the object to be a percentage of the original size	In the Scale width box and Scale height box, enter the percentage by which you want to increase or decrease the object's size.

6. Click **OK**.

The **<Object Properties>** dialog box closes and the size of the object changes according to the properties you set.

10.2.8 Rotating an Object

You can rotate objects to change the angle at which they appear on the page. For example, suppose you use Asian characters in your text. You can rotate the text box so that the

characters are arranged vertically on the page. You can easily rotate objects in a design by clicking the  handle and dragging the object. However, Designer also lets you rotate objects to an exact angle.

Note: Rotated text boxes do not split and flow across pages and cannot contain editable content. Additionally, you cannot place embedded objects inside a rotated text box.

To rotate an object:

1. In Designer, select the object you want to rotate.
2. Click .

The **<Object> Properties** dialog box opens.

3. Click the **Placement** tab.
4. In the **Rotation** box, enter the angle in degrees by which you want the object to be rotated. If you enter a positive number, the object is rotated clockwise. If you enter a negative number, the object is rotated counterclockwise.
5. Click **OK**.

The **<Object> Properties** dialog box closes and the size of the object changes according to the properties you set.

10.2.9 Skewing an Object

By default, the proportions of many types of design objects are locked. That is, when you resize an object, it grows taller and wider in the same proportion. You can skew an object to make it larger in one direction only. For example, if you place a circle on the page, you can skew it to make it an oval shape. Most objects that are used to present graphical information, such as images or shapes, have locked proportions. Objects that contain textual content do not have locked proportions, allowing you to resize them as needed to contain the content.

To skew an object:

1. In Designer, select the object you want to skew.
 2. Click .
- The **<Object> Properties** dialog box opens.
3. Click the **Placement** tab.
 4. Clear the **Lock proportions** check box.
 5. Click **OK**.

The **<Object> Properties** dialog box closes.

6. Use the handles on the object to resize a side of the object.

10.3 Adding a Border and Fill to an Object

You can add a border and fill color to most types of design objects. For some objects, you can add only a border (for example, you can add a border to images but you cannot add a fill color). When you add a border, you can specify the line color and style, and optionally, add a shadow. The process of adding a border and a fill color is similar for most types of design objects. However, if you are working on an object that has formatting options which are not discussed here, such as a table, go to the information about that particular object to learn more about using properties which are specific to that object.

To add a border and fill color to an object:

1. In Designer, select the object to which you want to add a border and fill color.
 2. Click .
- The **<Object> Properties** dialog box opens.
3. Click the **Lines and Fill** tab.
 4. On the **Lines and Fill** tab, use the options to add as many of the following formatting options as needed:

To	Do this
Add a border	<ol style="list-style-type: none">a. In the Frame box, select the style of the border line.b. Use the color well below the Frame box to select the border color.<ol style="list-style-type: none">i. Click the color well. The Color dialog box opens.ii. Select or specify the color you want to use and click OK. The Color dialog box closes and the color you selected appears in the color well.c. In the box below the color well, enter the width of the border.

Note: Dotted line styles might appear differently in Exstream Viewer than they do in the final output.

To	Do this
Add a shadow	<ol style="list-style-type: none">a. Click the Shadow color well. The Color dialog box opens.b. Select or specify the color you want to use and click OK. <p>The Color dialog box closes and the color you selected appears in the Shadow color well.</p>
Add a fill	<ol style="list-style-type: none">a. Click the Fill color well. The Color dialog box opens.b. Select or specify the color you want to use and click OK. <p>The Color dialog box closes and the color you selected appears in the Fill color well.</p>

For information about using the **Color** dialog box to specify colors, see “[Adding Color to an Object](#)” below.

10.4 Adding Color to an Object

Regardless of the type of design object that you are designing, you can apply color the same way: by using the **Color** dialog box. The **Color** dialog box provides advanced options for changing the color and fill effects of objects. The **Color** dialog box also provides access to color families that are set up by the system administrator for your specific organization or project. In addition to formatting objects by applying color to them, you can also apply customized colors to objects based on customer data. For example, you can make negative balances in an account appear in red and positive balances appear in green.

For more information about custom color families, see *System Administration* in the Exstream Design and Production documentation.

When you work with the **Color** dialog box, you can select from several different color models in order to use the same color codes as other deliverables from your organization. Color models are groups of color definitions that define color in terms of the amount of different colored inks used. You use color models to specify how your output device processes color so that Exstream can send the correct color information to the output device. Exstream supports the following color models:

- **RGB**—Red, Green, Blue. RGB color models are typically used for output going to electronic devices, such as webpages.
- **CMYK**—Cyan, Magenta, Yellow, Black. CMYK color models are typically used for printed output.
- **PANTONE®**—A wide variety of colors defined by Pantone that produce standardized color reproduction. Pantone organizes these colors into libraries using a name and number

system. The following PANTONE Color libraries are available:

- PANTONE® solid coated
- PANTONE® solid uncoated
- PANTONE® Goe™ coated

Note: PANTONE Colors are supported only in PostScript, PostScript-based, PDF, and PDF-based outputs, and only if your output device is Pantone-approved and Licensed. If you use a PANTONE Color in a design for output that does not support PANTONE Colors, Exstream substitutes an equivalent color value. If Pantone upgrades an existing color library or adds a new color library, you must upgrade your version of Exstream to use those colors.

- **Custom Color Family**—Sets of colors created and stored in Design Manager that are often used as a way to create a set of standard colors to ensure consistency in all designs across an enterprise. System administrators name custom color families, so the name of the colors that you see in Design Manager and Designer will vary.
- **Spot Colors**—Predefined colors that are added to a printer in the form of an ink cartridge. Generally, spot colors can be used for corporate colors, marketing colors, or special printing finishes (such as gloss, matte, or metallic).

At run time, the engine converts colors as needed so that they are compatible with the selected output type. If the output device you are using does not support the color selected for an object, the color is re-mapped to the closest available color. In AFP output, the engine uses rectangular shading when it renders a non-rounded text box.

To add color to an object, complete the following tasks as needed:

- “[Applying Color to an Object or Text](#)” below
- “[Applying a Fill Effect](#)” on page 385
- “[Using Data to Customize Colors](#)” on page 386
- “[Making a Color Relative to Another Color](#)” on page 391
- “[Previewing Output Colors in a Design](#)” on page 392

10.4.1 Applying Color to an Object or Text

This task describes how to apply color to text and most types of objects in Designer.

For information about applying color to the data areas in traditional charts, see “[Adding Charts to a Design](#)” on page 256.

To apply color to an object or text:

1. In Designer, select the object to which you want to apply color and open the **Color** dialog box. Depending on the type of object to which you are applying color, complete one of the following sets of steps:

To	Do this	
Apply color fill to a design object	<p>Tip: If you apply color fill to an object that will be printed in black and white, consider adding a fill effect so customers can differentiate between colors.</p> <p>For information about applying a fill effect, see “Applying a Fill Effect” on page 385.</p>	<ol style="list-style-type: none">Select the object to which you want to apply a fill color.Click  . The <Object> Properties dialog box opens.Click the Lines and Fill tab.Click the Fill color well. The Color dialog box opens.
Apply color to a border		<ol style="list-style-type: none">Select the object to which you want to apply a border color.Click  . The <Object> Properties dialog box opens.Click the Lines and Fill tab.Click the Frame color well. The Color dialog box opens.
Apply color to a line		<ol style="list-style-type: none">Select the object to which you want to apply a line color.On the Formatting toolbar, click  . The Color dialog box opens.
Apply color to a shadow		<ol style="list-style-type: none">Select the object to which you want to apply a shadow color.Click  . The <Object> Properties dialog box opens.Click the Lines and Fill tab.Click the Shadow color well. The Color dialog box opens.

To	Do this
Apply color to text	<p>a. Select the text to which you want to apply a color.</p> <p>b. On the Formatting toolbar, click  . The Color dialog box opens.</p>
Apply a background color to a container	<p>a. In the Container Viewer, select the container to which you want to apply a background color.</p> <p>b. Right-click the container and select Object Properties. The Container Properties dialog box opens.</p> <p>c. Click the Container tab.</p> <p>d. Click the Background Color color well. The Color dialog box opens.</p>
Apply a background color to a cell in a grid layout container	<p>a. In the Container Viewer, select the cell(s) to which you want to apply a background color.</p> <p>b. Right-click the cell(s) and select Grid Cell Properties. The Grid Cell Properties dialog box opens.</p> <p>c. Click the Background Color color well. The Color dialog box opens.</p>

For more information about containers, see “[Designing for HTML and HTML \(Email\) Output](#)” on page 41

2. Use the options on the **Color** dialog box to specify the color model that you want to use and then specify the color that you want to apply.

To	Do this
Apply RGB color	<p>a. From the Color model drop-down list, select RGB.</p> <p>b. Use the other options to select the color that you want to use. You can select the color using any one of the following methods:</p> <ul style="list-style-type: none"> From the Standard color palette area, select a color. In the Red, Green, and Blue boxes, enter the exact values. Use the slider on the right side to create a color that is a shade of another color.

To	Do this
Apply CMYK color	<ol style="list-style-type: none">From the Color model drop-down list, select CMYK.Use the other options to select the color that you want to use. You can select the color using any one of the following methods:<ul style="list-style-type: none">• From the Standard color palette area, select a color.• In the Cyan, Magenta, and Yellow, and Black boxes, enter the exact values.• Use the slider on the right side to create a color that is a shade of another color.
Apply a PANTONE Color	<ol style="list-style-type: none">From the Color model drop-down list, select PANTONE®.From the Book drop-down list, select the book of colors that you want to use.Use the other options to select the color that you want to use. You can select the color using any one of the following methods:<ul style="list-style-type: none">• In the Color box, enter the name of the color.• Scroll through the colors using the color slider on the right side of the dialog box.
Apply a custom color family (the name can vary)	<ol style="list-style-type: none">From the Color model drop-down list, select <color family name>.Use the other options to select the color that you want to use. You can select the color using any one of the following methods:<ul style="list-style-type: none">• From the Standard color palette area, select a color.• In the Color name box, enter the name of the color.
Apply a spot color (the name can vary)	<ol style="list-style-type: none">From the Color model drop-down list, select <spot color name>.Use the other options to select the color you want to use. You can select the color using any one of the following methods:<ul style="list-style-type: none">• From the Standard color palette area, select a color.• In the Color name box, enter the name of the color.

Tip: The options below the slider allow you to see how the color you select will appear in different output types. For example, the **b&w** box illustrates how the color will appear when printed in black and white.

3. Click **OK**.

The **Color** dialog box closes and the color is applied to the object or text you selected.

Adding a Custom Color to the Palette

The **Color** dialog box allows you to store frequently-used custom colors in the palette. For example, if you must use specific colors in your designs, but those colors are not stored in a

color family, you can add the colors to the palette. The custom colors you add to the palette are available to you until you log out of the design database. Therefore, you can add colors to the palette and they will be available to you in all the designs you create during the design session. Adding custom colors to the palette can save time because you do not need to manually enter the color values each time you must apply color.

To add a custom color to the palette:

1. With the **Color** dialog box open, select the color model you want to use from the **Color model** drop-down list.
2. If you know the value of the color you want to add to the palette, enter the values in the appropriate boxes below the **Custom color palette**. If you do not know the color values, use the palette and slider to select the color.
3. Click .

The color is added to the palette in the **Custom color palette** area.

4. Click **OK**.

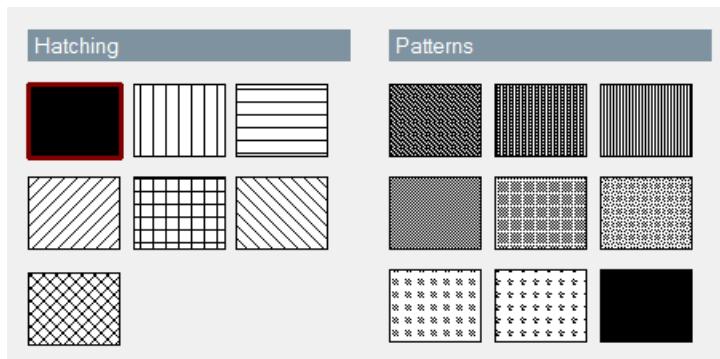
The **Color** dialog box closes.

The custom colors are available to you in the palette until you log out of the design database.

10.4.2 Applying a Fill Effect

Fill effects let you change the way the fill color is applied to an object. Fill effects are particularly useful if you are using a black-and-white printer and want to make it easier to differentiate between colors. You use the **Fill Effects** dialog box to select one of the available effects.

Fill effects dialog box



To change the fill effects for an object:

1. In Designer, select the object to which you want to apply a fill effect.
2. Click .

The **<Object> Properties** dialog box opens.

3. Click the **Lines and Fill** tab.
4. Click the **Fill** color well.

The **Color** dialog box opens.

5. Click **Fill effects**.

The **Fill Effects** dialog box opens.

6. Use the options in the **Hatching** and **Patterns** areas to specify the fill effect that you want to apply.

To	Do this
Change the pattern of the fill color	Select one of the options in the Hatching area.
Change the black-and-white fill pattern	Select one of the options in the Patterns area.

7. Click **OK**.

The **Fill Effects** dialog box closes.

8. Click **OK**.

The **Color** dialog box closes and the fill effect is applied.

Fill effects have unique behaviors for the following output types:

- **AFP output**—Fill patterns translate to AFP GOCA fill patterns. Use the NO_AFP_DRAWRULE switch to obtain uniform background color results, or use the solid hatching fill effect for rounded text boxes to obtain uniform shading.
- **Metacode output**—Fill patterns in either monochrome, highlight color, or mixed color patterns are selected based on requested color and patterns. These patterns are included in the inline images created for pie charts and non-rectangular objects. Rectangular objects are filled with the FORMSX shading characters and do not support pattern fills or mixed colors.

10.4.3 Using Data to Customize Colors

Like other objects in Exstream, colors can change based on customer data. Colors that can change based on data are called conditional colors. Conditional colors are especially useful if you want to emphasize certain values. For example, if a statement balance is less than or equal to zero dollars, you can use a conditional color to make the balance appear in red, and a different conditional color to make balances above zero dollars appear in blue. The following table lists the areas of objects to which you can apply conditional colors:

Areas that support conditional colors

Object	Areas in the object to which conditional color can be applied
Chart	<ul style="list-style-type: none">The face of chart data (the line, slice, bar, and so on)The edge (if the chart is 3D)
Table	<ul style="list-style-type: none">The background of a table cellThe text in a table cell
Text box	<ul style="list-style-type: none">The background of a text boxThe text in a text box

To use data to change a color:

1. In Designer, open the **Conditional Colors** dialog box. Depending on the type of object to which you are applying conditional colors, complete one of the following sets of steps:

To	Do this
Apply conditional colors to a traditional chart	<ol style="list-style-type: none">Select the chart.Click .The Chart Properties dialog box opens.Click the Chart Area tab.Select the Conditional colors check box.Click a Color color well.The Conditional Colors dialog box opens.
Apply conditional colors to a table cell	<ol style="list-style-type: none">Place the cursor inside the table cell to which you want to apply conditional colors.Right-click and select Cell properties....The Cell Properties dialog box opens.Click the Table Cell Properties tab.Select the Conditional colors check box.Next to the Conditional colors check box, click .The Conditional Colors dialog box opens.

To	Do this
Apply conditional colors to a text box	<ol style="list-style-type: none">a. Select the text box.b. Click .The Text Properties dialog box opens.c. Click the Text tab.d. Select the Conditional colors check box.e. Next to the Conditional colors check box, click .The Conditional Colors dialog box opens.

2. In the **Variable** box, select the variable on which to base the condition.

a. Click .

The **Select Variable** dialog box opens.

b. Select the variable and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Variable** box.

3. In the **Default** area, use the color wells to specify the color that is used if none of the conditions are met.

a. Click the **Back** color well (for table cells and text boxes) or the **Edge** color well (for charts).

The **Color** dialog box opens.

b. Select the color to use and click **OK**.

The **Color** dialog box closes and the color that you selected appears in the color well.

4. From the **Condition** drop-down list, specify the criteria that must be met for the corresponding value. For example, suppose that you want the object to change color when representing a specific company. From the **Condition** drop-down list, select **Equals**, and when the 'CompanyName' variable equals the value that you specify, the conditional color is used. If you do not want the color to change from the default for a particular value, select **Ignore**.

For more information about setting the appropriate condition value, see “[Condition Order](#)” on [page 390](#).

5. In the **Value** box, enter the value that must meet the condition in order to use the corresponding colors. For example, suppose that you want the object to change color when representing a specific company. You might enter **BankA** in the **Value** box, and when the 'CompanyName' variable equals BankA, the conditional color is used.

6. In the **Default** area, use the color wells in the first column to specify the background color that is applied when the condition is met. Keep in mind that if you set a color for the background of text, the color will be applied to the entire text box, just as if you had applied a fill to the text box.

- a. Click the **Back** color well (for table cells and text boxes) or the **Edge** color well (for charts).

The **Color** dialog box opens.

- b. Select the color to use and click **OK**.

The **Color** dialog box closes and the color you selected appears in the color well.

7. Specify the text color that is used when the condition is met. You can specify the text color in one of two ways:

To	Do this
Specify the color to use for the text	<ol style="list-style-type: none">a. Click the Text color well. The Color dialog box opens.b. Select the color to use and click OK. The Color dialog box closes and the color you selected appears in the color well.
Allow the text color to be adjusted based on the background color	You must set this property last. Skip to step 9.

8. Repeat step 4 through step 6 to define as many conditions you need (up to 30).
9. If you want to allow the text color to be adjusted based on the background color, use the color adjustments options available on the **Color Adjustment** dialog box. For example, you can use the same color for both the background color and the text color, but make the background color lighter than the text color.

- a. Below the **Variable** box, click .

The **Color Adjustment** dialog box opens.

- b. From the drop-down list at the top of the dialog box, select the color used for the text as compared to the background.

To	Do this
Make the text and background the same	Select Same color as face color .

To	Do this
Set the text to be a percentage darker than the background	i. Select Darker . ii. From the Percent darker or lighter drop-down list, select the percentage.
Set the text to be a percentage lighter than the background	i. Select Lighter . ii. From the Percent darker or lighter drop-down list, select the percentage.
Make the text the opposite color of the background	Select Inverse .
Make the text either black or white, depending on the darkness of the background color	Select Inverse (black or white) .
Make all the text the same as the default text color	Select Set all edge colors same as first edge .

c. Click **OK**.

The **Color Adjustment** dialog box closes.

10. Click **OK**.

The **Conditional Colors** dialog box closes.

When the design is processed, the colors are applied as dictated by the values in the data.

Condition Order

Be aware of the order of the conditions that you define for conditional colors. When you are working with integers, floating, or currency variables, and when you are using the **Greater Than** option or the **Less Than** option, the order of the conditions is essential. The first condition that is found to be true controls the color that is used for the object. You must place the conditions in descending order for greater-than operations, and in ascending order for less-than operations. After a condition is met for a particular variable, processing stops and the remaining conditions are ignored.

For example, the following table shows how processing is carried out if the value of a variable is 6:

Incorrect order	Correct order
Greater than 2 is red —Condition is met, processing stops	Greater than 7 is yellow —Condition is not met, processing continues
Greater than 5 is blue —Condition is ignored	Greater than 5 is blue —Condition is met, processing stops
Greater than 7 is yellow —Condition is ignored	Greater than 2 is red —Condition is ignored
Result —The object is red.	Result —The object is blue.

10.4.4 Making a Color Relative to Another Color

When designing 3D charts, text boxes, and tables, you can make some of the colors relative to other colors. Relative colors are colors that are based on a principal color but are a percentage darker or lighter, or colors that are the inverse of a base color (for example, the inverse of white is black). In a 3D chart, you can make the edge of a chart relative to the face of a chart. With text and table cells, you can make the text relative to the background.

If you want to define the edge or text color in relation to the face or back color, carry out one of the following sets of steps:

1. In Designer, open the **Color Adjustment** dialog box.

Object	To open the dialog box
Text boxes and table cells	<ol style="list-style-type: none">Open the Text Properties dialog box.Select the Conditional colors check box.Click  next to the Conditional colors check box. The Conditional colors dialog box opens.Click  above the Text colors color well. The Color Adjustment dialog box opens.
3D Charts	<ol style="list-style-type: none">Open the Chart Properties dialog box.Select the 3D check box.Click the Edge button. The Color Adjustment dialog box opens.

2. From the color adjustment drop-down list, select one of the following options:
 - **Same color as face color**—Text and background colors, or the face and edge colors, are the same.
 - **Darker**—Text or edge color appears darker by the percentage set on the **Percent darker or lighter** drop-down list.
 - **Lighter**—Text or edge color appears lighter by the percentage set on the **Percent darker or lighter** drop-down list.
 - **Inverse**—Text or edge color appears in the opposite color of the background color. For example, if your RGB color is 0, 255, 255, the opposite is 255, 0, 0.
 - **Inverse (black or white)**—Text appears as either black or white, depending on the darkness of the background color.

- **Set all edge colors same as first edge**—All text or edges are the same as the default.
3. If you selected **Darker** or **Lighter** from the color adjustment drop-down list, select the percentage from the **Percent darker or lighter** drop-down list.
 4. Click **OK**.

The **Color Adjustment** dialog box closes and the color is set relative to either the face or background color.

10.4.5 Previewing Output Colors in a Design

When you compare a color on a computer monitor against the same color in printed output, you can sometimes see variations between the two versions. These variations occur because computer monitors use the RGB (red, green, blue) color model to display colors, and printed output uses the CMYK (cyan, magenta, yellow, black) color model.

To help you compensate for the differences inherent between the two color models, Exstream lets you temporarily change the colors of certain objects in Designer so that they more closely match their CMYK counterparts. You can sample colors from design pages and replace them with corresponding colors from CMYK output files. This functionality is for previewing purposes only and does not permanently alter your design page.

This section discusses the following topics:

- [“About Previewing Output Colors in a Design” below](#)
- [“Adding Colors to a Color Data File” on the next page](#)
- [“Removing Preview Colors from Your Color Data File” on page 394](#)
- [“Loading a Color Data File” on page 394](#)

About Previewing Output Colors in a Design

Exstream uses an XML file (a color data file) to store information about color preview settings. As you build a color data file, keep in mind that, within the RGB color model, colors can vary according to the type of monitor and graphics card you are using. Therefore, even identical monitors will display colors differently unless they are calibrated identically. For example, if you work in an environment in which multiple designers contribute to a particular design and you want to share a single color data file, you must make sure not only that all contributors use identical equipment, but also that their monitors are calibrated identically. Otherwise, each designer must build a separate color data file for use on his or her computer.

Note: Because a monitor uses the RGB color model to display colors, you will likely still see slight variations between output colors on screen and corresponding output colors in print. However, even the RGB approximations that you see on your monitor should still closely match the "correct" output colors.

Keep in mind that you can preview output colors only for objects that you create in Designer. For example, if you create a letter template that uses your company's color scheme, you can change preview colors for any objects created in Designer (such as page borders or color text boxes), but you cannot change preview colors for imported images (such as corporate logos). Additionally, because this preview functionality lets you sample colors pixel by pixel, you should use it only when working with objects made up of solid colors that do not use fill effects such as gradients.

Adding Colors to a Color Data File

Before you can add colors to your color data file, you must open the design page and the corresponding output page (such as a CMYK PDF) side-by-side. With both files open, you can easily sample colors between the two files. For example, suppose that the RGB versions of your company's colors as displayed in Designer look different from the CMYK versions in printed output. In that scenario, you can use the colors in Designer as your source colors, and then use the corresponding colors from a CMYK PDF as your output colors. After you have added the appropriate output colors, you can then preview the "correct" colors in Designer.

Note: Keep in mind that your monitor uses the RGB color model to display all colors. As a result, you might see slight variations in color between a CMYK output file viewed on your monitor and actual CMYK printed output.

To add colors to a color data file:

1. In Designer, on the Menu bar, select **Tools > Preview Output Colors**.
The **Color Preview Palette** opens.
2. Select the **Show output color preview** check box.
Any existing output colors are displayed on the design page. You can toggle between the RGB colors on your design page and the output color previews by selecting or clearing this check box.
3. In the **Output color data file** field, check the path and file name to ensure that you are using the correct color data file.
For information about loading a color data file, see "[Loading a Color Data File](#)" on the next page.
4. Click the **Source color** box and then use the pointer to select the color that you want to replace in the preview.
5. Click the **Output color** box and then use the pointer to select the color that will replace the

source color in the preview.

Note: You can select an output color from any program that is open and visible.

6. Click .

The source color and output color selections appear in the **Color Preview Palette**, and the output color appears on the design page.

7. Repeat step 4 through step 6 as necessary.

Removing Preview Colors from Your Color Data File

As you build a color data file, if you decide that you no longer need some of the source/output color combinations that you have added, you can remove them from the output color file. For example, if the colors in your design change due to rebranding, you can remove unnecessary source/output color combinations so that the list displayed on the **Color Preview Palette** does not contain unnecessary additions.

To remove preview colors from your color data file:

1. In Designer, on the Menu bar, select **Tools > Preview Output Colors**.

The **Color Preview Palette** opens.

2. Select a source color and output color combination from the list.

3. Click .

The source color and output color combination is removed from the list.

4. Repeat step 2 through step 3 as necessary.

Loading a Color Data File

Exstream stores color preview information in an XML file called the color data file. You can use a single color data file across multiple projects, or you can create separate files as necessary.

To load a color data file:

1. In Designer, on the Menu bar, select **Tools > Preview Output Colors**.

The **Color Preview Palette** opens.

2. Click  to browse to a color data file.

The **Open** dialog box opens.

3. Browse to the location of the file that you want to open.

4. Click **Open**.

Note: If the file does not exist, you will be prompted to create it. On the **Designer** dialog box that opens, click **Yes** to create the file.

The source color and output color combinations contained in the color data file appear in the **Color Preview Palette**.

10.5 Controlling When Objects Are Placed on a Page

The term "compose time" refers to the time during the engine run at which objects are placed on a page. By default, all objects have a compose time of **When page created**; that is, they are placed on the page when the page is created. However, you can change the compose time of objects to accommodate other factors that affect the object, such as rules that are executed on the object later during the engine processing that determine whether the object is included in the output. For example, if you use a rule to control whether an object is included in the final output, but the data that is necessary for the rule to run is not available until later in the engine processing, you must adjust the compose time of the object. You might also need to adjust the compose time of an object if you use function variables that compute information based on data that is found on other pages (such as a total).

For more information about engine timing, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

The compose time that is required for various objects can have far-reaching implications for how you design your application. For example, if you know that a table will calculate a total that will be displayed on the first page of a document, you must make sure that the compose time of the object on the first page is set to occur after the data is available. Before creating a design in Exstream, it is a good idea to review your mock-up in order to identify content that requires a compose time that is different from the default compose time.

If you have licensed the Output Sorting and Bundling module, the output sorting can affect your choice of compose time for some design objects. In a sorting process, the engine composes pages during the presort processing step. However, you might need to defer composing some objects until post-sort processing. Any Library object or design object that is dependent on variable data (for example, search keys, tables, or text boxes) must be composed after that information is complete. For example, suppose an address-cleansing program adds or removes lines from an address block. To prevent odd spacing in the text box in the final output, you can set the text box to be composed after the document sorting.

Because the engine composes the page before it composes the object, keep in mind the following considerations for objects set to **After document sorting** when using output sorting:

- You must design the object based on the maximum anticipated space required.
- You must set other design objects relative to these objects on the design dimensions (not the composed dimensions).
- You cannot set these objects to split and flow.

To control when objects are placed on a page:

1. In Designer, select the object for which you want to set the compose time.
2. Click . The **<Object> Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
4. From the **When to compose** drop-down list, select one of the following options to control when the object is placed on the page:
 - **When page created**—The content of the object is composed when the page is created. This option is the earliest possible composition.
 - **End of customer**—The content of the object is composed at the end of all processing for the customer.
 - **End of section/node driven document**—The content of the object is composed after all section data or XML nodes are composed.
 - **After document sorting**—The content of the object is composed after Step One processing. This option is available only if you have licensed the Output Sorting and Bundling module.
 - **Late Rule**—The content of the object is composed when the page is created, but the object rules are not executed until all of the processing for the customer is completed. During the late compose phase, the object rules are executed and the object can be deleted or replaced if necessary. Surrounding objects are not moved or re-flowed. If the object contains embedded objects (for example, a table contains an embedded frame), the objects are reported as sent, even if they do not appear in the output. In other words, **Late Rule** tells the engine to fire the object's rule (not any rules within the object, such as a text rule on text within the object). Then, if the rule on the object cannot be met, the entire object is removed (including any objects within it that would otherwise be included).

If you select the **Late Rule** option, use the object's **Rule** tab to create the rule for the object.

If you select any option other than **When page created**, objects are created at the size that they were designed or larger. If, during processing, the object is larger than the design size, the object can overlap the objects below it.

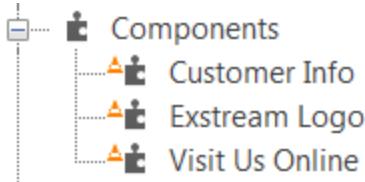
5. Click **OK**.

The **<Object> Properties** dialog box closes. If you selected an option other than **When page created**, a late compose indicator appears next to the object on the design page.

10.6 Reusing Design Objects Through the Use of Components

To save time and ensure a consistent appearance across multiple projects, you can create and use components in a design. Components are design objects that you save to the Library so that they can be reused by yourself or other users in multiple designs. You can save objects that you create in Designer as components, or you can save objects you import, such as images, as components. You can save any type of design object as a component, including design objects that contain variables. For example, when you import your corporate logo as an image, you can save it as a component so it can easily be added to all your future correspondence designs.

Sample components in the Library



You can also save "starter objects" as components to help save designers time and make it easier for them to create complex objects. For example, you might design a two-column automated table, a three-column automated table, and a table with alternating fill and save all of the tables as components. Then, other designers can use the components in their designs and customize them as needed.

You add components to a design in Designer and you manage the repository of components in the Design Manager Library. To use a component in your design, complete the following tasks as needed:

- “[Creating a New Component](#)” on the next page
- “[Managing the Properties of a Component](#)” on page 399
- “[Placing a Component in a Design](#)” on page 400

10.6.1 Creating a New Component

You can create a new component using one of three methods:

To	Do this
Import components from a different design database	<ol style="list-style-type: none">1. In Design Manager, from the Library, right-click the Components heading in the folder in which you want to store the component.2. From the shortcut menu, select Load Objects. The Load dialog box opens.3. Use the Load dialog box to select the XOB file that contains the component you want to add to your current design database. All of the components found in the XOB file appear below in the Components heading. <p>For information about loading objects into your database, see <i>System Administration</i> in the Exstream Design and Production documentation.</p>
Import components from a DXF file	<ol style="list-style-type: none">1. In Design Manager, from the Library, right-click the Components heading in the folder in which you want to store the component.2. From the shortcut menu, select Import from DXF. The Import DXF dialog box opens.3. Select the DXF file that contains the component you want to add to your current design database and click Open. All of the component found in the DXF file appear below the Components heading.
Save a design object as a component	<ol style="list-style-type: none">1. In Designer, right-click the object you want to save as a component.2. Select Library component > Add to library. The Folders dialog box opens.3. Select the folder in which you want the component to be saved and click OK. A dialog box opens where you can provide information about the component.4. In the Name box, enter a name. In the Description box, enter a description (optional).5. Click Next. The Library Component Properties dialog box opens.6. Use the Library Component Properties dialog box options to control how the component can be adjusted when it is placed in other designs. For more information about the options available on the Library Component Properties dialog box, see “Managing the Properties of a Component” on the next page.7. Click Finish. The Library Component Properties dialog box closes and the component is saved.

10.6.2 Managing the Properties of a Component

When a component is created, it is stored in the Design Manager Library. If the component was created when a user saved it as a component from Designer, you can view the component in Design Manager to see and edit the properties assigned to the component when it was created. If the component was created by importing it from a DXF file or XOB file, you can view and edit its properties using Design Manager, as well.

To manage the properties of a component:

1. In Design Manager, from the Library, drag the component you want to manage to the Property Panel.

The component's properties open and a preview of the component appears.

2. Use the options available to adjust the properties of the component:

To	Do this
Use a rule to include or exclude the component based on conditions	<ol style="list-style-type: none">a. Click the Rule box.b. The Rule dialog box opens. Use the Rule dialog box to create a rule that controls when the component is included or excluded. For information about creating rules, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.c. Click OK. The Rule dialog box closes and the rule logic you created appears in the Rule box.d. If you want other users to be able to change the rule logic for a specific instance of the component, clear the Rule is locked check box.
Prevent users from changing the size and rotation of the component	<ol style="list-style-type: none">a. To prevent users from changing the size of the component, select the Size is locked check box.b. To prevent users from changing the rotation of the component, select the Rotation is locked check box.
Prevent users from moving the component from a specified x/y position	<ol style="list-style-type: none">a. Select the Position is locked check box.b. In the Horizontal position box, enter the horizontal position at which the component must appear.c. In the Vertical position box, enter the vertical position at which the component must appear.

10.6.3 Placing a Component in a Design

1. In Designer, on the Drawing Objects toolbar, click .

The **Select Component** dialog box opens.

2. In the **Components** area, select the component you want to add to your design. You can use the drop-down lists in the **Components to show on the list** area to filter the components available to you.
3. Click **OK**.

The **Select Component** dialog box closes and the component appears on the page.

Depending on the properties specified for the component, you might be able to change some of its properties, just as you do with other design objects. If you make changes to the component that you want to save to the component properties, right-click the modified component and select **Library component > Save to library**.

Note: If you have licensed the Advanced Design Workflow module, archived objects and components have a unique relationship. If components are used in a design that is archived, the references to the components remain active. Therefore, if the component is changed, the changes are apparent in the archived version of the design.

If you are generating PDF or PDF/A output that will be read by screen readers or text-to-speech converters, you can also specify how this instance of the component is handled by those accessibility tools.

For information about specifying the accessibility properties of an image, see “[Optimizing a Design for PDF Accessibility Tools](#)” on page 554.

Chapter 11: Accommodating Objects That Flow

You can use the flow and relativity features of Exstream to accommodate text boxes and tables that will grow or move at run time and will need more space than the space available on a page. Because of the capabilities of the Exstream solution to add unique variable content for each customer, it can be difficult to create one design that will accommodate the data for every customer. For example, some customers might have only a few lines of data, while other customers have extensive data that will require multiple pages to display. When you use the flow features, you can create one base design and then create an additional page (or pages) that will accommodate the data that does not fit on the original page. You must have licensed the Advanced Tables module to use the flow features of Exstream.

The relativity features in Exstream help ensure that related objects maintain relative relationships with each other as the design changes during processing.

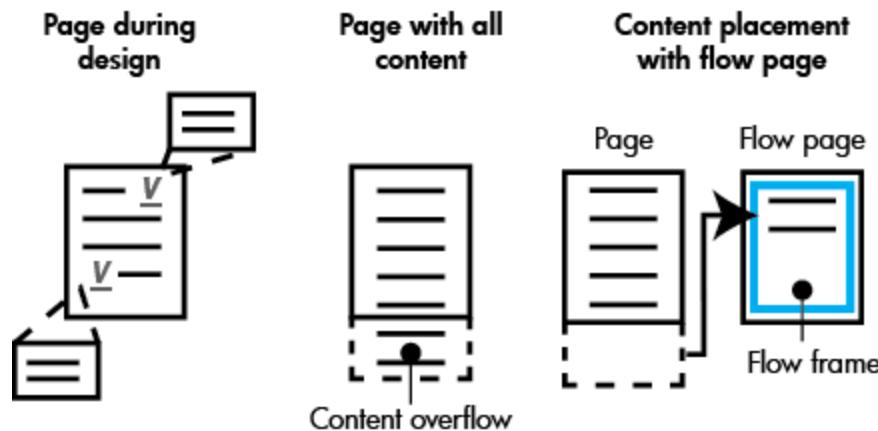
This chapter discusses the following topics:

- “[Using Flow to Accommodate Growing Objects](#)” below
- “[Using Relativity to Prevent Growing and Moving Objects From Overlapping Other Objects](#)” on page 413

11.1 Using Flow to Accommodate Growing Objects

When you use flow to accommodate growing objects, you use flow frame objects to reserve the space where the content will flow. Flow frames are unique types of frames that can contain overflow content from text boxes and tables. When you set up your design, you place flow frames on pages designated as flow pages. Then, when the engine runs, any content that flows past the original space is placed in the appropriate frame.

Flow in a design



It is important to understand the versatility of flow frames and how flow frames are used with different objects in Exstream. While text boxes and tables use flow frames to contain overflowing content, flow frames are also used with section objects and paragraph objects to add those objects to a page. Section objects and paragraph objects are placed in flow frames after the flow for text boxes and tables is complete. Text messages and graphic messages, however, use flow frames to optimize the white space in frames that have additional room after they have been filled with content. Frames embedded in other objects, such as a text box, are called content frames. Content frames can contain text message, graphic message, section object, and paragraph object content only.

For information about how marketing messages use flow frames, see *Managing Marketing Messages* in the Exstream Design and Production documentation.

For more information about how section objects and paragraph objects use flow frames, see ["Using Paragraphs and Sections to Build Complex Documents" on page 109](#).

By default, design objects are not set to flow. That is, if the content in the object grows beyond the designated space, it is lost. To allow content to flow, you must set properties on both the content that will flow and the area that will receive it. On the content that will flow, you must allow both the object itself and the page that contains it to flow. Then, you must designate a page that will accept the overflow and place flow frames on the page. Keep in mind that flow frames themselves do not split and flow. If the content requires more space than provided in one flow frame, you must set up an additional flow frame to accommodate the overflow.

Like many of the processes in Exstream, you can perform the tasks required to set up flow in almost any order. However, this chapter discusses how to set up the objects that will flow and then discusses how to set up the areas and pages that will contain the flow. To set up a design to accommodate flow, you must complete the following tasks:

1. ["Allowing a Page to Flow" on the next page](#)
2. ["Allowing Content to Flow" on page 404](#)

3. “Designating a Flow Page” on page 408
4. “Adding a Flow Frame to a Flow Page” on page 408

You can also complete the following optional tasks as needed:

- “[Changing and Verifying the Flow Order of Content](#)” on page 410
- “[Including Content After Flowing Objects](#)” on page 411

11.1.1 Allowing a Page to Flow

If a page contains content that will flow, you must specify the page as one that will flow and specify how the flow will behave.

To allow a page to flow:

1. In Design Manager, from the Library, drag the page that contains the content that will flow to the Property Panel.
2. Click the **Flow** tab.
3. From the **Destination of overflow from this page** drop-down list, select one of the following options:

To	Do this
Duplicate the current page to contain the flowing content. (You should select this option only if the page contains a flow frame.)	Select Copy this page . This option lets you create one standard flow page that will contain all the overflow content. For example, you might select this option if the original content is a transactional table that can span many pages. The flow page will be duplicated as many times as necessary to display all of the transactional data.
Specify a specific page set up to contain the overflow	a. Select Flow to specified page . b. Click  . The Select Page dialog box opens. c. Select the page that contains the overflow frame that will accept the content and click OK . The Select Page dialog box closes and the page you selected appears in the Page box.
Lose overflow content but continue processing with a warning message	Select Warning, issue message and continue .
Lose overflow content and stop processing with an error message	Select Error, issue message and stop .

11.1.2 Allowing Content to Flow

In order for content to flow, you must set properties on the content to allow it to leave its original space and flow. When an object will flow, you can either designate a specific frame to which the content flows, or you can allow the content to flow to one of several possible frames. You might set up content to flow to a specific frame when you have multiple flowing objects in the design and you want to make sure that the content appears in a specific area of the page. Relative flowing objects that are above or below other flowing objects cannot be set up to flow to more than one specified frame.

Multiple objects in a flow frame are aligned to the left-most object in the flow frame.

To allow content to flow, complete the following tasks as needed:

- [“Designating Content to Flow to a Specific Frame” below](#)
- [“Allowing Content to Flow to Various Frames” on page 407](#)

Designating Content to Flow to a Specific Frame

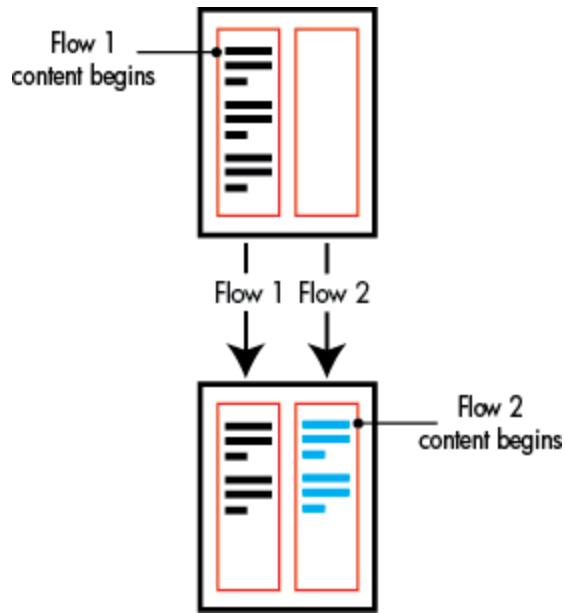
If multiple flow frames exist in a design, you can use flow targets to ensure that the content flows to the correct frame. A flow target is a simple Library object that lets you designate flow frames as frames that can be used for flow from a specific object exclusively. Other flowing objects or messages cannot be placed in a targeted flow frame unless they are associated with it as well.

To designate content to flow to a specific frame, you must first set up an application to allow targeted flow. Then, you create a flow target, which you can associate with a flow frame and flowing object.

You cannot use this flow method if the **Keep with next** setting is selected on the paragraph objects.

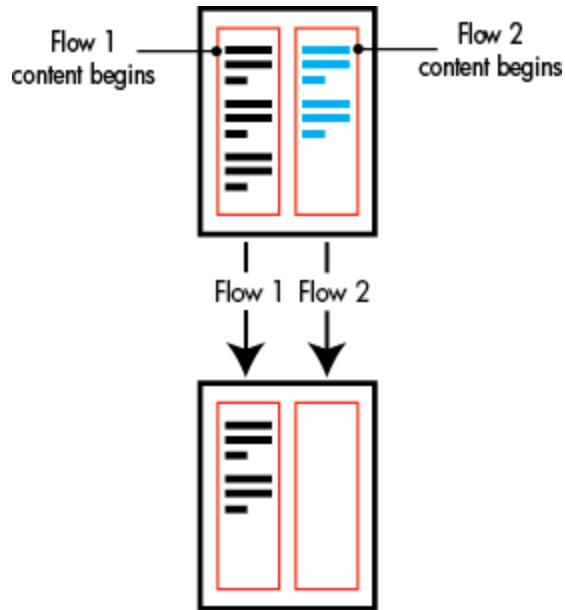
If a design includes flow targets, multiple flow frames on the same page, and content that overflows to a flow page, then the engine adds content to the first targeted flow frame on the first page. However, the engine will not add content to a second targeted flow frame until all of the content in the first targeted flow frame has been placed. For example, suppose that you have one targeted flow frame that includes five paragraphs and a second targeted flow frame that includes two paragraphs. If the content in the first targeted flow frame spans across two pages, the engine will add content in the second targeted flow frame beginning on the second page.

Example of a design with multiple targeted flow frames



If you want the engine to add content in both targeted flow frames beginning on the first page, you can use the `BACK_FILL_TARGETED_FLOW_FRAMES` engine switch.

Example of a design with multiple targeted flow frames using the `BACK_FILL_TARGETED_FLOW_FRAMES` engine switch



For more information about the `BACK_FILL_TARGETED_FLOW_FRAMES` engine switch, see *Switch Reference* in the Exstream Design and Production documentation.

To designate content to flow to a specific frame:

1. In Design Manager, from the Library, drag the application that contains the flowing content to the Property Panel.
2. Click the **Documents** tab.
3. Select the **Enable flow frame targeting** check box.
4. From the **Edit** menu, select **Save**.
5. In the Library, navigate to **Environment > Design > Flow Targets**.
6. Right-click the **Flow Targets** heading and select **New Flow Target**.

The **New Flow Target** dialog box opens.

7. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
8. Click **OK**.

The flow target opens in the Property Panel. You do not have to define any other properties for a flow target.

9. In Designer, open the page that contains the content that will flow.
 10. Select the object that will flow and click .
- The **<Object> Properties** dialog box opens.
11. Click the **Dynamic Size and Placement** tab.
 12. Select the **Can split and flow** check box.
 13. From the **Can split and flow** drop-down list, select **Flow to specified target**.

An additional box appears.

14. Click .

The **Select Flow Target** dialog box opens.

15. Select the flow target associated with the flow frame and click **OK**.

The **Select Flow Target** dialog box closes and the flow target you specified appears in the box.

16. Select the **Autosize height** check box
17. In the **Page flow limit** box, enter a measurement that indicates how close the content can get to the top of the page. The measurement you enter applies only to the original page, not to flow pages.
18. In the **Minimum flow size** box, enter the minimum size of the frame required to start flow.
When an object (for example, a text box) flows to another page, the content must be at least the size indicated in the **Minimum flow size** box and the frame must accommodate it. If the frame is not large enough, the object's flow is moved to the next frame in the fill

order. After a frame has an object placed in it, the size indicated in the **Minimum flow size** box is ignored for the next objects placed in the frame.

19. Click **OK**.

The **<Object> Properties** dialog box closes.

Allowing Content to Flow to Various Frames

1. In Design Manager, from the Library, drag the appropriate application to the Property Panel.
2. Click the **Documents** tab.
3. Select the **Enable flow frame targeting** check box.
4. From the **Edit** menu, select **Save**.
5. In Designer, open the page that contains the content that will flow.
6. Select the object that will flow and click .

The **<Object> Properties** dialog box opens.

7. Click the **Dynamic Size and Placement** tab.
8. Select the **Can split and flow** check box.
9. Use the **Can split and flow** drop-down list to specify how the flowing text behaves:

To	Do this
Allow the content to flow to any available frame	Select Flow to any frame .
Allow the content to flow to any frame that does not have a flow target	Select Flow to any unnamed frame .
Allow the content to flow to any frame that has a flow target	Select Flow to any named frame .

Note: If multiple objects in a design are set to flow to various frames, the object to which other objects are relative is placed in a valid flow frame first. For example, if a text box at the top of a page flows to any frame and a table below the text box flows to any frame, the text box content is placed in the frame first.

If you want to use flow targets to associate a specific object with the flow frame, see [“Designating Content to Flow to a Specific Frame” on page 404](#).

10. Select the **Autosize height** check box.
11. In the **Page flow limit** box, enter a measurement that indicates how close the content can get to the top of the page. The measurement you enter applies only to the original page, not to flow pages.
12. In the **Minimum flow size** box, enter the minimum size of the frame required to allow flow

to start. When an object (for example, a text box) flows to another page, the content must be at least the size indicated in the **Minimum flow size** box and the frame must accommodate it. If the frame is not large enough, the object's flow is moved to the next frame in the fill order. After a frame has an object placed in it, the size indicated in the **Minimum flow size** box is ignored for the next objects placed in the frame.

For information about the order in which flow frames are used, see “[Changing the Order in Which Flow Frames Are Filled with Content](#)” on page 410.

13. Click **OK**.

The **<Object> Properties** dialog box closes.

11.1.3 Designating a Flow Page

In order for content to flow to a frame on a page, the page that accepts the flow must be designated as a flow page.

To designate a flow page:

1. In Design Manager, from the Library, drag the document containing the page to the Edit Panel.

A graphical representation of the document appears in the Edit Panel.

2. Double-click the page name in the right column.

The **Document Page Properties** dialog box opens.

3. From the **Position of page in document** drop-down list, select **Flow Page**.

4. Click **OK**.

The **Document Page Properties** dialog box closes.

For information about setting up a flow page to repeat to accommodate overflow, see “[Allowing a Page to Flow](#)” on page 403.

You do not have to add flow pages to the document object in the Library as long as the flow page is specified in the **Page** box on the properties of the page that contains the content that will overflow. However, if you do place the flow page in the document, it must be placed directly after the overflowing page and be set up as a flow page (in the Edit Panel).

11.1.4 Adding a Flow Frame to a Flow Page

You can add one or more flow frames to a flow page in order to accommodate multiple flowing objects. Because flow frames can be as large or small as you want them to be, you have the flexibility to design flow that fits seamlessly with the other parts of your design. For example, you can add two flow frames side-by-side to create flow that appears like the columns in a newspaper or magazine.

To add a flow frame to a flow page:

1. In Designer, open the page on which you want overflow content to appear.
2. On the Drawing Objects toolbar, click .
3. Select **Content flow area** and click **OK**.
4. If you want to use a flow target to associate a specific object with the flow frame, use the **Flow name** option. Otherwise, skip to step 5.

- a. Click .
- b. Select the flow target that you want to use to associate the content with the flow frame.
- c. Click **OK**.

The **Select Flow Target** dialog box closes and the flow target that you selected appears in the **Flow name** option.

For more information about flow targets, see “[Designating Content to Flow to a Specific Frame](#)” on page 404.

5. Use the **Borders** options to add optional lines around the flow frame:
 - a. Click the edges of the box to specify the sides on which you want the border to appear.
 - b. Right-click the box.
 - c. Select the line style, color, and weight. Dotted line styles might appear differently between Designer and your output.
 - d. Click **OK**.
6. Use the **Adjust top if overlapped** options to allow the size of the frame to adjust in order to ensure that objects around a frame that grow and move do not cover the frame's design location:
 - a. Select the **Adjust top if overlapped** check box.
 - b. In the **Overlap margin** box, enter the amount of space to leave between the overlap and the beginning of the first item in the frame.
 - c. In the **Minimum height** box, enter the smallest size the frame that can be when filled with objects.
7. Click **OK**.

The **Insert Frame** dialog box closes and a flow frame appears on the page. A number appears in the center of the frame to indicate the order in which the frame will be filled in relation to the other frames on the page.

8. Resize the frame as needed. The flow frame must be as wide or wider than the object that flows to it.

11.1.5 Changing and Verifying the Flow Order of Content

To customize the flow order of content, complete the following tasks as needed:

- “[Changing the Order in Which Flow Frames Are Filled with Content](#)” below
- “[Verifying the Content Flow Order Before Processing](#)” on the next page

Changing the Order in Which Flow Frames Are Filled with Content

By default, the order in which you add flow frames to a page is the order in which they will receive content. However, the order in which you design flow frames might not be the order in which you want them to be filled so you can change the fill order without recreating them. If you change the order of one frame, the order of the other frames is updated automatically. The fill order of frames applies only to frames of the same type (for example, the fill order for content frames is separate from the fill order for message frames).

Flow frames are filled before message frames.

Note: The **Frame fill method** setting for the document that contains flowing content also affects the way flow frames are filled. This option is set on the **Frame fill method** drop-down list on the **Content** tab of the system settings.

For more information about the **Frame fill method** drop-down list, see *System Administration* in the Exstream Design and Production documentation.

To change the order in which flow frames are filled with content:

1. In Designer, select the flow frame for which you want to change the fill order.
 2. Click .
- The **Frame Properties** dialog box opens.
3. In the **Fill order** box, enter the number that represents the order in which the frame is filled.
 4. Click **OK**.

The **Frame Properties** dialog box closes.

Verifying the Content Flow Order Before Processing

Because you can set up complex flow patterns that can span multiple flow frames on multiple pages, it can be difficult to verify whether the flow of the content is correct before processing the application. You can use the flow list feature in Design Manager to see a list of all of the flow pages that will contain overflow content from a specific page.

To verify content flow order before processing:

1. In Design Manager, from the Library, drag the page that contains the content that will flow to the Property Panel.
2. Click the **Flow** tab.
3. In the **Flow list** area, click .

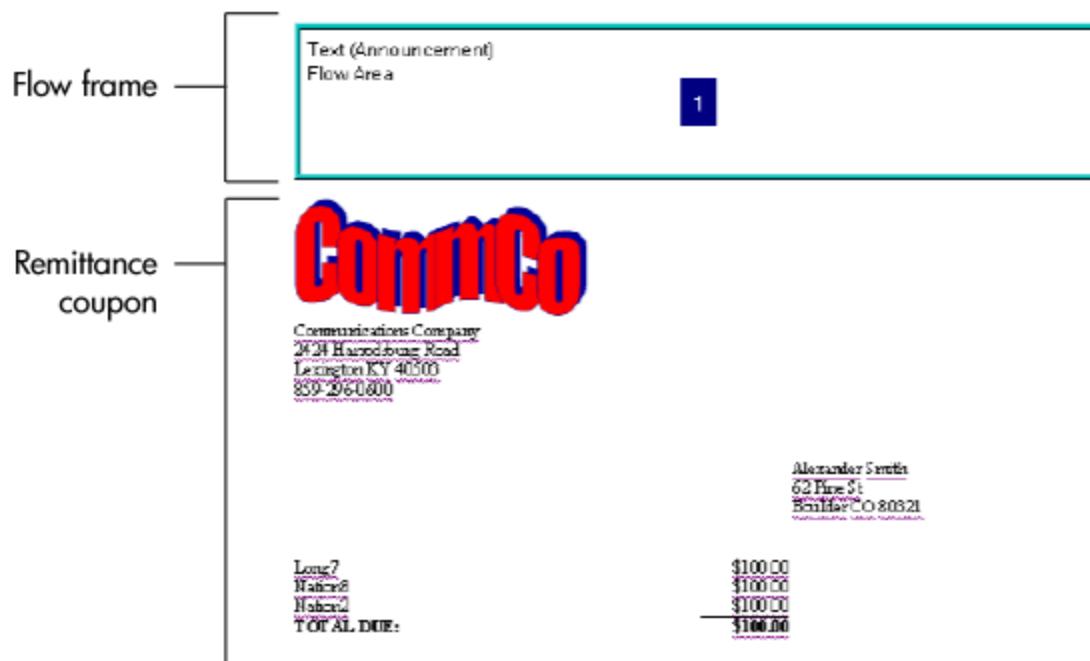
The **Flow list** box is populated with a list of pages that contains the overflow from the current page. Pages that are followed by ++ are set to **Copy this page** and will reproduce as many times as needed to contain all of the overflow.

Note: A duplex page can flow to the back of itself if there is a frame on the reverse side.

11.1.6 Including Content After Flowing Objects

If your design includes a text box or table that must always appear at the end of a document after all of the pages have flowed, you can place it on a special type of page called a last flow page. Last flow pages can contain a flow frame that accepts overflow from text boxes, tables, or other flow frames. They can also contain any type of content that you must include at the end of the document, such as a remittance coupon or a summary of the charges explained in the previous pages. For example, in the following illustration, the table that lists the phone charges associated with the account can flow to the flow area. Below the table flow frame, a remittance coupon is included that customers can send with their payment.

Example of last flow page



There are two types of last flow pages that you can use in your design:

- **Last flow page in document (if flows)**—The page is included in the document only if there is enough flow to warrant its use. If no content flows to it, the page (and the static content on it) do not appear in the output. Exstream determines the height and width of the flow frame on the last page and adjusts the flow to place items on the last page that fit in the frame.
- **Last flow page (even if no flow)**—This page is always included in the document, regardless of whether content flows to it. If no content flows to the page, excess white space might be included in the document.

Because last flow pages are designed for a very specific use in your design, there are several limitations and behaviors to keep in mind when you use them:

- You cannot use a last flow page with sections and paragraphs.
- You can include only one last flow page per document. If you include multiple pages specified as last flow pages, only the first page is used.
- A last flow page does not accept flow from multiple frames. If a flow page contains two or more flow frames that accept overflow from different objects, only the flow frame with the lowest fill order can flow the last flow page.
- You cannot place relative or flowing content on a last flow page.
- The flow frame on the last flow page must be as tall or taller than the flow frame that flows to it.

To include content after flowing objects:

1. In Design Manager, from the Library, drag the document containing the page to the Edit Panel.

A graphical representation of the document appears in the Edit Panel.

2. Double-click the name of the page you want to designate as a last flow frame in the right column.

The **Document Page Properties** dialog box opens.

3. From the **Position of page in document** drop-down list, select one of the following options:

- **Last Flow Page in Document (if flows)**
- **Last Flow Page (even if no flow)**

4. Click **OK**.

The **Document Page Properties** dialog box closes.

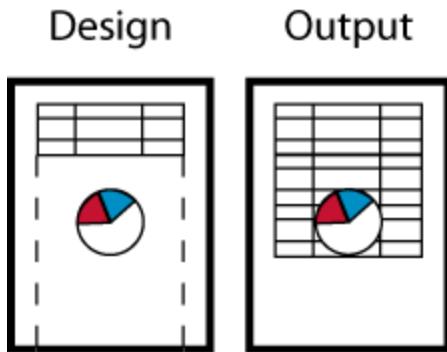
5. In the Library, move the last flow page so it is the last page in the document.

6. Use the Designer tools to add the content that must appear after the flowing objects. For example, you can include you can use text boxes and components to design a coupon.

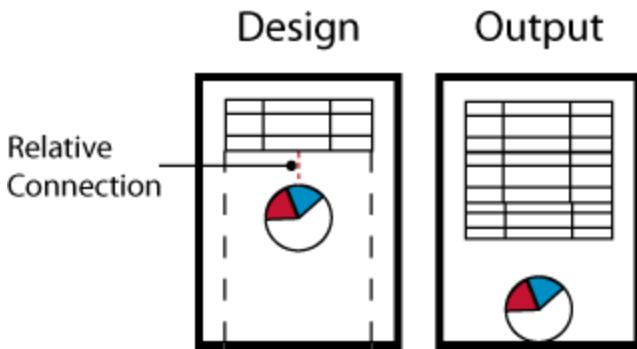
11.2 Using Relativity to Prevent Growing and Moving Objects From Overlapping Other Objects

Many objects in Exstream can grow and/or move as content is added to a design at run time. The relativity features in Designer allow you to make the position of a specific object relative to another object and prevent growing objects from overlapping other objects. That way, if one object grows or moves, the relative object maintains a specified distance to and from the object. Relativity also lets you ensure that related information and objects are kept together as they move on a page. For example, if you include a chart that illustrates some of the data in a previous table, you can make the chart relative to the table so that if the table is placed lower on the page than in the original design, the chart still appears next to the related text. This concept is illustrated in the following graphics.

Example without use of relativity



Example with use of relativity



When you use relativity in a design, during composition, the object to which other objects are relative (the parent object) is drawn first. Then, the engine places the object to which that are relative to it. For example, in the previous illustration, the table is placed first, and then the chart is drawn. If you use relativity in conjunction with flow, objects that are relative to objects that flow or move stay with the object as it moves.

Because designs in Exstream are complex and white space might be at a premium in your design, you can make an object move in specific ways when the object to which it is relative grows or moves. The following table describes the ways objects can move in relation to one another.

Ways relative objects can move

If the object has this relative position	It moves this way
Relative to the bottom of another object	Up or down if the bottom of the anchor object moves
Relative to the top of another object	Up or down if the top of the anchor object moves
Relative to the right side of an object	Up or down if the top moves
Relative to the left side of an object	Up or down if the top moves

Relative objects flow together as a group and must exist on the same design layer.

To use relativity in a design, complete the following tasks as needed:

- “[Making an Object Relative to Other Objects](#)” below
- “[Specifying Objects That Are Ignored for Relativity Settings](#)” on the next page
- “[Moving and Resizing Relative Objects in the Design](#)” on page 417
- “[Viewing the Relationship Between Relative Objects](#)” on page 417

11.2.1 Making an Object Relative to Other Objects

Objects that are relative to other objects can move only up or down with the object. They do not move left to right.

1. In Designer, select the object that you want to set to move in relation to other growing objects.
 2. Click .
- The **<Object> Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
 4. From the **Move relative to the object** drop-down list, select how the object moves in relation to a growing object:

To	Do this
Allow the object to move if the object above it moves or grows	Select Above .
Allow the object to move to a different page if the object above it moves or grows, but force the object to appear in the same position on the new page	a. Select Above, at fixed page position . b. In the Y position box, enter the vertical position for the top edge of the object.
Allow the object to move if the object to the left of it moves	Select To the left .
Allow the object to move if the object to the right of it moves	Select To the right .

If you are defining the relativity properties of a message frame, you can also select from the additional options:

- **Above, shrink to fit page**—The frame moves when the object above it moves, but the frame shrinks to fit on the page. Enter the smallest size the frame can be in the **Minimum size** box.
- **Above, grow/shrink to fit page**—The frame moves when the object above it moves, and grows or shrinks so it fits on the page. Enter the smallest size the frame can be in

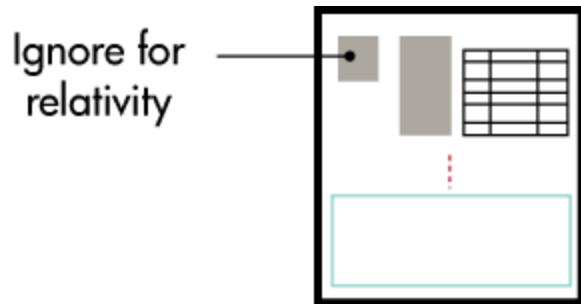
the **Minimum size** box.

- **Left, grow to bottom**—The frame moves with the object to the left and grows until it reaches the bottom of the page. The frame does not shrink.
- **Right, grow to bottom**—The frame moves with the object to the right and grows until it reaches the bottom of the page. The frame does not shrink.

11.2.2 Specifying Objects That Are Ignored for Relativity Settings

Objects in complex designs sometimes affect relative objects unexpectedly or when you do not want them to do so. For example, suppose that you set a wide object to be relative to above. If several smaller objects appear on the page above the wide object, the wide object is affected by all of those objects. You might want the relativity settings to be ignored for one of the objects so that its growth does not affect the position of the wide object below it.

Object ignored for relativity



To specify an object that is ignored for relativity:

1. In Designer, select the object that you want to be ignored when relativity movement is calculated.
2. Click .
- The **<Object> Properties** dialog box opens.
3. Click the **Dynamic Size and Placement** tab.
4. From the **Ignore for relative flow** drop-down list, select one of the following options:
 - **No**—Other objects can move relative to this object if it grows, shrinks, or disappears.
 - **Yes**—This object does not affect the position of other objects.
 - **Yes, breaks flow on page**—This object does not affect the position of other objects,

but it causes a page break. Objects above it break at a fixed margin above this object and flow to another page.

5. Click **OK**.

The **<Object> Properties** dialog box closes.

11.2.3 Moving and Resizing Relative Objects in the Design

If you have set objects to be relative to each other, you can use Designer tools to move or resize the objects on the design while maintaining their relative positions.

To move relative objects in the design:

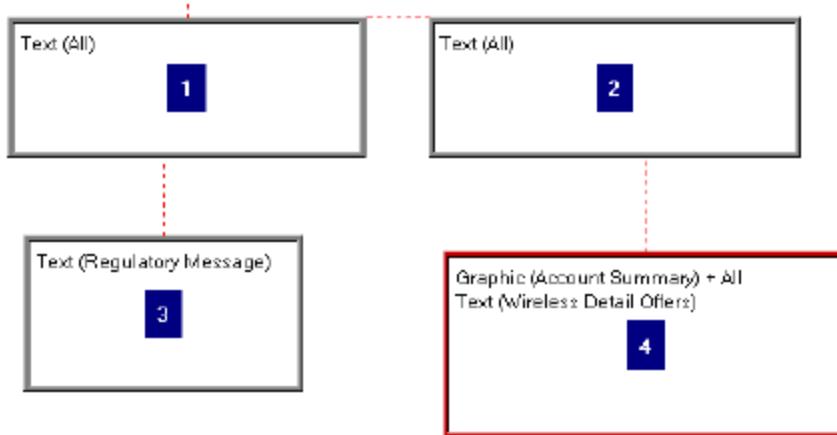
1. In Designer, open the page that contains the relative objects you want to move.
2. In the Flow Management toolbar, click .
3. Move or resize objects as needed.

Any objects relative to the changed object maintain their relative position.

11.2.4 Viewing the Relationship Between Relative Objects

You can use Designer tools to see, at a glance, the relativity relationships between objects on a page. To view the relationship between relative objects, click  on the Flow Management toolbar in Designer. The relationships are represented with red dashed lines to indicate which objects are relative to one another.

Relativity relationships in Designer



Chapter 12: Adding Reference Features to a Design

The design tools of Exstream provide many reference features that you can use to make a customer document easy to read and navigate. Reference features are often used in long documents to help readers navigate. For example, cross-references can help customers find related information and a table of contents provides an overview of the information contained in the document.

This chapter discusses the following topics:

- “[Adding Page Numbers](#)” below
- “[Adding a Table of Contents](#)” on page 421
- “[Adding an Index](#)” on page 429
- “[Adding cross-references](#)” on page 436
- “[Adding Hyperlinks](#)” on page 440
- “[Adding Footnotes](#)” on page 453
- “[Adding Headers and Footers](#)” on page 458

12.1 Adding Page Numbers

By default, page numbers are not included on pages. You can add page numbers to make it easy for customers to find their location in a document, or to locate specific information referenced in a table of contents or index. Exstream provides system variables that you can use to automatically include page numbers in a design. You can format page numbers so that they support the organization of the document (for example, you can use a folio numbering scheme). Finally, because the documents you create for customers might be complex, you can choose to restart page numbers for each document within a customer, rather than allowing page numbering to continue sequentially through all the documents.

The easiest way to add page numbers to a design is to insert one of the Exstream page numbering system variables. These variables are designed to automatically include page numbers when the engine runs and to update at the correct time.

For information about Exstream page numbering system variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To add page numbers:

1. In Designer, place the cursor in the location where you want to insert a page number. For example, you might design a text box at the bottom of a page to contain page numbers.
2. On the Standard toolbar, click  .
The **Variable palette** opens.
3. Double-click the variable that you want to use to provide the page number, such as 'SYS_PagelnDocument'.

The variable is inserted on the page.

After you add a page number variable, you can format it as needed. In addition, consider whether the page numbers should restart for a particular document.

For information about formatting page number variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

For information about restarting page numbering, see "[About Restarting Page Numbering](#)" below.

12.1.1 About Restarting Page Numbering

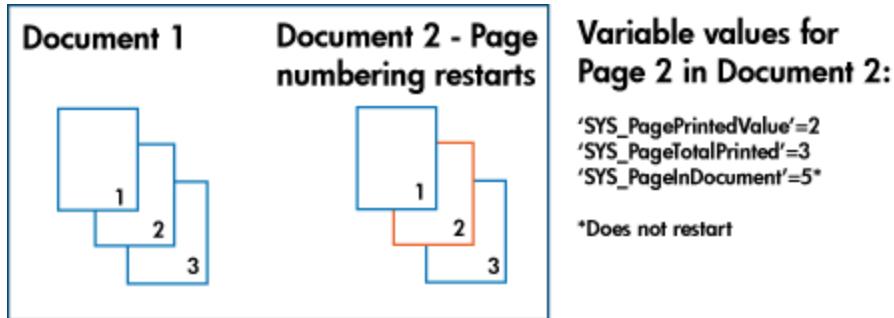
Page numbering variables fall into one of two categories:

- **Variables that can restart a new document**—While most page numbering variables increase sequentially until the end of a customer is reached, Exstream does provide a few variables that can reset at the beginning of a document. For example, if a customer's insurance packet is householded for a family and each family member's statement is in a separate document, you might choose to use page numbering variables that restart. That way, each family member's statement is self-contained (for example, a father's statement has pages 1-15 and a mother's statement has pages 1-12). You control if variables restart at a document level (for example, they might reset only for documents 1 and 5 for a customer).
- **Variables that do not restart (until a new customer)**—Most of the page numbering variables available to you do not restart at the beginning of each document. That is, these variables produce numbering that increases sequentially until the next customer is reached.

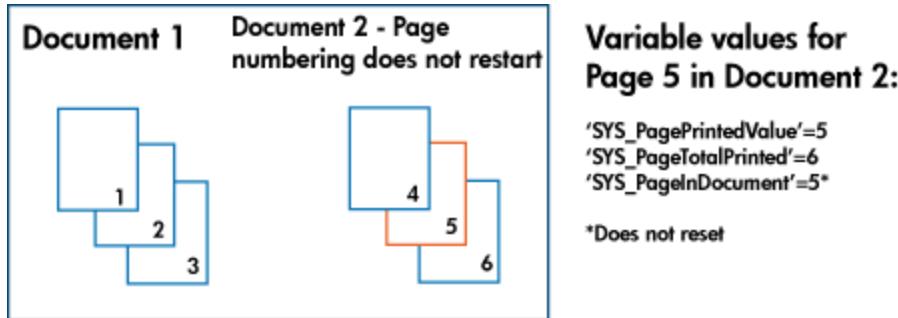
For a complete list of the variables that can restart, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

The following example illustrates the different ways pages are numbered, depending on whether the page numbering restarts for a document.

Example of page numbering that restarts



Example of page numbering that does not restart



12.2 Adding a Table of Contents

A table of contents makes it easy for customers to see, at a glance, the content contained in a document and the page number where the content is located. If you create certain types of electronic output, you can also make items in the table of contents hyperlinks so customers can easily "jump" to specific areas in a document. You must license the Publication Support module in order to add a table of contents to a design.

Additionally, if you are generating PDF or PDF/A output that will be read by screen readers or text-to-speech converters, you can specify how a table of contents is handled by those accessibility tools.

For information about specifying the accessibility properties of a table of contents, see ["Optimizing a Design for PDF Accessibility Tools" on page 554](#).

You can create a table of contents that includes all the documents for a customer, or you can create a table of contents that is specific to one document within a customer. For example, if all of a customer's documents are chronological and will be read from the first document to the last, you might choose to design a table of contents that includes all the customer's documents. On the other hand, if one of the customer's documents is very complex and will be referenced by the customer out of context of the other documents, you might choose to create a table of contents for only that document.

To create a table of contents, you must complete following tasks:

1. “[Creating Table of Contents Entries](#)” below
2. “[Adding a Table of Contents Placeholder to a Page](#)” on the next page
3. “[Formatting a Table of Contents](#)” on page 424
4. “[Accommodating Table of Contents Overflow](#)” on page 427

12.2.1 Creating Table of Contents Entries

When you create a table of contents, you specify the text that you want to appear for each table of contents entry. Tables of contents typically include major headings, sub-headings, and sometimes the titles of tables or graphics. Designer gives you the flexibility to include any text that you want in the table of contents. As you design a page, you specify the text that you want to appear in the table of contents, and when the engine runs, it generates a table of contents made up of the entries you specified. You can place only one table of contents marker per paragraph or table cell.

To specify a table of contents entry:

1. In Designer, highlight the text that you want to include as a table of contents entry.
2. Right-click the selected text and select **Paragraph > Mark TOC Entry**.

The **TOC Entry Properties** dialog box opens.

3. From the **Entry** drop-down list, specify the hierarchical level of the entry in the table of contents. Each level is indented from the previous level, so you can use a higher level (lower numbers) to distinguish main entries and a lower level (higher numbers) to distinguish sub-entries within a main entry.
4. From the **Text source** drop-down list, select the text that you want to appear in the table of contents:

To	Do this
Use the currently selected text as the table of contents entry. (The text that will be used appears in the box below.)	Select Use paragraph .

To	Do this
Use a variable to provide unique text for the table of contents entry	<ol style="list-style-type: none">Select Use variable. The box below changes so you can specify a variable.Click . The Select Variable dialog box opens.Select the variable you want to use to provide the table of contents entry and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.
Specify the text you want to appear as the table of contents entry	<ol style="list-style-type: none">Select Specify text.In the box below, enter the text that you want to use.

5. Click **OK**.

The **TOC Entry Properties** dialog box closes and a purple "T" appears next to the text to indicate that a table of contents marker is located there.

When the table of contents is generated, table of contents entries at the same level are arranged in the table of contents in the same order as the objects were drawn in the design. If table of contents markers appear on different design layers, they might appear in an unexpected order in the table of contents (for example, a marker in an object at the bottom of a page might appear before a marker in an object at the top of the page), depending on the order in which you placed objects on the page.

Note: The placement order of table of contents entries has two "virtual layers," with one layer for the static objects and another layer for the dynamic objects. To maintain the order in your table of contents, make sure that all entries are static or all are dynamic so that they are drawn at the same time. If any entry has rules, it is best to put rules on all the entries.

12.2.2 Adding a Table of Contents Placeholder to a Page

You can specify the area of a page in which you want the table of contents to be placed. This area can be located on a page specifically designed to contain the table of contents, or on a page that contains other content. For example, if you want to include a page with a "Table of Contents" title, you can place the table of contents below the title. When you add a table of contents placeholder to a page, a sample placeholder appears on the page. The table of contents is generated and placed on the page when the engine runs.

To add a table of contents placeholder to a page:

1. In Designer, on the Drawing Objects toolbar, click . Your pointer changes to a drawing cursor.
2. Click and drag the cursor in the area in which you want the table of contents to appear. A placeholder for the table of contents is placed on the page and the **TOC Properties** dialog box opens.
3. From the **Type** drop-down list, select one of the following options to define what the table of contents includes:
 - **Complete Customer**—Includes all documents for each customer
 - **Sub Document**—Includes only the documents in which the table of contents is located
4. If the table of contents can exceed the space provided by the placeholder and will flow to another area, perform the following additional steps:
 - a. Click the **Dynamic Size and Placement** tab.
 - b. Select the **Can split and flow** check box.
 - c. Set up a frame to accommodate the table of contents overflow.
For information about setting up a frame for table of contents overflow, see [“Accommodating Table of Contents Overflow” on page 427](#).
5. Click **OK** to accept the default formatting. You can change the formatting later, if necessary.
The **TOC Properties** dialog box closes.

Note: The other options on the **TOC Properties** dialog box let you change the formatting of the table of contents.

For information about changing the formatting of a table of contents, see [“Formatting a Table of Contents” below](#).

12.2.3 Formatting a Table of Contents

Tables of contents have many formatting options. Use the following table to apply the appropriate formatting to the table of contents:

To	Do this
Apply textual formatting to the table of contents entries	Place the cursor in the level you want to format and use the font properties to format each level. You can format each level of the table of contents in the same way as other text can be formatted.

To	Do this
Change the amount of space by which the levels are indented	<ol style="list-style-type: none">1. On the table of contents placeholder, click  . The TOC Properties dialog box opens.2. In the Tab size box, enter the amount of space the levels are indented.3. Click OK. The TOC Properties dialog box closes.
Change the space between table of contents entries (For example, you can insert extra space above a level 1 entry to separate it from the previous group, or you can reduce the space between a level and a sublevel to keep the entries together.)	<ol style="list-style-type: none">1. On the table of contents placeholder, double-click the entry that you want to offset from the other entries. The Text Properties dialog box opens.2. In the Space above box, enter the amount of space by which you want the entry to be separated from the other entries.3. Click OK. The Text Properties dialog box closes.
Create hyperlinks (for PDF or HTML output only)	<ol style="list-style-type: none">1. On the table of contents placeholder, click  . The TOC Properties dialog box opens.2. Select the Hyperlink check box.3. Click OK. The TOC Properties dialog box closes.

To	Do this
Define the numbering system used when multiple documents contain a table of contents	<ol style="list-style-type: none"> 1. In Design Manager, from the Library, drag the document that contains the table of contents to the Property Panel. 2. Click the Composition tab. 3. In the Table of contents area, from the Document drop-down list, select the numbering system you want to use for the document. For example, if you want the table of contents entry to appear as "3.vi" (to indicate the sixth page in the third document), select 1, 2, 3. 4. If you selected Use Prefix from the Document drop-down list, enter a static prefix (up to 30 characters) in the Prefix box. For example, if you want the table of contents entry to appear as "Yearly Charges Statement 3.vi," enter Yearly Charges Statement in the Prefix box. 5. From the Separator drop-down list, select the character that appears between the document and page numbers. For example, if you want the table of contents entry to appear as "3.vi," select .. 6. From the Page drop-down list, select a numbering system to be used for the pages in the table of contents. For example, if you want the table of contents entry to appear as "3.vi," select i, ii, iii. <p>Table of contents example</p> <p>The screenshot shows the 'Table of contents' dialog box on the left and its resulting table of contents on the right. The dialog box has several dropdown menus: 'Document' set to '1, 2, 3,' 'Separator' set to '-' (dash), 'Page' set to '1, 2, 3,' and 'Sample' set to '12-4.' To the right, a table of contents is generated with entries: Your Agent..... 1-2, Contact..... 1-2, Policies..... 2-3, Supplementals... 2-7, and Exclusions..... 3-10.</p>
Force entries to wrap if the content of the entry is longer than one line (otherwise, text is truncated)	<ol style="list-style-type: none"> 1. On the table of contents placeholder, click . 2. The TOC Properties dialog box opens. Select the Wrap text check box. 3. Click OK. The TOC Properties dialog box closes.

To	Do this
Format the way page numbers are justified in the table of contents	<ol style="list-style-type: none">1. On the table of contents placeholder, click  . The TOC Properties dialog box opens.2. From the Page number position drop-down list, select one of the following options to control the way page numbers appear:<ul style="list-style-type: none">• Right column—Page numbers appear in a separate column to the right of the table.• Adjacent to text—Page numbers follow the text.• None—Page numbers do not appear in the table of contents.3. If you selected Right column, enter the width of the second column containing the page numbers in the Column width box. The first column automatically adjusts to accommodate the second column.4. If you selected Right column, select the Leader string check box to include a leader string that connects the entries and page numbers. Then select the leader character from the drop-down list. If you clear the Leader string check box, the area between the titles and page numbers is filled with white space.5. Click OK. The TOC Properties dialog box closes.
Specify how many hierarchical levels are included in the table of contents	<ol style="list-style-type: none">1. On the table of contents placeholder, click  . The TOC Properties dialog box opens.2. From the Levels to include drop-down list, select the number of levels to include. If you select Auto, all hierarchical levels specified in the document are included.3. Click OK. The TOC Properties dialog box closes.

12.2.4 Accommodating Table of Contents Overflow

The table of contents is inserted on the first page with a table of contents placeholder. If it flows beyond the area where it begins, you must set up a frame that can accept table of contents overflow.

To create a flow frame to accommodate table of contents overflow:

1. In Designer, open the page on which you want to accommodate the table of contents overflow.
2. On the Drawing Objects toolbar, click  .
The **New Frame** dialog box opens.
3. Select the **Table of contents and Index** radio button.
4. Click **OK**.

The **Insert Frame** dialog box opens.

5. To include borders around the table of contents frame, use the **Borders** options.
 - a. Click the areas in the **Borders** box where you want lines to appear. For example, if the table of contents frame will appear in two columns, you might want to include a line on the left of the frame to provide a visual separator between the two columns.
 - b. Click the **Borders** box to define how the borders appear.
6. Use the **Adjust top if overlapped** options to define how the frame behaves if the frame's design location becomes overlapped due to objects growing and moving.
 - To hide the contents of the frame if it becomes overlapped, select the **Adjust top if overlapped** check box. If an object overlaps the top of the frame, the frame contents are pushed down the frame.
 - If you select the **Adjust top if overlapped** check box, enter in the **Overlap margin** box the amount of space to leave between the overlap and the beginning of the first item in the frame.
 - If you select the **Adjust top if overlapped** check box, enter in the **Minimum height** box the smallest size the frame can be when filled with objects.
7. Click **OK**.

The **Insert Frame** dialog box closes and a blue flow frame appears on the page to indicate table of content or index content that can flow to that area.

Tip: If you want to create a two-column table of contents, adjust the placeholder frame so that it appears on only one half of the page. Then, place the flow frame on the second half of the page.

8. If your design contains multiple table of contents flow frames, specify the frame to which the table of contents should flow:
 - a. Open the page that contains the table of contents in the Property Panel.
 - b. Click the **Flow** tab.
 - c. From the **Destination of overflow from this page** drop-down list, select **Flow to specified page** and specify the page containing the table of contents flow frame.

For more information about setting up flow frames, see “[Accommodating Objects That Flow](#)” on [page 401](#).

12.3 Adding an Index

Indexes are reference tools that appear at the end of a document or set of documents that are sent to a customer. When you add an index to a design, Designer creates an index for each customer that is specific to the document or documents the customer receives. Customers can use indexes to quickly find where information relating to keywords is located in the document or set of documents that they receive. For example, suppose a customer is looking for information about how to submit a change of address form. The customer can look up "change of address" in the index, rather than looking through all the pages in their document to find the information. When you add an index to a design, you specify the entries you want to appear in the index. Designer allows you to make any text an index entry. Indexes typically include keywords or topics found in the document or documents, as well as alternate search terms for which users might search.

If you are generating PDF or PDF/A output that will be read by screen readers or text-to-speech converters, you can specify how an index is handled by those accessibility tools.

For information about specifying the accessibility properties of an index, see ["Optimizing a Design for PDF Accessibility Tools" on page 554](#).

You must have licensed the Publication Support module in order to add an index to a design.

To create an index, you must complete the following tasks:

- ["Creating Index Entries" below](#)
- ["Adding an Index Placeholder to a Page" on page 431](#)
- ["Formatting an Index" on page 432](#)
- ["Accommodating Index Overflow" on page 435](#)

12.3.1 Creating Index Entries

When you create an index, you can include any text you want as an entry. You specify the text in the design that you want to appear in the index, and when the engine runs, it generates an index made up of the entries you specified.

To specify an index entry:

1. In Designer, place the cursor at the point where you want the index entry to be inserted.
2. Right-click and select **Paragraph > Mark Index Entries**.

The **Index Entry Properties** dialog box opens. The text from the current paragraph appears in the **Index entries** box and it is set up as a level one index entry automatically.

You can use the following steps to modify the index entry. Otherwise, you can skip to step 7.

3. Use the **Heading** area to specify how the index entries are grouped. By default, the first letter of the entries is used as a heading above the group. In other words, all the index entries that start with the letter "A" appear under an "A" heading. Any entry that begins with a non-alpha character is listed under its own heading. If you want to specify a custom heading, select the **Place this entry under a custom heading** and complete one of the tasks in the following table.

To	Do this
Specify the custom text to use as the heading	<ol style="list-style-type: none">a. From the drop-down list, select Specify text.b. In the adjacent box, enter the text you want to use.
Use a variable to provide the text for the heading	<ol style="list-style-type: none">a. From the drop-down list, select Use variable.b. In the adjacent box, click  . The Select Variable dialog box opens.c. Select the variable you want to use to provide the index headings and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.
Use the current paragraph text as the heading	From the drop-down list, select Use paragraph .

4. Use the **Entry** area to define the hierarchy for the index entry. You can enter up to three levels per entry. Each level is indented under the one above it. Therefore, level one is the main entry, as sub-entry is level two. To set up the hierarchy of the entry, complete one of the tasks in the following table:

To	Do this
Provide custom text to use as the entry	<ol style="list-style-type: none">a. From the appropriate level drop-down list, select Specify text.b. In the adjacent box, enter the text you want to use.
Use a variable to provide the text for the entry	<ol style="list-style-type: none">a. From the appropriate level drop-down list, select Use variable.b. In the adjacent drop-down list, click  . The Select Variable dialog box opens.c. Select the variable you want to use to provide the index headings and click OK. The Select Variable dialog box closes and the variable you selected appears in the box.
Use the current paragraph as the entry	From the appropriate level drop-down list, select Use paragraph .

5. To add another index entry at the current cursor location, click  .
A blank index entry appears in the **Index entries** box.
6. Repeat step 3 through step 4 to define the index entry.
7. When you have added all the index entries you need at the current cursor location, click **OK**.

The **Index Entry Properties** dialog box closes and a purple "I" appears next to the text to indicate that an index marker is located there.

12.3.2 Adding an Index Placeholder to a Page

You use an index placeholder to specify the area of a page in which you want the index to be placed. For example, if you want to include a page with an "Index" title, you can place the index placeholder below the title. When you add an index placeholder to a page, a sample placeholder appears on the page so you can easily adjust the size and placement of the index. The index is generated and placed on the page when the engine runs.

To add an index placeholder to a page:

1. In Designer, on the Drawing Objects toolbar, click  .
Your pointer changes to a drawing cursor.
2. Click and drag the cursor to draw the area in which you want the index to appear.
A placeholder for the index is placed on the page and the **Index Properties** dialog box opens.
3. If the index can exceed the space provided by the placeholder and will flow to another page, complete these additional steps:
 - a. Click the **Dynamic Size and Placement** tab.
 - b. Select the **Can split and flow** check box.
 - c. Set up a frame to accommodate the index overflow.
For information about setting up a frame for index overflow, see "["Accommodating Index Overflow" on page 435](#)".
4. Click **OK** to accept the default formatting. You can change the formatting later.

The **Index Properties** dialog box closes.

For information about changing the formatting of an index, see "["Formatting an Index" on the next page](#)".

12.3.3 Formatting an Index

Designer gives you the flexibility to format different components of an index separately. To format an index, complete the following tasks as needed:

- “Formatting Index Entries” below
- “Formatting Index Headings” on the next page
- “Formatting Index Page Numbers” on page 434

Formatting Index Entries

1. In Designer, select the index placeholder and click .

The **Index Properties** dialog box opens.

2. Click the **Index** tab.
3. In the **Entries** area, perform as many of the following tasks as needed to format the index entries:

To	Do this
Specify the number of levels that can be included in the entry hierarchy	From the Levels to include drop-down list, select which level entries can be included. If you select Auto , all of the specified levels are included.
Adjust the size of the indentation between the levels	In the Level indent box, enter the amount of space you want to appear between the levels of the index entries.
Specify the order in which entries appear under each heading.	From the Entry order drop-down list, select one of the following options: <ul style="list-style-type: none">• Alphabetical—Entries are arranged alphabetically.• Page—Entries are arranged by page (and therefore might not appear in alphabetical order).• Current locale—Entries are arranged according to the current locale settings. This option allows you to take into account language-specific characters, such as a tilde or umlaut, during the ordering.
Allow index entries that exceed a line to wrap to the next line	Select the Wrap entry text check box. If you clear this check box, entries that are longer than one line are truncated.

4. Click **OK**.

The **Index Properties** dialog box closes.

5. To change the textual formatting of the index entries, place the cursor in the level you want to format and use the font properties to format each level of the index.

Formatting Index Headings

1. In Designer, select the index placeholder and click  .
The **Index Properties** dialog box opens.
2. Click the **Index** tab.
3. In the **Headings** area, use the following table to adjust the formatting of the index headings:

To	Do this
Include an alphabetic character as the heading before each section	Select the Display alphabetic headings check box.
Include only custom headings	<ol style="list-style-type: none">a. Select the Display custom headings check box and clear the Display alphabetic headings check box.b. From the Heading order drop-down list, specify the order in which the headings appear:<ul style="list-style-type: none">• Alphabetical—Entries are arranged alphabetically.• Page—Entries are arranged by page (and therefore might not appear in alphabetical order).• Current locale—Entries are arranged according to the current locale settings. This option lets you take into account language-specific characters, such as a tilde or umlaut, during the ordering.
Include custom headings and alphabetic character headings	<ol style="list-style-type: none">a. Select the Display alphabetic headings check box and the Display custom headings check box.b. From the Heading position drop-down list, select the area in the index where the custom headings are placed. Select one of the following options:<ul style="list-style-type: none">• Before alpha—The custom headings are placed before the first alphabetical heading• After alpha—The custom headings are placed after the last alphabetical heading• Inline—The custom headings appear within the alphabetical headings. For example, if the custom heading is "Exclusions," it appears after the alphabetical heading "E" and before the alphabetical heading "F."c. From the Heading order drop-down list, specify the order in which the headings appear:<ul style="list-style-type: none">• Alphabetical—Entries are arranged alphabetically.• Page—Entries are arranged by page (and therefore might not appear in alphabetical order).• Current locale—Entries are arranged according to the current local settings. This option allows you to take into account language-specific characters, such as a tilde or umlaut, during the ordering.

To	Do this
Include the index entries without a heading	Clear the Display alphabetic headings check box and the Display custom headings check box. If you choose this method, entries appear in alphabetical, page, or current local order, based on your selections in the Entry area.
Specify how the index appears when entries that begin with a non-alphabetic character are included	<ol style="list-style-type: none">Select the Use special headings for non-alpha entries check box.In the Heading text box, enter heading text to use for non-alphabetic entries.From the Heading position drop-down list, select the location in the index where non-alphabetic entries are placed.

4. Click **OK**.

The **Index Properties** dialog box closes.

Formatting Index Page Numbers

1. In Designer, select the index placeholder and click .
2. Click the **Index** tab.
3. In the **Page numbers** area, specify how page numbers appear in the index.
4. To include the page numbers next to the index entries, select the **Show page number of entries** check box.
5. From the **Position** drop-down list, select one of the following options to control where the page numbers appear in relation to the index entry:
 - **Append to text**—Page numbers follow the text.
 - **Right column**—Page numbers appear in a separate column to the right of the index.
6. If you selected **Right column**, define how the column appears:
 - a. In the **Column width** box, enter the width of the column.
 - b. From the **Column alignment** drop-down list, select how page numbers align in the column.
 - c. From the **Leader** drop-down list, select the type of leader dots that appear between the index entry and the page number.
7. From the **Duplicate entries** drop-down list, select one of the following options to specify how multiple occurrences of the same index entry are handled:

- **Show first page**—Show only the first page number.
 - **Show every page**—Show every page number.
8. Click **OK**.

The **Index Properties** dialog box closes.

12.3.4 Accommodating Index Overflow

The index is inserted on the first page with an index placeholder. If it flows beyond the area where it begins, you must set up a frame that can accept index overflow.

To create a flow frame to accommodate table of contents overflow:

1. In Designer, open the page on which you want to accommodate the table of contents overflow.
2. On the Drawing Objects toolbar, click  .
The **New Frame** dialog box opens.
3. Select the **Table of contents and Index** radio button.
4. Click **OK**.
The **Insert Frame** dialog box opens.
5. To include borders around the table of contents frame, use the **Borders** options.
 - a. Click the areas in the **Borders** box where you want lines to appear. For example, if the index frame will appear in two columns, you might want to include a line on the left of the frame to provide a visual separator between the two columns.
 - b. Click the **Borders** box to define how the borders appear.
6. Use the **Adjust top if overlapped** options to define how the frame behaves if the frame's design location becomes overlapped due to objects growing and moving.
 - a. Select the **Adjust top if overlapped** check box to hide the contents of the frame if it becomes overlapped. If an object overlaps the top of the frame, the frame contents are pushed down the frame.
 - b. If you select the **Adjust top if overlapped** check box, in the **Overlap margin** box, enter the amount of space to leave between the overlap and the beginning of the first item in the frame.
 - c. If you select the **Adjust top if overlapped** check box, enter in the **Minimum height** box the smallest size the frame can be when filled with objects.
7. Click **OK**.

The **Insert Frame** dialog box closes and a blue flow frame appears on the page to indicate that table of contents or index content that can flow to that area.

Tip: If you want to create a two-column index, adjust the placeholder frame to appear on only one half of the page. Then, place the flow frame on the second half other page.

8. If your design contains multiple index flow frames, specify the frame to which the table of contents should flow:
 - a. Open the page that contains the table of contents in the Property Panel.
 - b. Click the **Flow** tab.
 - c. From the **Destination of overflow from this page** drop-down list, select **Flow to specified page** and specify the page containing the index flow frame.

For more information about setting up flow frames, see “[Accommodating Objects That Flow](#)” on [page 401](#).

12.4 Adding cross-references

You can add cross-references to pages, paragraphs, or messages to help customers navigate to related information located in a different area of a document. For example, if you deliver a complex statement, you can include a cross-reference at certain areas that directs users to an addendum that explains the terminology used in the statement. Cross-references can reference information that occurs in the document before or after the cross-reference text. For example, you could include a cross-reference on page 80 that states:

For more information, see the table on page 123.

or,

For more information, see the table on page 56.

Since the documents you create in Exstream can change at run time, you use cross-reference variables to store references to specific information, regardless of where it appears in the final document. A single crossreference variable can also reference more than one target (for example, For more information, see the tables on pages 56, 80, 123.).

Cross-references have some unique behaviors in Exstream that are different from using cross-reference features in word processing tools. When adding cross-references to a design, keep in mind the following considerations:

- Cross-reference variables automatically have a compose time of late compose. Therefore, you do not need to set objects containing cross-reference variables to late compose. Objects that contain cross-reference variables can be composed at any IO time except **After post-**

sort.

- Objects containing cross-references cannot split. If a cross-reference is in an embedded object, make sure that the message, text box, or paragraph that contains the embedded object is not set to split.
- For best results, place cross-reference variables directly on a page. Placing them within other objects, such as a tagged text variable, might not produce the expected results.

For information about compose times, see *Designing Customer Communications* in the Exstream Design and Production documentation.

To add a cross-reference to a document, you must complete the following tasks:

- “[Creating a Cross-Reference Variable](#)” below
- “[Specifying a Target for the Cross-Reference Variable](#)” on the next page
- “[Inserting the Cross-Reference Variable in the Design](#)” on page 439

You must have licensed the Publication Support module in order to add a cross-reference to a design.

12.4.1 Creating a Cross-Reference Variable

1. In Design Manager, in the Library, right-click the **Data Dictionary** heading and select **New Variable**.
The **Create a New Variable** dialog box opens.
2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. From the **Data type** drop-down list, select **Integer**.
4. Use the **Array** check box to indicate the number of targets the cross-reference will reference:

To	Do this
Include multiple targets for a single cross-reference	Select the Array check box. Note: In the final output, targets are listed in the order in which they are referenced in the finished document.
Include a single target for a cross-reference	Clear the Array check box.

Note: If you include multiple targets and do not select the **Array** check box, the value of the cross-reference variable is the last target in the document you specify using this cross-reference variable.

5. Click **Finish**.

The variable opens in the Property Panel.

6. From the **Source** drop-down list, select **Crossref page number**.
7. From the **Reset time** drop-down list, select an option to control the time when the variable is computed. You typically select **Automatically** to reset the variable at each instance.
8. Complete any additional variable properties as needed.
9. Save the variable.

For more information about defining variable properties, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

12.4.2 Specifying a Target for the Cross-Reference Variable

For each cross-reference variable that you create, you must specify a target for the variable. The target is the destination in the document where you want to direct customers.

To specify a cross-reference target:

1. In Designer, right-click the target location and select **Paragraph > Add Cross-References**.
The **Cross-References Properties** dialog box opens.
2. In the **Specify the variable to set for this cross-reference ID** box, specify the variable for which you want to define a target.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable and click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Specify the variable to set for this cross-reference ID** box.

3. From the **Populate the cross-references variable with** drop-down list, specify the type of destination you are referencing. To select **Paragraph numbers**, you must use automatic numbering for the text, paragraph object, or message.

Note: The numbers are populated exactly as they exist in the output. If two paragraphs are marked as 1, both appear as 1 for the cross-reference.

4. Click **OK**.

The **Cross-References Properties** dialog box closes and a purple "C" appears next to the text to indicate a cross-reference target is located there.

12.4.3 Inserting the Cross-Reference Variable in the Design

You insert the cross-reference variable in the text at the point where you want the cross-reference text to appear. When the engine runs, it inserts the cross-reference target information (for example, the page number) at the location where you place the variable in your design.

To insert a cross-reference variable to your design:

1. In Designer, place the cursor in the location where you want the cross-reference to appear. For example, if you want the cross-reference to appear as For more information, see the tables on page 56, place the cursor after the word "page."
2. On the Standard toolbar, click  .
The **Variable Palette** opens.
3. Double-click the appropriate cross-reference variable.
The cross-reference variable is inserted on your page.
4. Right-click the variable and select **Variable Properties**.
The **Variable Properties** dialog box opens.
5. From the **Array element to use** drop-down list, select **All, blanks**. Cross-reference targets are printed as a number followed by a space. If you select **Automatic** from the **Array element to use** drop-down list, only the first specified target is included.

Tip: You can control the format for array cross-reference variables that contain multiple targets using the options in your locale properties in the **Array variable list format** area.

For information about defining the array variable list format options on the locale settings, see *System Administration* in the Exstream Design and Production documentation.

6. Click **OK**.

When the engine runs, it updates the cross-reference variable with the specified target information.

12.5 Adding Hyperlinks

A hyperlink is a reference feature that you can add to your designs so that customers can easily access additional sources of information, such as websites, other documents, or other locations within the same document. There are two types of hyperlinks that you can add to your designs:

- **External hyperlinks**—This type of link directs customers to content that is located outside of the document, webpage, or email message that the customer is viewing.
- **Internal hyperlinks**—This type of link directs customers to a different location within the document, webpage, or email message that the customer is viewing.

In Designer, you can add external and internal hyperlinks to an object; to selected text or paragraphs of text within an object; or to both an object and selected text or paragraphs within the object. The objects supported for adding hyperlinks are text boxes, static or dynamic images, polygons, predefined shapes, and charts. You can also add hyperlinks to Library components of the supported object types. In Design Manager, you can add external hyperlinks only to paragraph objects and message objects.

When you add a hyperlink to text or to an object, you must also specify the hyperlink destination, which is the place where customers will be directed when they follow the hyperlink. For an external hyperlink, you must specify the URL of an external resource (such as <http://www.opentext.com>) as the hyperlink destination. For an internal hyperlink, you must specify text within the same design as the hyperlink destination, by marking the text with a hyperlink anchor object.

The following table shows the output types that support hyperlinks and indicates the type of hyperlinks supported.

Output type	External hyperlinks	Internal hyperlinks
DLF	✓	
DOCX	✓	
EDGAR HTML	✓	
HTML	✓	✓
HTML (email)	✓	✓
Multi-Channel XML	✓	

Output type	External hyperlinks	Internal hyperlinks
PDF	✓	✓
PDF/A	✓	
PDF/VT	✓	✓
VDX	✓	
XML (composed)	✓	

Depending on the output type, an end user might use different actions to follow a hyperlink address. For information about how an end user follows a hyperlink address in a specific output type, see *Creating Output* in the Exstream Design and Production documentation.

This section discusses the following topics:

- “[Adding External Hyperlinks](#)” below
- “[Adding Internal Hyperlinks](#)” on page 444
- “[Formatting Hyperlinks](#)” on page 451
- “[Removing Hyperlinks From Text or a Design Object](#)” on page 452

12.5.1 Adding External Hyperlinks

You can add an external hyperlink to a design to direct customers to a website, an FTP site, or another file. By using the "mailto:" protocol, you can also use an external hyperlink to enable customers to easily send a message to a specific email address. If you specify an email address as the hyperlink destination URL, and precede it with the mailto: prefix, the hyperlink opens a new message in the end-user’s default mail client and pre-addresses it to the email address that you specified.

When you create an external hyperlink, you can specify a static destination URL to direct all customers to the same location, or you can specify a dynamic destination URL, using a variable, to direct different customers to different locations.

You will use either Designer or Design Manager to add an external hyperlink, depending on the type of object to which you are applying the hyperlink. You must use Designer to add external hyperlinks to text within an object, or to objects that you add directly to a design page in Designer. However, you must use Design Manager to add external hyperlinks to paragraph objects and message objects, which you design separately from the design page.

This section discusses the following topics:

- “[Adding External Hyperlinks to Text, Text Boxes, Images, Shapes, and Charts Using Designer](#)” on the next page

- “[Adding External Hyperlinks to Paragraph or Message Objects Using Design Manager](#)” on the next page

Adding External Hyperlinks to Text, Text Boxes, Images, Shapes, and Charts Using Designer

In Designer, external hyperlinks can be added to text and to objects that are placed on a page.

To add external hyperlinks to text, text boxes, images, shapes, and charts:

1. In Designer, open any page that contains the text or object for which you want to add a hyperlink, and complete one of the following tasks:

To	Do this
Add a hyperlink to an image, polygon, shape, text box, or chart	<ol style="list-style-type: none">Select an image, polygon, shape, text box, or chart.Right-click the selected image, polygon, shape, text box, or chart, and select Object hyperlink properties. The Hyperlink Properties dialog box opens.
Add a hyperlink to selected text	<ol style="list-style-type: none">Highlight the text.Right-click the selected text.Select Add text hyperlink. The Hyperlink Properties dialog box opens.

2. Use the properties on the **Hyperlink Properties** dialog box to define the link:

To	Do this
Provide the same hyperlink for all customers	<ol style="list-style-type: none">Select the Static link radio button.To specify a prefix, select one of the following options from the drop-down list below the Static link radio button:<ul style="list-style-type: none">• http://• https://• mailto:• ftp://In the adjacent box, enter the destination URL.If you want to specify an alternate prefix, such as FILE://, select the blank option from the drop-down list and enter the prefix and destination URL in the adjacent box.

To	Do this
Use a variable to specify the hyperlink that appears for each customer	<ol style="list-style-type: none">a. Select the Dynamic link radio button.b. In the box below, click . The Select Variable dialog box opens.c. Select the variable that provides the hyperlink information and click OK. The Select Variable dialog box closes and the variable appears in the box.

3. If you want the destination to open a new browser window when the customer clicks the link (rather than opening in the same window where customers are viewing the document), select the **Open in new window** check box.
4. Click **OK**.

The **Hyperlink Properties** dialog box closes.

Note: For PDF output, if you apply an external hyperlink to an entire paragraph of text, the margins of the paragraph will also be active as a hyperlink.

Adding External Hyperlinks to Paragraph or Message Objects Using Design Manager

In Design Manager, external hyperlinks can be added to paragraph objects, text message objects, or graphic message objects. Paragraph objects, text message objects, or graphic message objects are used with campaigns to deliver specific content to specific customers.

To add external hyperlinks to paragraph objects, text message objects, or graphic message objects:

1. Open a paragraph object, text message, or graphic message in the Property Panel.
2. Click the **Basic** tab.
3. To select whether the hyperlink address is static or dynamic (controlled by a variable), do one of the following:

To	Do this
Provide the same hyperlink for all customers	<ol style="list-style-type: none">a. From the Link to URL (when included in electronic outputs) drop-down list, select Static.b. In the box below the Link to URL (when included in electronic outputs) drop-down list, enter the destination URL.

To	Do this
Use a variable to specify the hyperlink that appears for each customer	<ol style="list-style-type: none">a. From the Link to URL (when included in electronic outputs) drop-down list, select Variable.b. In the box below the Link to URL (when included in electronic outputs) drop-down list, click  . The Select Variable dialog box opens.c. Select the variable that provides the hyperlink information and click OK. The Select Variable dialog box closes and the variable appears in the box.

4. If you want the destination to open a new browser window when the customer clicks the link (rather than opening in the same window where customers are viewing the document), select the **Open in new window** check box.
5. From the Menu bar, select **Edit > Save**.

12.5.2 Adding Internal Hyperlinks

You can add an internal hyperlink to a design to enable customers to easily navigate to additional content within the same document, webpage, or email message. Internal hyperlinks are available for PDF, HTML, and HTML (email) output only. When a customer follows an internal hyperlink in one of these output types, the document scrolls to bring into view the text designated as the hyperlink destination.

To add an internal hyperlink to a design, you must complete the following tasks:

- “[Creating a Hyperlink Anchor Object in Design Manager](#)” below
- “[Applying a Hyperlink Anchor Object to Text to Mark the Hyperlink Destination](#)” on the next page
- “[Adding an Internal Hyperlink to Text or a Design Object](#)” on page 447

You can also complete the following optional task as needed:

- “[Changing or Removing the Anchor Object Applied to a Block of Text](#)” on page 448
- “[Finding Where Hyperlink Anchors Are Used](#)” on page 449

Creating a Hyperlink Anchor Object in Design Manager

To create an internal hyperlink, you must create a hyperlink anchor object, which you will use to mark the text that will be the hyperlink destination. Note that you must create a separate hyperlink anchor object for each unique destination, but that you can link multiple hyperlinks to the same anchor object, if you want all of those hyperlinks to direct the reader to the same place.

In Exstream, there are three ways in which you can create a hyperlink anchor object:

- Create a new hyperlink anchor object in Design Manager before you add an internal hyperlink to a design.
- Create a new hyperlink anchor object in Designer from the same dialog box that you use to add an internal hyperlink to text or a design object.
- Create a new hyperlink anchor object in Designer from the same dialog box that you use to apply the hyperlink anchor to text to mark the hyperlink destination.

You can choose whichever method works best for your workflow. No matter which method you use to create a new hyperlink anchor object, it is saved in the Design Manager Library under the **Environment > Design > Hyperlink Anchors** heading.

This section discusses how to create new hyperlink anchor objects in Design Manager. For more information about creating hyperlink anchor objects in Designer, see “[Applying a Hyperlink Anchor Object to Text to Mark the Hyperlink Destination](#)” below and “[Adding an Internal Hyperlink to Text or a Design Object](#)” on page 447.

You can reuse the same anchor object in multiple designs, but you should apply each anchor object to only one textual location in a single design. If you apply the same anchor object to multiple locations in a single design, then each hyperlink linked to that anchor object will direct the reader to the first instance of the anchor object.

To create hyperlink anchor objects in Design Manager:

1. In the Library, go to **Environment > Design > Hyperlink Anchors**.
2. Right-click the **Hyperlink Anchors** heading and select **New Hyperlink Anchor**.
The **New Hyperlink Anchor** dialog box opens.
3. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
4. Click **Finish**.
5. Repeat step 1 through step 4 as needed to create additional hyperlink anchors.

Applying a Hyperlink Anchor Object to Text to Mark the Hyperlink Destination

In order to mark the destination of an internal hyperlink, you must apply a hyperlink anchor object to selected text. It is important to understand that hyperlink anchor objects can be applied only to text; they cannot be applied to design objects such as images, charts, and shapes. However, if you want an internal hyperlink to direct a customer to a design object, you can achieve this by applying a hyperlink anchor object to text placed near the design object.

Note: While you can apply *hyperlink anchors* only to text, you can apply *hyperlinks* to both text and design objects. For a list of the types of objects to which you can apply hyperlinks, see “[Adding Hyperlinks](#)” on page 440.

You can pre-create the anchor object in Design Manager (see “[Creating a Hyperlink Anchor Object in Design Manager](#)” on page 444) and then apply it in Designer, or you can both create and apply the anchor object in Designer from within the same dialog box. Choose whichever method works best for your workflow.

When you apply a hyperlink anchor to text on a design page, the letter “A” appears in the design area next to the text to which the anchor has been applied. Note that you must select the text or place your cursor inside it to see the “A” indicator. The “A” indicator helps you locate text in a design that you have marked as the destination of an internal hyperlink.

To apply a hyperlink anchor object to text to mark the destination of an internal hyperlink:

1. In Designer, place your cursor in the paragraph or highlight the text that you want to designate as the destination of an internal hyperlink. You can highlight a single word, a paragraph, or multiple paragraphs.
2. Right-click the paragraph or the highlighted text and select **Paragraph > Add Hyperlink Anchor**.

The **Choose Hyperlink Anchor** dialog box opens.

3. Depending on whether you have already created the anchor object or not, complete one of the following sets of steps:

To	Do this
Apply an existing anchor object to the text	<ol style="list-style-type: none">a. Click  . The Select Hyperlink Anchor dialog box opens.b. Select the appropriate hyperlink anchor object from the drop-down list and click OK. The Select Hyperlink Anchor dialog box closes.
Create a new anchor object and apply it to the text	<ol style="list-style-type: none">a. Click  . The New Hyperlink Anchor dialog box opens.b. In the Name box, enter a name. In the Description box, enter a description (optional).c. Click Finish. The New Hyperlink Anchor dialog box closes.

4. Click **OK**.

The **Choose Hyperlink Anchor** dialog box closes and the letter "A" appears next to the text to indicate that a hyperlink anchor is located there. Also, the new hyperlink anchor object is stored in the Library.

Adding an Internal Hyperlink to Text or a Design Object

In order to set up an internal hyperlink, you must specify the text or design object that will be presented as an active link in the output. (This is sometimes called the hyperlink source.) When you add an internal hyperlink to text or to a design object, you must also specify a destination, or location where customers will be directed when they click the link.

In Exstream, the destination of an internal hyperlink is designated by a hyperlink anchor object that is applied to a segment of text. When you add an internal hyperlink, you can point to an existing anchor object that you pre-created in Design Manager, or, if you have not already created a relevant hyperlink anchor object, you can create a new anchor object in Designer from the same dialog box that you use to add the hyperlink.

When you use anchors in your design, make sure that the anchor object is present in your output. If you link to content that is imported at run time, then you must make sure that the linked content is present in your output.

For more information about applying hyperlink anchor objects to text, see "[Applying a Hyperlink Anchor Object to Text to Mark the Hyperlink Destination](#)" on page 445.

To add an internal hyperlink to text or a design object:

1. In Designer, open any page that contains the text or object for which you want to add a hyperlink, and complete one of the following tasks:

To	Do this
Add an internal hyperlink to an image, polygon, shape, text box, or chart	<ol style="list-style-type: none">Select an image, polygon, shape, text box, or chart.Right-click the selected image, polygon, shape, text box, or chart, and select Object hyperlink properties. The Hyperlink Properties dialog box opens.
Add an internal hyperlink to selected text	<ol style="list-style-type: none">Highlight the text.Right-click the selected text.Select Add text hyperlink. The Hyperlink Properties dialog box opens.

2. In the **Hyperlink Properties** dialog box, select the **Internal link** radio button.
3. If you have already created a hyperlink anchor object to mark the hyperlink destination text, click  and select the appropriate hyperlink anchor object.
4. If you have not already created a relevant hyperlink anchor object, complete the following

steps to create a new hyperlink anchor object:

- a. Click .

The **New Hyperlink Anchor** dialog box opens.

- b. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
- c. Click **Finish**.

The **New Hyperlink Anchor** dialog box closes.

5. Click **OK**.

The **Hyperlink Properties** dialog box closes and the hyperlink is applied to the text or design object and linked to the hyperlink anchor. If you applied the hyperlink to text, a blue wavy line appears under the text to indicate that a hyperlink is applied to the text.

Note: For PDF output, if you apply an internal hyperlink to an entire paragraph of text, the margins of the paragraph will also be active as a hyperlink.

For HTML5 output, if you apply an internal hyperlink to an entire paragraph of text, then you must include a plain text space at the end of the hyperlink in order for the hyperlink to be viewed as valid HTML5 on all browsers.

Changing or Removing the Anchor Object Applied to a Block of Text

Sometimes, after you have applied a hyperlink anchor object to text to mark the destination of an internal hyperlink, you might need to change the applied anchor to a different anchor. For example, you might have accidentally applied the wrong anchor to the paragraph. You might also need to remove an anchor object from a block of text without replacing it with another anchor.

If you want to move an applied anchor object from one block of text to another, you must perform two separate operations: you must remove the anchor object from the text where you originally applied it, and you must apply the anchor object to the new location.

To change or remove the anchor object applied to a block of text:

1. In Designer, highlight the block of text to which you applied the hyperlink anchor object.
2. If you want to remove the hyperlink anchor object from the text without replacing it with another anchor, right-click the selected text and select **Paragraph > Remove Hyperlink Anchor**.

The hyperlink anchor is removed from the text and the “A” indicator no longer appears next to the text.

3. If you want to change the anchor object to a different anchor object, right-click the selected

text and select **Paragraph > Edit Hyperlink Anchor**.

The **Choose Hyperlink Anchor** dialog box opens.

4. Complete one of the following tasks:

To	Do this
Apply an existing anchor object to the text	<ol style="list-style-type: none">a. Click .b. Select the appropriate hyperlink anchor object.
Create a new anchor object and apply it to the text	<ol style="list-style-type: none">a. Click .The New Hyperlink Anchor dialog box opens.b. In the Name box, enter a name. In the Description box, enter a description (optional).c. Click Finish.The New Hyperlink Anchor dialog box closes.

5. Click **OK**.

The **Choose Hyperlink Anchor** dialog box closes and the hyperlink anchor object that you specified is applied to the text.

Finding Where Hyperlink Anchors Are Used

As you work with internal hyperlinks, you might want to quickly find where hyperlink anchors and their associated hyperlinks are applied in your designs. In Design Manager, you can use the “Where Used” option to find all of the places in your database where a specific hyperlink anchor object is used. When you search for a hyperlink anchor object, the search results list all objects that contain one or more of the following:

- A text or object hyperlink that points to the anchor object
- A text block that is marked by the anchor object as a hyperlink destination

You can use this information to troubleshoot internal hyperlinks that are not working correctly, or to determine which hyperlink anchor to associate with a new internal hyperlink that you are creating.

To search for a hyperlink anchor and the hyperlinks associated with it:

1. In the Library, under the **Environment > Design > Hyperlink Anchors** heading, right-click a hyperlink anchor object and select **Where Used**.

The **Where Used** dialog box opens.

2. From the **Show results** drop-down list, select whether you want the search results to appear in the Property Panel or the Edit Panel.
3. If you want to limit the search based on the version of the objects being searched, select one of the following options from the **Object versions to search for** drop-down list:
 - **Latest** (This is the default.)
 - **All Versions**
 - **Rejected**
 - **Work in Progress**
 - **Submitted**
 - **Approved**
 - **Archived**
 - **Quick Fix Rejected**
 - **Quick Fix in Progress**
 - **Quick Fix Submitted**
4. If you want to filter your search based on object type, select or clear one or more of the following check boxes in the **Objects to search in** area:
 - **Pages**
 - **Paragraphs**
 - **Messages**
 - **Components**
 - **Multiple-ups**
5. Click **OK**.

The search results are displayed in the Edit Panel or Property Panel as shown in the following example. Note that the **Description** field of the search results list indicates whether the anchor found in that component is assigned to a hyperlink (the text or design object that is presented as the active link) or is used to mark a hyperlink destination.

Uses of Anchor777 (Hyperlink Anchor)						
Name	Description	Folder	Type	Version	Status	
Summer Newsletter	In this component, anchor is assigned to a hyperlink.	Correspondence	Page	1	Work in Progress	
Summer Newsletter	In this component, anchor is used to mark a hyperlink destinatio...	Correspondence	Page	1	Work in Progress	

6. If you want to find the exact location of the hyperlink anchor in the design, you can right-click a component name in the search results list and select **Edit**.

The component opens in Designer. Use the following indicators to pinpoint the location of the hyperlink anchor:

- **The “A” indicator**—The letter “A” appears in the design area next to hyperlink destination text. Keep in mind, however, that you must place your cursor inside a text block to see the “A” indicator. To verify which anchor object has been applied to the hyperlink destination, right-click the text and select **Paragraph > Edit Hyperlink Anchor**. The **Choose Hyperlink Anchor** dialog box shows the applied hyperlink anchor.
- **Blue wavy line**—Text hyperlinks are underlined with a blue wavy line. To verify which anchor object is applied to the hyperlink, right-click the underlined text and select **Edit text hyperlink**. In the **Hyperlink Properties** dialog box, the applied hyperlink anchor is shown under the **Internal link** radio button.

Note: No indicators are shown for hyperlinks applied to design objects, such as images or charts. To determine whether a hyperlink is applied to an object, you can right-click the object and select **Object hyperlink properties**. In the **Hyperlink Properties** dialog box, you can tell if a hyperlink is set on the object by checking to see whether a hyperlink destination is specified.

12.5.3 Formatting Hyperlinks

To indicate where hyperlinks exist on a webpage or in an email message, many web browsers and email applications automatically format text hyperlinks to visually set them apart (by presenting hyperlinks in blue, underlined font, for example). In some applications, and in PDF output, a hand icon

() appears when end users hover their mouse pointers above a hyperlink.

However, rather than relying on these automatically applied hyperlink formatting techniques, it is a best practice to use the formatting tools in Designer or to apply custom CSS styles to precisely control how hyperlinks will appear in your output. By manually applying styles, you can ensure that the hyperlinks in your content are consistently presented in various applications and that your customers are provided with sufficient visual cues to follow your hyperlinks. For more information about formatting text in Designer, see “[Formatting Text](#)” on page 154.

When you apply a hyperlink to a design object, you might want to add text nearby that directs customers to click, press CTRL + click, or right-click the object to access additional information.

12.5.4 Removing Hyperlinks From Text or a Design Object

When you no longer want a particular hyperlink to be present in your output, be sure to remove the hyperlink from your design, rather than simply removing any special hyperlink formatting that you applied to the associated text or design object. If you remove the formatting but do not remove the hyperlink, the link attribute is still applied to the HTML element; therefore, the text or design object will still be presented as a hyperlink in the output. (For example, most browsers and email applications will display a hand icon (☞) by default when end users hover the pointer over the text or object.)

Note: This section covers how to remove *hyperlinks*, as opposed to how to remove *hyperlink anchor objects*. For information about removing hyperlink anchor objects, see “[Changing or Removing the Anchor Object Applied to a Block of Text](#)” on page 448.

You will use either Design Manager or Designer to remove a hyperlink, depending on where the hyperlink is applied. If the hyperlink is applied to a paragraph object or a message object at the object level in Design Manager, then you must remove the hyperlink in Design Manager. All other hyperlinks, including hyperlinks applied to text inside a paragraph object or a message object, must be removed in Designer.

This section covers the following topics:

- “[Removing Hyperlinks from Paragraph Objects and Message Objects in Design Manager](#)” below
- “[Removing Hyperlinks from Text, Text Boxes, Images, Polygons, Shapes, and Charts in Designer](#)” on the next page

Removing Hyperlinks from Paragraph Objects and Message Objects in Design Manager

1. From the Library, open the paragraph object or message object in the Property Panel.
2. Click the **Basic** tab.
3. From the **Link to URL (when included in electronic outputs)** drop-down list, select **None**.
4. From the Menu bar, select **Edit > Save**.

Removing Hyperlinks from Text, Text Boxes, Images, Polygons, Shapes, and Charts in Designer

1. In Designer, open the page object that contains the hyperlink that you want to remove.
2. In the design area, right-click the text or object to which the hyperlink has been added.
3. Select **Edit text hyperlink** (if the hyperlink is applied to text) or **Object hyperlink properties** (if the hyperlink is applied to an object).
The **Hyperlink Properties** dialog box opens.
4. Complete the following steps as needed:

To	Do this
Remove a static link	In the box below the Static link radio button, delete the URL address that specifies the hyperlink destination.
Remove a dynamic link	<ol style="list-style-type: none">a. In the box below the Dynamic link radio button, click . The Select Variable dialog box opens.b. Select No Variable.c. Click OK. The Select Variable dialog box closes.
Remove an internal link	<ol style="list-style-type: none">a. In the box below the Internal link radio button, click . The Select Hyperlink Anchor dialog box opens.b. Select No Hyperlink Anchor and click OK. The Select Hyperlink Anchor dialog box closes.

5. Click **OK**.

The **Hyperlink Properties** dialog box closes and the hyperlink is removed from the text or object.

12.6 Adding Footnotes

You can add footnotes to a design to include additional information that does not fit in a small area or is complementary but not necessary to the content. For example, you can use footnotes to cite reference information that supplements the body text. Footnotes often appear at the bottom of a design, and a marker indicating more information is available elsewhere appears in

the main text. You can add footnotes to pages, paragraphs, and text messages. You can place only one footnote per paragraph or table cell.

To add footnotes to a design, you must complete the following tasks:

1. [“Setting Up a Footnote Frame” below](#)
2. [“Adding a Footnote Marker” on the next page](#)
3. [“Formatting Footnotes” on page 457](#)

You must have licensed the Publication Support module in order to add footnotes to a design.

12.6.1 Setting Up a Footnote Frame

You add footnote frames to your design to reserve an area for the footnote text. Footnote frames can appear at the bottom of a design or at the end of a document (or chapter).

To set up a footnote frame:

1. In Designer, on the Drawing Objects toolbar, click  .
The **New Frame** dialog box opens.
2. Select the **Footnotes** radio button.
The **Insert Frame** dialog box opens.
3. To include borders around the footnote frame, use the **Borders** options.
 - a. Click the areas in the **Borders** box where you want lines to appear. For example, if the footnote frame will appear at the bottom of a page, you might want to include a line at the top of the frame to separate the footnote information from the body of text.
 - b. Click the **Borders** box to define how the borders appear.
4. Use the **Adjust top if overlapped** options to define how the frame behaves if the frame's design location becomes overlapped due to objects growing and moving.
 - a. Select the **Adjust top if overlapped** check box to hide the contents of the frame if it becomes overlapped. If an object overlaps the top of the frame, the frame contents are pushed down the frame.
 - b. If you select the **Adjust top if overlapped** check box, enter in the **Overlap margin** box the amount of space to leave between the overlap and the beginning of the first item in the frame.
 - c. If you select the **Adjust top if overlapped** check box, enter in the **Minimum height** box the smallest size the frame can be when filled with objects.
5. From the **Footnote flow across frame** drop-down list, select one of the following options

to control how footnotes flow into and out of the frame:

- **None**—Partial footnotes cannot flow into the frame. Footnotes placed in the frame cannot flow out to another frame.
 - **In or out**—Partial footnotes can flow into the frame. Footnotes placed in the frame can flow out to another frame.
 - **In only**—Partial footnotes can flow only into the frame.
 - **Out only**—Footnotes placed in the frame can flow only out to another frame.
6. From the **Pages which populate footnotes for this frame** drop-down list, select one of the following options to specify the page or pages from which to pull footnotes:
 - **From this page only**—Populate this frame with footnotes from the current page only.
 - **From any page**—Populate this frame with footnotes from all pages that are generated for a customer.
 7. Click **OK**.
- The **Insert Frame** dialog box opens and the footnote frame appears on the design.
8. Adjust the frame size and position so it occupies the space where you want footnotes to appear.

12.6.2 Adding a Footnote Marker

1. In Designer, place the cursor at the location where you want the footnote marker to appear.
- Note:** To add a footnote in a table row, place the marker at the highest section level possible so the footnote does not repeat on subsequent automated rows.
2. Right-click and select **Paragraph > Add Footnote**.
- The **Footnote Properties** dialog box opens.
3. From the **Content** drop-down lists, select the content source for the footnote:

To	Do this
Provide the text for the footnote	<ol style="list-style-type: none">a. Select Constant text.b. In the box in the middle of the dialog box, enter the footnote text.

To	Do this
Use a variable to provide the text	<p>a. Select Variable.</p> <p>b. From the box in the middle of the dialog box, click  .</p> <p>The Select Variable dialog box opens.</p> <p>c. Select the variable you want to use to provide the footnote text and click OK.</p> <p>The Select Variable dialog box closes and the variable you selected appears in the box.</p>
Use a text message to provide the text	<p>a. Select Text message.</p> <p>b. From the drop-down list in the middle of the dialog box, select the text message you want to use to provide the footnote text.</p>

4. Use the **Numbering method** drop-down list and the **Identifier** box to specify how the footnote markers appear:

To	Do this
Allow the footnote to be numbered automatically according to its location in the document	Select Automatic integer .
Provide the marker used to identify the footnote	<p>a. Select Specific text.</p> <p>b. In the Identifier box, enter the character used to identify the footnote.</p>
Provide the marker used to identify the footnote and to have duplicate footnotes use the same identifier automatically	<p>a. Select Specific text, collapse.</p> <p>b. In the Identifier box, enter the character used to identify the footnote.</p>

5. From the **Identifier location** drop-down list, specify one of the following locations for the footnote identifier:
- **At current text point**—The footnote identifier is placed within the body of the text.
 - **Left of paragraph**—The footnote identifier is placed outside the left margin of the line with the footnote reference.

6. To control whether the footnote is included for a particular customer or to customize the footnote information a particular customer receives, use the **When to include** drop-down list:

To	Do this
Always include the footnote for all customers	Select Always .

To	Do this
Include the footnote based on the value of a variable	<p>a. Select one of the following options:</p> <ul style="list-style-type: none"> • Variable has content (text or value > 0) • Variable does not have content (no text or equal 0) <p>b. In the Reference variable box, specify the variable that is used to determine whether the footnote is included for a specific customer.</p> <p>i. Click  .</p> <p>The Select Variable dialog box opens.</p> <p>ii. Select the variable and click OK.</p> <p>The Select Variable dialog box closes and the variable you selected appears in the Reference variable box.</p>

7. From the **Placement** drop-down list, select where the footnote text is placed. Keep in mind that the **Number footnotes by document** setting on the application properties overrides the selection you make here.

To	Do this
Place the footnote text anywhere within any of the documents for the customer. Use this method to put all the footnotes together for a number of documents for one customer.	Select Anywhere .
Place the footnote text on the same pages as the text it references	Select On Same Page .
Place the footnote text in the same document as the text it references, but not necessarily on the same page	Select In Same Document .

8. Click **OK**.

The **Footnote Properties** dialog box closes and a purple "f" appears next to the text to indicate a footnote marker is located there.

12.6.3 Formatting Footnotes

You define the footnote formatting in Design Manager, rather than on the design. Setting the formatting in Design Manager allows you to format all of the footnotes in an application, rather than formatting the individual footnotes separately.

To format footnotes:

1. In Design Manager, from the Library, drag the application in which footnotes are used to the Property Panel.

2. Click the **Documents** tab.
3. In the **Footnote** text area, in the **Default footnote font** box, click  to select the font that is used for footnotes by default.

The **Select Font** dialog box opens.

4. Select the font and the formatting you want to use and click **OK**.

The **Select Font** dialog box closes and the font you selected appears in the **Default footnote font** box.

5. Use the **Footnote** box options to control the appearance of the footnote text.

Tip: Footnotes usually appear two point sizes smaller than the body text, but no smaller than eight points.

6. Use the **Footnote identifiers** options to format the numbers or text that appear next to text to indicate a footnote is associated with the content.
7. Use the **Footnote text references** options to format the font that appears in the text where the footnote is referenced.
8. If the application contains multiple documents and you want to restart sequential numbering for the footnotes in each document, select the **Number footnotes by document** check box. If you clear this check box, footnotes are numbered sequentially for the entire customer, regardless of document breaks.
9. If you want each instance of a footnote to appear when placed in multiple locations within a document, select the **Allow duplicate footnotes** check box. For example, suppose the same footnote appears on pages one and three. If you select the **Allow duplicate footnotes** check box, the footnote appears on both pages. If you clear the check box, the footnote appears in only the first instance. Duplicate footnotes follow the same numbering sequence as other footnotes.

12.7 Adding Headers and Footers

Most commonly used in conjunction with paragraphs and sections, headers and footers can be used in many types of documents. Headers and footers let you label content and to provide additional information about it. For example, you can include a heading that says "continued" and place it in areas where overflow text appears. Exstream provides several types of headers and footers that let you control the appearance of header and footer text.

For information about the available header and footer types, see "["Header and Footer Symbols" on page 460](#)".

The headers and footers you add to pages are different from headers and footers you use with tables to label rows and columns.

For information about using headers and footers to tables, see “[Adding Headers and Footers to a Table](#)” on page 208.

Designer automatically associates headers and footers with the content following them until another heading or footer appears. If you use multiple headers and footers in a single text box, place the header and footer above each section of corresponding text. Otherwise, page or column breaks might cause the headers and footers to not be placed with the correct text, if at all. If a text box that contains headers or footers is otherwise empty, the headers and footers do not appear.

To add headers or footers:

1. In Designer, highlight the text you want to include as a header or footer.
2. Right-click the selected text and select **Text paragraph properties**.
The **Text paragraph properties** dialog box opens.
3. Click the **Text paragraph properties** tab.
4. From the **Paragraph type** drop-down list, select the type of heading or footer you want to include:

To	Do this
Include a header one time only in the current position	Select Header .
Include a header that appears in the current position and in each frame to which the text box flows	Select Repeating header .
Include a header that appears in each frame to which the text box flows, but not in the original placement of the text box	Select Header except first .
Include a footer that appears only once in the output in its current placement	Select Footer .
Include a footer that appears in each frame to which the text box flows	Select Repeating footer .
Include a footer that appears in each frame to which the text box flows, but not in the last placement.	Select Footer except last .

For information about the symbols associated with each header and footer type, see “[Header and Footer Symbols](#)” on the next page.

5. If the header or footer is used in a multiple column format, specify from the **Column style** drop-down list how the header or footer behaves:
 - **Uses columns**—The header or footer remains within the confines of the column.
 - **Spans columns**—The header goes across all columns in the text box.

6. Click **OK**.

The **Text paragraph properties** dialog box closes and a purple letter indicating the type of header or footer appears next the text.

When the text is included in output, the header or footer appears as specified. Headers and footers do not appear if the text box is otherwise empty. That way, headers and footers do not appear for customers who do not need them.

12.7.1 Header and Footer Symbols

Designer provides symbols to make it easy to understand, at a glance, how a header or footer is used in a page. The symbols are made up of abbreviation of the functionality to help you remember their meanings. The following table describes the types of headers and footers available and their symbols:

Types of headers
and footers

Type	Symbol
Header	H
Repeating header	H+
Header except first	H-
Footer	F
Repeating footer	F+
Footer except last	F-

Chapter 13: Targeting a Design for Multiple Dates and Locations

Some applications might require you to include content that is time- or location-sensitive. For example, you might create a policy booklet in which specific paragraphs apply to only certain geographic areas based on the regional or state laws. Similarly, you might design a product offering mailing that applies for only a specific time period. Rather than using complicated logic to include content in the appropriate application or manually changing the design for each customer scenario, you can license the Compliance Support module to manage your design for these types of requirements. The Compliance Support module allows you to ensure that the appropriate content is included or excluded from documents based on effective dates or locations. You can also use the features of the Compliance Support module to 'future proof' your applications. In other words, you can use the same application for multiple expiration dates.

The Compliance Support module enables two features that you can use separately or in conjunction with one another to ensure that your communications are compliant with changing legal regulations or applicability periods:

- **Effectivity**—This feature allows you to control the content that is included or excluded from documents based on effective dates. For example, you can use effectivity in a billing document to include regulations that apply for only a certain period, such as after approval by state utility regulation boards.
- **Jurisdictions**—This feature allows you to control the content that is included or excluded from documents based on customer locations. For example, you can use jurisdictions in a phone service mailer to include legal notices that apply to only certain areas in which the business operates.

This chapter discusses the following topics:

- ["Including or Excluding Content Based on Effective Dates"](#) on the next page
- ["Using Jurisdictions to Manage Content for Different Locations"](#) on page 465
- ["Viewing Effectivity and Jurisdiction Information in the Edit Panel"](#) on page 470

For more information about enabling the Compliance Support module, see *System Administration* in the Exstream Design and Production documentation.

13.1 Including or Excluding Content Based on Effective Dates

Effectivity lets you send personalized information to customers based on date ranges.

Effectivity is a range of dates for which a version of an object is eligible to be included at engine run time. For example, you might need to send out a document containing information that is different for customers who became customers in 2000 and customers who became customers in 2005. You can create two versions of the same document: one version has information for the 2000 customers and the other has information for the 2005 customers. When you package the application, you use effectivity to direct the correct version to the proper customers.

With the Compliance Support module, multiple versions can be valid with different approval and expiration dates, so the engine can select a particular version based on a range of calendar dates. This is useful for such time-sensitive content as the following:

- Messages that are valid for a specified time period
- Regulated material that expires on a certain date

Effectivity is available only on paragraphs, sections, messages, pages, and documents. Every version of an object used for effectivity must have valid effective dates. You must also provide a value for the 'SYS_CustomerEffectiveDate' system variable by mapping it in the customer data file or by assigning it in a rule or formula.

For more information about the 'SYS_CustomerEffectiveDate' system variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To set up effective date ranges in your application, you must complete the following tasks:

1. [“Creating an Object Version That Has Effective Dates” below](#)
2. [“Setting the Value of the Effectivity Variable” on page 464](#)
3. [“Configuring Packaging Options for Effectivity” on page 464](#)

13.1.1 Creating an Object Version That Has Effective Dates

Effectivity dates are assigned to objects after they are created. You can add effectivity dates to an object at two times: when it is submitted for approval or when it is approved. Effectivity dates can be changed only on objects that have the status of Work in Progress.

To add an effective date to an object:

1. Create and design the first object to suit the earliest period of effectiveness found in your customer data.
2. In Design Manager, in the Library, right-click the object and select **Approve**.

The **Approve** dialog box opens.

Note: Depending upon how you set up your system's approval process, you might have to select **Submit For Approval** before the actual approval can be completed.

For more information about the approval process, see “[Reviewing a Design](#)” on page 471.

3. In the **Approval date** area, specify the initial date (year, month, and day) that this version of the object is effective.
4. In the **Expiration date** area, select one of the following options:

To	Do this
Add an expiration date on this version of the object	In the Expiration date area, specify the last date (year, month, and day) that this version is effective.
Remove expiration date from this version of the object	Select the No expiration date check box.

5. Click **OK**.

The **Approve** dialog box closes, and an approved version of the object, with the effective date you selected, is created. A blue check mark icon appears next to the object in the Library.

6. If you want to create multiple versions of this object with different effective dates, complete the following steps:
 - a. In the Library, right-click the object and select **Make Work in Progress**.
 - b. Repeat step 2 through step 5 to create as many additional versions of the object as needed. Make sure that your version is correct before you create another version. You can make as many versions as you need, up to the amount specified in the **System Settings**.

For information about specifying the number of archived versions that Design Manager stores, see *System Administration* in the Exstream Design and Production documentation.

13.1.2 Setting the Value of the Effectivity Variable

Effectivity is not limited to the latest designed or approved version. The engine can select any version, based on the customer value in the 'SYS_CustomerEffectiveDate' system variable. This system variable tests the effective dates to make sure the object is current.

For more information about the 'SYS_CustomerEffectiveDate' system variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

For example, using 'SYS_CustomerEffectiveDate', you can specify that all customers who joined an insurance group in the summer of 2000 receive a version that is valid for those who joined the group during that time period, even though many other versions have been created since then.

To set the value of the effectivity variable, you can map the 'SYS_CustomerEffectiveDate' system variable to a data file. You can also set the value by entering a formula on the **Values** tab of the 'SYS_CustomerEffectiveDate' properties.

For more information about formulas, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

13.1.3 Configuring Packaging Options for Effectivity

After you have set the value of the effectivity variable, you must specify the effective date ranges that should be included in the application package file. The packaging options described in this section are the key options to consider when using effectivity.

For a description of all the available packaging options, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

To configure packaging options for effectivity:

1. In Design Manager, on the Standard toolbar, click .

The **Build Package** dialog box opens.

2. Click .

The **Build Package** dialog box expands.

3. From the **Effective date** drop-down list, select **Date Range**.
4. In the **From** box, select the effective begin date (and time, if used).
5. In the **To** box, select the effective end date (and time, if used).

Note: If a customer has a 'SYS_CustomerEffectiveDate' value outside of the dates for the object versions you created, then the customer receives no version of the object. However, if a customer does not have 'SYS_CustomerEffectiveDate' data at all, then the customer receives the latest version of the object. Therefore, for best results when you package the application and run the engine, approve all objects in the application with effective dates that are mapped to the values of the SYS_CustomerEffectiveDate- system variable.

6. Click **OK**.

13.2 Using Jurisdictions to Manage Content for Different Locations

Jurisdictions let you target specific locations with personalized information. For example, if you create a document that contains sales tax information for customers in Florida, you might need to include different sales tax information depending on the county in which a customer resides. You can create several versions of one document, with each version containing sales tax information for one of the counties. You can then assign which versions go to which counties. In this case, each county is a jurisdiction.

The key to assigning a jurisdiction is the identifier. The identifier is the field each customer is evaluated against to determine whether the customer belongs in the current jurisdiction. For example, if your identifier is "WY," then anything labeled with a "WY" identifier is included. Identifiers are assigned to jurisdictions when they are created. You can also create a formula variable as the jurisdiction variable to pull the customer state (or postal code or other information) from the customer data and return an identifier value. Remember that the identifier does not need to be for a state or even a geographical location. The jurisdiction can select any information you want to use.

To use jurisdictions, you must have licensed the Compliance Support module. In addition, the **Jurisdictions** check box must be selected in the **System Configuration** dialog box. Then, the design user must set the jurisdictional effectivity of the jurisdiction. In other words, the design user must specify when the jurisdiction goes into effect and when it expires. The design user configures these details on the **Regulatory** tab of an object.

For more information about creating jurisdictions, see *System Administration* in the Exstream Design and Production documentation.

To use jurisdictions in an application, you must complete the following tasks:

1. ["Adding a Jurisdiction to an Object" on the next page](#)
2. ["Selecting a Variable That Identifies Customer Jurisdictions" on page 467](#)

3. “[Mapping a Variable for Jurisdictions](#)” on page 468
4. “[Configuring Packaging Options for Jurisdictions](#)” on page 469

13.2.1 Adding a Jurisdiction to an Object

Your system administrator must create jurisdictions before you can apply them to an object. Keep in mind that you can add multiple jurisdictions to the same version of an object. For example, suppose you have an object that contains legal text that is valid in both Kentucky and Tennessee but not in Virginia. You would add the Kentucky jurisdiction and the Tennessee jurisdiction to this object. When you run the engine, customers in Kentucky and Tennessee will receive this object, but not customers in Virginia.

For more information about creating jurisdictions, see *System Administration* in the Exstream Design and Production documentation.

To add a jurisdiction to an object:

1. In Design Manager, from the Library, drag the object to which you want to add a jurisdiction to the Property Panel.
2. Click the **Regulatory** tab.
3. From the **Enable jurisdictional effectiveness** drop-down list, select **Enable for those listed**.
4. Click .

The **Jurisdiction Version** dialog box opens.

5. From the **Jurisdiction** drop-down list, select the jurisdiction that you want to add to the object.
6. In the **Effective date** area, specify the date (year, month, and date) that this version is effective for the selected jurisdiction.

Note: Keep in mind that effectiveness is a date range on an object and that jurisdictional effectiveness is a date range on a jurisdiction. You can use both effectiveness and jurisdictional effectiveness on the same object to further restrict the content that a customer receives.

7. If you want to specify a date that this version will expire for the selected jurisdictions, do the following:
 - a. Select the **Expires** check box.
 - b. Under the **Expires** check box, specify the date (year, month, and date) that this version will expire for the selected jurisdiction.
8. Click **OK**.

13.2.2 Selecting a Variable That Identifies Customer Jurisdictions

After you add jurisdictions to objects, you must select the variable that identifies the jurisdiction of the customer in the customer data. The variable you select populates the value for the 'SYS_CustomerJurisdiction' system variable.

Jurisdictions instruct the engine to select specific versions of paragraphs, sections, messages, pages, and documents based on geographical locations (such as a customer's country/region) or virtual locations (such as a customer's office or home). Jurisdictions target specific information for specific customers while reducing processing time and the number of messages and rules in an application.

The jurisdiction feature uses the 'SYS_CustomerJurisdiction' system variable, or you can create your own. This system variable indicates the jurisdiction for the current customer. Creating your own variable is helpful if you need to reference a jurisdiction to data other than a customer's name.

For more information about the 'SYS_CustomerJurisdiction' system variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To select the variable that identifies customer jurisdictions:

1. In Design Manager, from the Library, select the appropriate application and drag it to the Property Panel.

The application properties open in the Property Panel.

2. Click the **Basic** tab.
3. Click the **Customer ID for regulatory** box.

The **Select Variable** dialog box opens.

4. From the **Variable** list, click the variable that you want to use to identify the customer jurisdiction.
5. Click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Customer ID for regulatory** box.

Creating a Variable for Jurisdictions

Creating your own variable is helpful if you need to reference a jurisdiction to data other than a customer's name. You can create one or multiple variables, depending upon your needs, but you can assign only one jurisdiction variable to a engine run in the application properties.

To create a variable for jurisdictions:

1. Create a new variable.

The new variable opens in the Property Panel for you to define.

For more information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

2. Click the **Basic** tab.
3. From the **Data type** drop-down list, select **String**.
4. From the **Source** drop-down list, select **File only**.
5. From the **Reset time** drop-down list, select **Before each customer**.

Alternately, you can select **Formula** from the **Data type** drop-down list. You can then set the formula to use data found in the customer data, such as a policy type or postal code, and return the identifier that you used for the jurisdiction.

13.2.3 Mapping a Variable for Jurisdictions

If your customer driver file has a separate data area with text you have entered as identifier text for jurisdiction objects, you can map the 'SYS_CustomerJurisdiction' system variable (or a custom variable) to this data area directly, as you do with other variables in Design Manager.

You can add the identifier text data in a separate area for each customer by editing the source data file or by inserting the data with a middleware product. Then you can map the variable to this data area.

Note: If you have a group jurisdiction, Design Manager includes all the jurisdictions in the group name referenced in the customer data.

If your jurisdiction corresponds to the state (or another area) already mapped in your data file, you should map the jurisdiction variable to the same area. More than one variable can be mapped to a data area in your data file.

After mapping more than one variable to a data area, a bright cyan color appears in the data area to indicate overlapping variables (two variables using the same data).

For more information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

13.2.4 Configuring Packaging Options for Jurisdictions

After you have mapped a variable for jurisdictions, you must specify which jurisdictions to include in the application package file.

For a description of all the available packaging options, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

To configure packaging options for jurisdictions:

1. In Design Manager, on the Standard toolbar, click .

The **Build Package** dialog box opens.

2. Click .
3. From the **Jurisdictions to include** drop-down list, select which jurisdictions to include for this package file:

To	Do this
Ignore jurisdictions and use the latest valid version of objects	Select Ignore . You must select this option if you are not using jurisdictions in this run.
Include one specified jurisdiction for objects using jurisdictions	Select Single Jurisdiction .
Include all valid jurisdiction versions for all objects	Select All Jurisdictions .

4. If you want to use effective dates, do the following:
 - a. From the **Effective date** drop-down list, select **Date Range**.
 - b. In the **From** box, select the effective begin date (and time, if used).
 - c. In the **To** box, select the effective end date (and time, if used).
5. To set the engine to add the system report messages of all objects in the application that were excluded because of jurisdiction settings, select the **Report objects excluded from jurisdictions when packaging** check box. If you do not need this information, then leave the check box cleared (the default setting).
6. Click **OK**.

13.3 Viewing Effectivity and Jurisdiction Information in the Edit Panel

To view information about an object's effectivity, you can right-click the appropriate object in the Design Manager Library and select **Jurisdictional Effectivity**. The information for this object appears in the Edit Panel. This list shows both effectivity information and jurisdictional effectivity information for the object. You can also see the object's version number and which jurisdictions use this object.

Keep in mind that effectivity is a date range on an object and that jurisdictional effectivity is a date range on a jurisdiction. You can use both effectivity and jurisdictional effectivity on the same object to further restrict the content that a customer receives.

Chapter 14: Reviewing a Design

As you complete various components of a design, you can use Exstream review tools to review the design before it is sent to the next step in the workflow or before the application is placed in production. The following table describes the tools that are available in Designer that you can use to review a design.

Review tools that are available in Exstream

Review tool	Description of review tool	Where to learn more
Preview output in an external viewer	The preview in external viewer feature in Designer lets you preview a design page in a browser or other viewer. You can use this feature to preview the output for one or all of the output queues that your application includes, and you can view the output for each output queue in a viewer that you must specify for each output type.	"Using Preview in an External Viewer" below
Device Preview	The Device Preview feature allows you to simulate within Designer how container designs for HTML and HTML (email) output appear on various phone and tablet screen sizes, so that you can check whether your design is on track as you create it.	"Using Device Preview for container designs" on page 100
Spell check, grammar check, excluded word check	These tools let you run a spell check, grammar check, and excluded words check on text in a design. You can use these tools as you finish adding text to a design, before sending content for approval or approving content, or as a final review before the application is put into production.	"Using Spelling, Grammar, and Excluded Word Check" on page 478
Readability analysis	The readability tool in Exstream lets you ensure that the language you use in a design is at the appropriate level for your customers.	"Reviewing Text for Readability" on page 483
Revision tracking	The text revision tools let you track changes in a document and let an approver know exactly what changes have been made and whether suggestions have been incorporated.	"Using Text Revision Tracking" on page 485
Approval processes	An approval process lets you track the progression of an object from initial design to final approval. Submitting all of the components of an application to a designated approver ensures that content is consistent and conforms to company standards.	"Using the Approval Process" on page 490

14.1 Using Preview in an External Viewer

When you edit a design page in Designer, you can use the preview in external viewer feature to preview the design page in a browser or other viewer as it would appear in the final output. If your application design includes multiple output queues, such as PDF, AFP, and Multi-Channel HTML, you can use this feature to preview the output for one or all of these output queues in a viewer that you must specify for each output type.

When you use the preview in external viewer feature, the Packager.exe production executable creates a page-level package file. The Exstream engine then combines the page-level package file with an archived application-level package file, produces output, and then opens the output in an external viewer. You can choose to preview one or all of the output queues that your application produces, and you can view the output for each output queue in the viewer(s) that you specify for each output type. The preview in external viewer feature runs in the background, so you can continue to edit a design page while the process is completing.

To use the preview in external viewer feature, complete the following tasks:

- [“Specifying a Path for Archived Package Files” below](#)
- [“Packaging an Application Using a Package Profile” on the next page](#)
- [“Specifying Output Viewers” on page 475](#)
- [“Previewing a Design in an External Viewer” on page 476](#)

14.1.1 Specifying a Path for Archived Package Files

If you want to use the preview in external viewer feature, you must specify the path that you want to use for archived package files. When you use a package profile to package an application, the package file is automatically copied to the directory that you specified. To enable faster previews, Exstream caches a complete archived package file for the application so that when you use the preview in external viewer feature, a complete repackaging of the application is usually not required.

The path that you specify in the **Archived package file directory** box is the global path for archived package files, and this path is used for all of the design databases that are used by the current Windows user on the workstation. When an archived package file is created for a specific application, Exstream automatically creates a sub-directory of the global path and uses the universally unique identifier (UUID) for the design database as the sub-directory name.

For more information about the UUID for a design database, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

To specify a path for archived package files:

1. In Design Manager, from the Menu bar, select **Tools > Options....**

The **Options** dialog box opens.

2. There are a few ways to specify the path that you want to use for archived package files:

Note: Keep in mind that if you want to allow multiple workstations to share archived package files, you must specify a shared network path.

To	Do this
Enter the local path or the shared network path that you want to use for archived package files	In the Archived package file directory box, enter the path that you want to use for archived package files.
Use the suggested local path for archived package files	<ol style="list-style-type: none">Next to the Archived package file directory box, click . If the path for archived package files has not been specified previously, you are prompted to choose if you want use a suggested local path.Click Yes. The suggested local path appears in the Archived package file directory box.
Select a local path or a shared network path that you want to use for archived package files	<ol style="list-style-type: none">Next to the Archived package file directory box, click . If the path for archived package files has not been specified previously, you are prompted to choose if you want use a suggested local path.Click No. The Browse For Folder dialog box opens.In the Select the directory for archived package files box, select the path that you want to use for archived package files. The path that you selected appears in the Folder: box.Click OK. The Browse For Folder dialog box closes and the path that you selected appears in the Archived package file directory box.

3. Click **OK**.

The **Options** dialog box closes.

14.1.2 Packaging an Application Using a Package Profile

To create the archived package file(s) that the preview in external viewer feature will use to produce output for external viewers, you must use a package profile for each of the application's output queues that you want to preview for the specific application. A package profile is a set of pre-configured options that are used to create a package file. You can access package profiles from the **Packaging** tab in the application properties. When you use a package profile to package an application, the archived package file is automatically copied to the directory that you specified for archived package files. However, if the packaging process fails, a package file is not copied to the directory.

To package an application using a package profile:

1. In Design Manager, in the Library, right-click an application and select **Package....**

The **Build Package** dialog box opens.

2. There are a few ways to specify the package profile that you want to use in order to build the application package:

To	Do this
Use an existing package profile	<ol style="list-style-type: none">a. From the Profile drop-down list, select a package profile. Note: Keep in mind that the package profile that you select must include settings for an output queue object, not an output object.b. Click OK.
Create a new package profile	<ol style="list-style-type: none">a. From the Profile drop-down list, select <Create new profile>.b. Do one of the following:<ol style="list-style-type: none">i. To create a package file for the application's DBCS output queues, select the Create for DBCS output queue device(s) radio button.ii. To create a package file for the application's SBCS output queues, select the Create for SBCS output queue device(s) radio button.c. Click OK. The Create New Package Profile dialog box opens.d. In the Name box, enter a name for the package profile.e. In the Description box, enter a description for the package profile.f. If you want to save the file path for the package profile, select the Save paths for all file names check box.g. Click OK.

The packaging process completes and an archived package file is automatically copied to the directory that you specified.

Keep in mind the following considerations when you package an application using a package profile.

- If you do not select the **Save paths for all file names** check box, the default packaging directory that is specified on the **Options** dialog box in Design Manager is used.
- When you specify the package profile that you want to use, you can select only the package profiles that use the output queues in your application.

14.1.3 Specifying Output Viewers

In Designer, you can specify the viewers that are used to preview each output type. When you then use the preview in external viewer feature, you can select from a list of specified viewers to preview one or all of the output types that your application produces.

By default, the viewers that are associated with a specific output type in the Windows environment are automatically associated with the corresponding output type in Exstream. You can manually specify additional viewers for those and other output types.

To specify an output viewer for an output type:

1. In Designer, from the Menu bar, select **Tools > Options....**
The **Designer Options** dialog box opens.
2. Click the **Viewers** tab.
3. From the **Driver** drop-down list, select the driver for which you want to specify a viewer.

Note: Keep in mind that you can specify an output viewer for an output type only if the output viewer is installed on your workstation.

4. Click .

The **Viewer Details** dialog box opens.

5. To select the executable that launches the viewer, click  in the **Executable** box
The name of the viewer appears in the **Name** box.
6. If you want to change the name for the viewer, enter a name for the viewer in the **Name** box.
7. If you want to enter optional parameters for the viewer (for example, if you want the viewer to open a specific page number in Adobe Acrobat), enter those parameters in the **Parameters** box.

For example: page=pagenum

8. Click **OK**.

The **Viewer Details** dialog box closes and the viewer that you specified appears in the **Viewers** list.

9. Repeat step 3 through step 8 for each output type for which you want to specify a viewer.
10. Click **OK**.

The **Designer Options** dialog box closes.

14.1.4 Previewing a Design in an External Viewer

To reduce the amount of time that is required to package your application and produce output for the preview in external viewer feature, the Packager.exe production executable creates a page-level package file for only the design page and then appends this page-level package file to the archived package file for the application. The preview in external viewer feature then uses the Exstream engine to produce output, and then opens the output in an external viewer. You can preview one or all of the output types that your application produces, and you can view the output(s) in the viewer(s) that you specify for each output type.

The preview in external viewer feature runs in the background so that you can continue to edit a design page while the process is completing.

In Designer, the status of the preview process (for example, "Preview: packaging...") appears in the status bar, which is located at the bottom of the design window. The status bar cycles through the steps of packaging, running engine, opening viewers, and then the status will indicate whether the preview process completed or failed. If the preview in external viewer process fails during the packaging step, you can click the **Preview:** area on the status bar to view a packager message file. If the preview in external viewer process is successful or if the process fails during the engine run, you can click the **Preview:** area on the status bar to view an engine message file.

Note: Keep in mind that you should not save changes to any of the design objects that are used to create the package file while the preview in external viewer feature is packaging, as this might create unexpected results.

There are several ways to control your experience when you use the preview in external viewer feature. For example, if you want to set the options for the engine message file during preview or provide a complete file path for output to a device, you can specify a control file when you initiate the preview in external viewer process. Additionally, you can specify the range of customer records to include in the preview, as well as whether you want to preview only the currently selected design page and associated flow pages, or preview all of the output that is produced by the application.

For more information about specifying a path for archived package files, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

To preview a design in an external viewer:

1. In Designer, from the Menu bar, select **File > Preview in External Viewer....**

Tip: Alternatively, on the standard toolbar, click .

The **Preview** dialog box opens.

Note: Keep in mind that the options in the **Preview** dialog box are limited to the application mode of your design database. For example, if your design database is SBCS, only SBCS output queues and SBCS package profiles are available.

2. In the **Application** box, select the application that includes the design page.

Note: The page that you want to preview must be included within a document in the selected application.

3. From the **Package Profile** drop-down list, select a package profile.
4. In the **Viewers** area, select the check box that corresponds with each viewer that you want to use to preview the design page.

Note: Keep in mind that you can select a maximum of three viewers per each output queue for each preview run.

5. Below the **Package Profile** drop-down list, complete the following optional steps as needed:

To	Do this
Use a control file for the packaging engine run	In the Engine Control box, enter or select the control file location.
Preview the output for all of the customers in your application database	Select the All Customers check box.
Preview the output for a specific customer range in your application database	<ol style="list-style-type: none">a. Make sure that the All Customers check box is cleared.b. In the Customers boxes, enter the range of customers.
Preview only the selected design page and all of its associated flow pages	Select the Preview only the selected design page check box.
Preview all of the design pages and all of the associated flow pages that are in your application	Clear the Preview only the selected design page check box.

Note: The **Preview** button is active only if you select an application, a package profile, and a viewer.

6. Click **Preview**.

The preview in external viewer process completes and the design page opens in each of the viewers that you selected to preview the design page.

Tip: If you want to cancel the preview in external viewer process, from the Menu bar, select **File > Cancel Preview**. Alternatively, on the standard toolbar, click .

Keep in mind the following considerations when using the preview in external viewer feature:

- When you use the preview in external viewer to create subsequent previews for an application, the settings that were specified previously in the **Preview** dialog box are retained.
- If you close Designer while the preview in external viewer process is running, the preview process is cancelled.
- When you open a flow page or a banner page in Designer, the preview in external viewer feature will produce output for the flow page or the banner page only if you initiate an application-level preview. To initiate an application-level preview, make sure that the **Preview only the selected design page** check box is cleared.
- When you initiate a page-level preview using the preview in external viewer feature, and the design page starts on the back of a duplex page, the front of the page does not appear in the preview.

14.2 Using Spelling, Grammar, and Excluded Word Check

You can check the content quality of a document by running spell check, grammar check, and an excluded words check.

To use spelling, grammar, and excluded word check, complete the following tasks as needed

- “[Setting Up Spell Check](#)” below
- “[Running Spelling, Grammar, or Excluded Word Check](#)” on page 481
- “[Checking Spelling, Grammar, or Excluded Words as You Enter Text](#)” on page 482
- “[Removing Entries from the Local Dictionary](#)” on page 482

14.2.1 Setting Up Spell Check

Before you begin spell checking, you must select the dictionary you want to use and customize your settings to prevent unnecessary error flags. To set up spell check in Designer, you must specify what you want to be considered misspelled, whether you want spell check to check the use of uppercase and lowercase letters, and which dictionaries you want spell check to use.

Exstream supports the following languages:

- Arabic
- Catalan
- Czech
- Danish
- Dutch
- English (American)
- English (Australian)
- English (British)
- French
- French (Canadian)
- German
- Hebrew
- Hungarian
- Indonesian
- Italian
- Korean
- Malay (Malaysian)
- Norwegian
- Norwegian (Nynorsk)
- Polish
- Portuguese
- Portuguese (Brazilian)
- Russian
- Spanish
- Swedish
- Tagalog (Philippines)
- Thai
- Vietnamese

In order for spell checking to work with a given language, the code page for that language must be installed on your operating system. For details about installing a code page, contact your system administrator.

For information about setting up dictionaries, see *System Administration* in the Exstream Design and Production documentation.

To set up spell check:

1. From the **Tools** menu, select **Options**.

The **Designer Options** dialog box opens.

2. Click the **Spelling** tab.
3. If you want Designer to suggest spelling corrections when you right-click a misspelled word, select the **Suggest spelling corrections when right-click** check box.
4. Specify your dictionary options:

To	Do this
Select a language dictionary	In the Dictionary area, select a language from the Language drop-down list. The options that are available depend on which languages were installed.
Use the same dictionary for all language layers in the design	In the Dictionary area, select the Use this dictionary for all language layers check box. This feature is useful when you have a custom dictionary that contains words in all of the languages that you use. For more information about language layers, see “ Designing for Multiple Languages ” on page 506.
Check whether the same word is repeated twice in a row	Select the Check for doubled words check box.
Use the local dictionary stored on your computer in addition to the selected dictionary	In the Dictionary area, select the Check with local user dictionary check box.
Use the custom dictionary your administrator created for use with Exstream	In the Dictionary area, select the Check with Exstream dictionary check box. If you are required to use the custom dictionary, the Check with Exstream dictionary check box appears selected and inactive. For more information about custom dictionaries, see <i>System Administration</i> in the Exstream Design and Production documentation.

5. Click **OK**.

14.2.2 Running Spelling, Grammar, or Excluded Word Check

In Designer, you can run spelling, grammar, and excluded word checks on a word, a paragraph, a text box, or all of the text in a design. Keep in mind, however, that grammar checking is available only in English. Also, if your company does not have an excluded words dictionary, you cannot perform an excluded word check.

For more information about excluded word dictionaries, see *System Administration* in the Exstream Design and Production documentation.

To run a run spelling, grammar, and excluded word check:

1. Select the word, paragraph, or text box you want to check. If you want to check all of the text in a design, click a blank area of the design to ensure that no design objects are selected.
2. On the Standard toolbar, click .

If there are no spelling, grammar, or excluded word errors, you receive a message stating that the spelling, grammar, and excluded word check is complete.

3. If there are errors in the text, the **Spelling, Grammar, & Excluded Words** dialog box opens.

The error appears in the **Not in Dictionary** box.

4. Select how you want to handle the error:

To	Do this
Ignore the current instance of this error only	Click Ignore Once .
Ignore all instances of this error in this design	Click Ignore All .
Prevent any instance of this error from being marked again	Click Add to Dictionary . <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9;"><p>Note: Add to Dictionary is active only if you use a local dictionary. The ignore options do not apply to words that should be excluded.</p></div>
Change the current instance of this error only	a. Select the correction from the Suggestions area or enter your own correction in the Change To box. b. Click Change .

To	Do this
Change all instances of this error in this design	<ol style="list-style-type: none">a. Select the correction from the Suggestions area or enter your own correction in the Change To box.b. Click Change All.

5. Click **Previous** or **Next** to navigate through the errors.
6. Repeat step 4 and step 5, as needed, until all the errors have been corrected or ignored.
7. Click **Close**.

The **Spelling, Grammar, & Excluded Words** dialog box closes.

14.2.3 Checking Spelling, Grammar, or Excluded Words as You Enter Text

Designer can automatically check spelling, grammar, and excluded words as you enter text.

To set Designer to check text automatically:

1. From the **Tools** menu, select **Options**.

The **Designer Options** dialog box opens.

2. To specify the type of checks to conduct, select one or more of the following options:

To	Do this
Check spelling as you enter text	On the Spelling tab, select the Check spelling as you type check box.
Check grammar as you enter text	On the Grammar tab, select the Check grammar as you type check box.
Check for excluded words as you enter text	On the Excluded Words tab, select the Check for excluded words check box. If your company does not have an excluded words dictionary, you cannot perform an excluded word check. For more information about excluded word dictionaries, see <i>System Administration</i> in the Exstream Design and Production documentation.

3. Click **OK**.

14.2.4 Removing Entries from the Local Dictionary

When you use a local dictionary, you can add words during spell check to prevent any instances of the words from being marked as errors during future spell checks. To remove a word from the

local dictionary, you must use a text editor to remove the word from the `ExstreamPersonal.txt` file on your local machine.

14.3 Reviewing Text for Readability

Designer offers the Flesch reading ease and Flesch-Kincaid grade level scales to let you measure how easily text can be read. Both the Flesch reading ease scale and Flesch-Kincaid grade level scale use word length and sentence length to measure readability. The Flesch reading ease and Flesch-Kincaid grade level scales are intended for use with English language documents.

To review text for readability, complete the following tasks as needed:

- “[Measuring Readability](#)” below
- “[Interpreting Readability Results](#)” on the next page
- “[Getting Readability Statistics at Run Time](#)” on page 485

14.3.1 Measuring Readability

To measure how easily text can be read:

1. In Designer, select a paragraph, object, or section of text to measure.

To measure the readability of the entire document, do not select anything.
2. From the **Tools** menu, select **Tools > Readability**.

The **Readability** dialog box opens.
3. From the **Content to be examined** drop-down list, select one of the following options that corresponds to the content that you want to measure:
 - **Entire document**—Measures the readability for visible text in the entire document
 - **Currently selected paragraph(s)**—Measures the readability for visible text that is included in the currently selected paragraph(s)
 - **Currently selected text**—Measures the readability for visible text that is included in the currently selected text
 - **Currently selected object(s)**—Measures the readability for visible text that is included in the currently selected object(s)

If you do not select a paragraph, object, or any text, only the **Entire document** option is active.

4. If you want to include headers when measuring readability, select the **Include text in headers when determining readability** check box in the **Exceptions** area.
5. If you want to include footers when measuring readability, select the **Include text in footers when determining readability** check box in the **Exceptions** area.
6. Click **OK**.

The readability results appear in the **Readability** dialog box.

14.3.2 Interpreting Readability Results

The readability tool provides you with three different types of result information about the visible text in the selected content. The **Counts** section provides you with the actual counts of words, sentences, and paragraphs. Averages, such as words per sentence, are available in the **Averages** section. The **Readability** section gives you statistics based on two different reading scales.

The Flesch Reading Ease Scale

The Flesch reading ease scale shows statistics based on the average number of words per sentence and the average number of syllables per 100 words.

Flesch reading
ease scale

Value	Meaning
90-100	Very easy
80-90	Easy
70-80	Fairly Easy
60-70	Standard
50-60	Fairly Difficult
30-50	Difficult
0-30	Very Difficult

The Flesch-Kincaid Grade Level Index

The Flesch-Kincaid grade level readability index is also based on the number of syllables per word and the number of words per sentence. The resulting number indicates the approximate level of education, based on US guidelines, that is required to read and understand the text.

Note: You do not get exactly the same statistics with the same text in a different Flesch readability program because the criteria set in each program differs.

14.3.3 Getting Readability Statistics at Run Time

To measure the readability of your output, you can use an engine switch to send the information to a report file. Using the READABILITY switch allows you to measure the readability of the final output for each customer (including variable content, and so on).

Syntax:

-READABILITY = <Value>

Select one of the following values:

- NONE—No readability information is generated.
- BODY—A readability report is generated for each customer. Text in headers and footers is not included.
- HEADER—A readability report is generated for each customer, but header text is included.
- FOOTER—A readability report is generated for each customer, but footer text is included.
- ALL—All text is used to generate the report.

For more information about engine switches, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

14.4 Using Text Revision Tracking

Multiple people typically enter and revise text on pages and messages before the final version goes into production. Revision tracking makes it easier to track these changes. It also lets an approver know exactly what changes have been made and whether or not suggestions have been incorporated. Revision tracking tracks additions or deletions to the text. Formatting changes are not tracked. Revision tracking is part of the Exstream base product and does not require an approval process.

To use the revision tracking features, complete the following tasks as needed:

- “Activating Revision Tracking” on the next page
- “Customizing Revision Tracking Options” on the next page
- “Accepting and Rejecting Revisions on the Page” on page 488
- “Viewing a Detailed List of Revisions” on page 489

14.4.1 Activating Revision Tracking

In Designer, you must turn on revision tracking for each page on which you wish to use it. If you turn off revision tracking, previous revisions remain until they are accepted. Any new revisions are not tracked.

Before you can use revision tracking in Designer, the system administrator must enable the revision tracking feature in the **System Settings**.

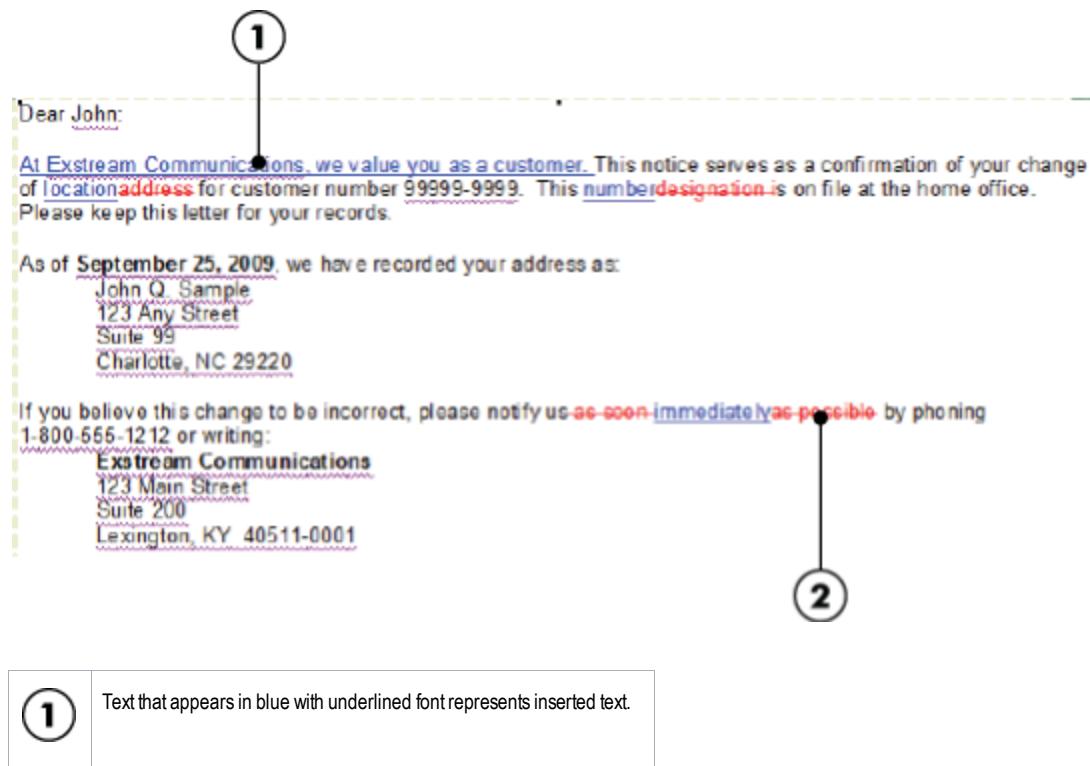
For information about enabling the revision tracking feature, see *System Administration* in the Exstream Design and Production documentation.

To turn on revision tracking, go to the **Tools** menu in Designer and select **Revision Tracking > Track Changes to Text**. The default view is **Show Current with Markup**.

14.4.2 Customizing Revision Tracking Options

You can customize revision tracking in two ways: you can customize what markup is visible or you can customize the formatting of the markup (for example, you can change the color that indicates deleted text).

Example of Revision Tracking Markup





Text that appears in read with strikethrough font represents deleted text.

Selecting Which Text Revisions Are Visible

In Designer, you can customize revision tracking to show the original text, new text, or both. For example, if you want to compare the original text to the new revised text, you can select **Show Original** to see the original text, and then select **Show Current** to see the revised text.

To change your revision tracking viewing options, do one of the following:

To	Do this
Make revision tracking show original text without edits	From the Tools menu, select Revision Tracking > Show Original .
Make revision tracking show text edits as if they were accepted	From the Tools menu, select Revision Tracking > Show Current .
Make revision tracking show text edits, but changes are highlighted	From the Tools menu, select Revision Tracking > Show Current with Markup .

Customizing Revision Markup Format

You can customize how revision markups appear in Designer. You can change how inserted and deleted text is highlighted. To customize the formatting of revision markup:

1. In Designer, from the **Tools** menu, select **Revision Tracking > Show Current with Markup**.
2. From the **Tools** menu, select **Revision Tracking > Markup Options**.

The **Revision Markup** dialog box opens.

3. Customize how changes are identified on the page:

To	Do this
Specify what style is used on inserted text	In the Inserted text area, from the Markup drop-down list, select one of the following options: <ul style="list-style-type: none">• Underline• None
Specify what color is used to highlight inserted text	<ol style="list-style-type: none">a. In the Inserted text area, from the Color drop-down list, select one of the following options:<ul style="list-style-type: none">• Vary by author• Leave unchanged• Use specifiedb. If you selected the Use specified options, a color well appears next to the Color drop-down list and you can specify a color for inserted text.c. Click OK.
Specify what style is used on deleted text	In the Deleted text area, from the Markup drop-down list, select one of the following options: <ul style="list-style-type: none">• Strikethrough• Hidden
Specify what color is used to highlight deleted text	<ol style="list-style-type: none">a. In the Deleted text area, from the Color drop-down list, select one of the following options:<ul style="list-style-type: none">• Vary by author• Leave unchanged• Use specifiedb. If you selected the Use specified option, a color well appears next to the Color drop-down list and you can specify a color for deleted text.c. Click OK.

4. Click **OK**.

14.4.3 Accepting and Rejecting Revisions on the Page

If you have selected either **Show Current with Markup** or **Show Current**, you can accept or reject revisions on the page.

To accept or reject text on the page, right-click the revised text and select one of the following options:

- **Accept revision**
- **Reject revision**
- **Accept All Revisions**
- **Reject All Revisions**

Note: If your company uses an approval process, all changes must be made while in the Work in Progress status. Any changes must be accepted before submitting for approval. Any unaccepted changes are automatically accepted.

14.4.4 Viewing a Detailed List of Revisions

You can review a summary of tracked changes and sort the summary of tracked changes by the type of revision. For example, you can sort changes based on which user made the revision.

To view a detailed list of revisions:

1. In Designer, from the **Tools** menu, select **Revision Tracking > Review Changes**.
The **Revisions** dialog box opens.
2. If you want to change the sort order of the revisions, select one of the following category headings in the **Revisions** dialog box:
 - **Where**—Text box in which the change was made
 - **Change**—Type of change made
 - **Made by**—Which design user made the change
 - **Date**—Day on which the change was made
3. If you want to accept or reject changes from the **Revisions** dialog box:

To	Do this
Accept a change	<ol style="list-style-type: none">a. Click the revision you want to accept. In the Revisions dialog box, the revision is highlighted.b. Click Accept. The revision no longer appears in the Revision dialog box, and the highlighting is removed from the revised text.

To	Do this
Reject a change	<ol style="list-style-type: none">Click the change you want to reject. In the Revisions dialog box, the revision is highlighted.Click Reject. The revision no longer appears in the Revision dialog box and the revisions are removed.
Globally accept or reject changes	<ol style="list-style-type: none">Click Select All. In the Revisions dialog box, all of the revisions are highlighted.Click Accept or Reject. The revisions no longer appear in the Revision dialog box.

4. If you want to see where the revision is in the text:
 - Click the revision you want to see.
 - Click **Go To**.

The revision is highlighted in the text.
5. When you are finished, click **Close** to close the **Revisions** dialog box.

14.5 Using the Approval Process

In Exstream, design workflow refers to the progression of an object from initial design to final approval. Submitting all components of an application to a designated approver helps you ensure that content is consistent and conforms to company standards. Designated approvers are design users who are members of design groups that have **Approver** access. Your system administrator can assign **Approver** access.

In the basic design workflow included in Exstream, an object can be submitted and then approved by any single designated approver. The basic design workflow lets designated approvers review and approve new objects in the system before they are used. This means that anyone with the proper permissions can create new objects in Exstream, but these objects must be approved before being used in production.

The basic submission, approval, and rejection processes are the same whether you are using the basic design workflow functionality included with Exstream or the advanced design workflow that you obtain by licensing the Advanced Design Workflow module. However, the number of approval steps varies depending on whether you use basic design workflow or the advanced design workflow. The Advanced Design Workflow module also lets you add revision history notes. If you use the Advanced Design Workflow module, the dialog boxes used during the approval process include a tracking area that the basic design workflow dialog boxes do not have. The tracking area shows the approval status and a brief history of the object.

For more information about design workflow, see *System Administration* in the Exstream Design and Production documentation.

This section discusses the following topics:

- “About Object Statuses” below
- “Submitting an Object for Approval” on the next page
- “Cancelling the Submission of an Object” on page 493
- “Approving an Object” on page 494
- “Unapproving an Object” on page 495
- “Rejecting an Object” on page 496
- “Making a Work in Progress from an Approved or Archived Version” on page 497
- “Creating a Quick Fix for Unexpected Changes” on page 497
- “Viewing the Status and Version History of an Object” on page 502
- “Setting Status Icons to Appear in Designer” on page 503
- “Customizing the Library View” on page 504
- “Opening View-Only Objects” on page 505

14.5.1 About Object Statuses

Objects have a particular status, such as Work in Progress or Submitted, as they move through the approval process. An object's status symbol is located to the left of the object in the Library and in the History View. Keep in mind that statuses and versions are not the same. "Version" refers to the chronological order of object creation, while "status" refers to where an object is in the design workflow.

For information about versions, see “Viewing the Status and Version History of an Object” on [page 502](#).

The following table explains each status and the symbol used to indicate it.

Object status and symbols

Object Status	Description	Symbol
Work in Progress	The object's design and properties are editable. This status is the default status. Note: You can have only one Work in Progress version per object.	
Submitted	The object has been submitted for approval.	

Object status and symbols, continued

Object Status	Description	Symbol
Approved	The object has been approved. Note: You can only have one Approved version per object.	
Rejected	The object has been rejected by one or more of the approvers. The object's design and properties are editable and the object can be submitted again for approval.	
Archived	The object has been approved and then archived because a newer version of the object was approved. For example, if version 1 has a status of Approved, and then version 2 is Approved, the status of version 1 changes to Archived.	
Quick Fix in Progress	The object is in a Quick Fix state and is being worked on. The object's design and properties are editable.	
Quick Fix Submitted	The object is in a Quick Fix state and has been submitted for approval.	
Quick Fix Rejected	The object is in a Quick Fix state and has been rejected by one or more of the approvers. The object's design and properties are editable and the object can be submitted again for approval.	

14.5.2 Submitting an Object for Approval

If the system administrator has enabled the design workflow features in Design Manager, in most cases, you are required to submit an object before it can be approved. You can submit objects individually or you can submit an object and its dependencies and child objects at the same time, whether or not the parent object is also a Work in Progress. For example, a paper type object is the dependent of a page object. Submitting an object and its dependencies and child objects is helpful if you want to submit an application, but you do not want to submit each object separately. In this case, you could submit them all at the same time.

For more information about the design workflow features in Design Manager, see *System Administration* in the Exstream Design and Production documentation.

To submit an object for approval:

1. To select the object or objects you want to submit, do one of the following:

To	Do this
Submit a single object	In Design Manager, in the Library, right-click the object and select Submit for Approval . The Submit for Approval dialog box opens.
Submit an object and its dependencies and child objects	<ol style="list-style-type: none">a. In Design Manager, in the Library, select the object you want to submit.b. From the Menu bar, select Manage > Submit with dependencies. The Mass Submit dialog box opens.c. In the Types to submit box, select the types of dependent objects you want to submit. Click Select All to select all of the dependent object types. The Objects to submit area is updated to show the objects being submitted.d. Click Submit All. The Submit for Approval dialog box opens.

2. In the **Approval, rejection, and version notes** box, enter any notes related to this version of the object. For example, you can indicate to the approver what has changed. Any notes entered previously appear in the box.
3. If you are not required to submit an object before approving it and you want to send the object directly to the Approved status, select the **Approve immediately** check box.
4. Click **OK**.

The object is submitted for approval or the object becomes approved if you selected the **Approve immediately** check box.

14.5.3 Cancelling the Submission of an Object

If you must make changes to a submitted object, you can cancel the submission and return the object to the Work in Progress status. You can cancel the submission of objects individually or you can cancel the submission of an object and its dependencies and child objects at the same time, whether or not the parent object has been submitted. For example, a paper type object is the dependent of a page object. Cancelling the submission of an object and its dependencies and child objects is helpful if you want to cancel the submission of an application, but you do not want to cancel the submission of each object separately. In this case, you could cancel the submission of them all at the same time.

To cancel the submission of an object:

To	Do this
Cancel the submission of a single object	In Design Manager, in the Library, right-click the object and select Cancel Submission .

To	Do this
Cancel the submission of an object and its dependencies and child objects	<ol style="list-style-type: none">1. In Design Manager, in the Library, select the submitted object.2. From the Menu bar, select Manage > Cancel with dependencies. The Mass Cancel dialog box opens.3. In the Types to cancel box, select the types of dependent objects you want to include. Click Select All to select all of the dependent object types. The Objects to cancel area is updated to show the objects being included.4. Click Cancel All.

14.5.4 Approving an Object

If the system administrator has enabled the design workflow features in Design Manager, you can review submitted objects and approve them. You can approve objects individually or you can approve an object and its dependencies and child objects at the same time, whether or not the parent object has been submitted. For example, a paper type object is the dependent of a page object. Approving an object and its dependencies and child objects is helpful if you want to approve an application, but you do not want to approve each object separately. In this case, you could approve them all at the same time.

Keep in mind that the system administrator must give you approval permission before you can approve an object.

For more information about the design workflow features in Design Manager, see *System Administration* in the Exstream Design and Production documentation.

To approve an object:

1. To select the objects or objects you want to approve, do one of the following:

To	Do this
Approve a single object	In Design Manager, in the Library, right-click the object and select Approve . The Approve dialog box opens.
Approve an object and its dependencies and child objects	<ol style="list-style-type: none">a. In Design Manager, in the Library, select the object you want to approve.b. From the Menu bar, select Manage > Approve with dependencies. The Mass Approve dialog box opens.c. In the Types to approve box, select the types of dependent objects you want to approve. Click Select All to select all of the dependent object types. The Objects to approve area is updated to show the objects being approved.d. Click Approve All. The Approve dialog box opens.

2. In the **Approval, rejection, and version notes** box, enter any notes related to this version of the object. For example, you can indicate what components of the object you specifically reviewed. Any notes entered previously appear in the box.
3. Click **OK**.

The object is approved. If you are using a basic approval process, this step is the last step and the version is approved. If you are using the Advanced Design Workflow module, the object might go through additional approval steps before it is approved.

14.5.5 Unapproving an Object

If you want to make changes to an object that has already been approved, you can unapprove the object. When you unapprove an object, it returns to the Work In Progress status, which lets you make changes to the object without creating a new version. You can unapprove objects individually or you can unapprove an object and its dependencies and child objects at the same time, whether or not the parent object has been approved. For example, a paper type object is the dependent of a page object. Unapproving an object and its dependencies and child objects is helpful if you want to unapprove an application, but you do not want to unapprove each object separately. In this case, you could unapprove them all at the same time.

To unapprove an object:

To	Do this
Unapprove a single object	<ol style="list-style-type: none">1. In Design Manager, in the Library, select the object you want to unapprove.2. From the Menu bar, select Manage > Unapprove.

To	Do this
Unapprove an object and its dependencies and child objects	<ol style="list-style-type: none">1. In Design Manager, in the Library, select the object you want to unapprove.2. From the Menu bar, select Manage > Unapprove with dependencies. The Mass Unapprove dialog box opens.3. In the Types to Unapprove box, select the types of dependent objects you want to unapprove. Click Select All to select all of the dependent object types. The Objects to unapprove area is updated to show the objects being unapproved.4. Click Unapprove All.

14.5.6 Rejecting an Object

If an object does not meet approval standards, you can reject the object. If you reject an object, you can resume editing the object and then submit it for approval again. You can reject objects individually or you can reject an object and its dependencies and child objects at the same time, whether or not the parent object has been submitted for approval. For example, a paper type object is the dependent of a page object. Rejecting an object and its dependencies and child objects is helpful if you want to reject an application, but you do not want to reject each object separately. In this case, you could reject them all at the same time.

To reject an object:

1. To select the objects or objects you want to reject, do one of the following:

To	Do this
Reject a single object	In Design Manager, in the Library, right-click the object and select Reject . The Reject dialog box opens.
Reject an object and its dependencies and child objects	<ol style="list-style-type: none">a. In Design Manager, in the Library, select the object you want to reject.b. From the Menu bar, select Manage > Reject with dependencies. The Mass Reject dialog box opens.c. In the Types to reject box, select the types of dependent objects you want to reject. Click Select All to select all of the dependent object types. The Objects to reject area is updated to show the objects being rejected.d. Click Reject All.

2. In the **Approval, rejection, and version notes** text box, enter any notes related to this version of the object. For example, you can indicate the reasons for rejection. Any notes entered previously appear in the box.
3. Click **OK**.

The object is rejected. A designer can make changes to the object and resubmit it for approval.

14.5.7 Making a Work in Progress from an Approved or Archived Version

If you use Library components in an object that you archive, the reference to the component remains active. If the component is changed, the changes are also apparent in the archived version of the object. For example, if a page uses a component to store address block variables and a variable is removed from the component, the address block on the archived page reflects this change.

If you want to make substantial changes to an object in an Approved or Archived status, you can make a Work in Progress version of the object. Before making a Work in Progress version, remember that you can have only one Work in Progress per object at a time.

To make an object a Work in Progress:

1. In Design Manager, in the Library, right-click the appropriate object and select **Make Work in Progress**. If you already have an object with a Work in Progress status, the **Design Manager** dialog box opens.
2. In the **Design Manager** dialog box, click one of the following:
 - **Yes**—Overwrites any changes you have made to the existing Work in Progress
 - **No**—Does not overwrite the current version of an object and you receive a message to let you know that a Work in Progress was not created

14.5.8 Creating a Quick Fix for Unexpected Changes

Quick Fixes let you create an intermediate version of an existing Approved or Archived version without affecting any subsequent versions.

For example, you might have an Approved version of a page in production and a Work in Progress version you are preparing for the next production cycle. If you want to make temporary or unexpected changes to the Approved version and do not want to put those changes into your Work in Progress version, you can make a Quick Fix version from the Approved version. You can then make changes.

This section discusses the following topics:

- “[Making a Quick Fix](#)” below
- “[Quick Fix Version Numbers](#)” on the next page
- “[About Packaging Quick Fixes](#)” on the next page
- “[Converting a Quick Fix to a Work in Progress](#)” on page 500
- “[Deleting and Recovering Quick Fix Versions](#)” on page 501

Making a Quick Fix

You can only create a Quick Fix if there is a version number greater than the version you want to fix. For example, version number 2 must exist before you can make a Quick Fix in Progress of version number 1. If there is not a version 2, you simply create a Work in Progress.

To make a Quick Fix version:

1. In Design Manager, in the Library, right-click the appropriate object and select **History**.
The history of the object appears in the Edit Panel.
2. In the Edit Panel, right-click the version of the object from which you want to make a Quick Fix and select **Make Quick Fix**.
A Quick Fix version of the object appears in the Edit Panel.

If you make a Quick Fix version of an object with a status of Archived, then when the Quick Fix is approved, the object's status returns to Archived. However, if you make a Quick Fix version of version number 1 and version number 2 has a status of Work in Progress, when the Quick Fix version is approved, it has a status of Approved. For example, upon approval of the Quick Fix, you would have version number 1 with a status of Archived, version number 1.01 with a status of Approved, and version number 2 with a status of Work in Progress.

Note: The approval process for Quick Fixes is the same as objects without a Quick Fix status.

The following two tables provide examples of how the status of various versions changes when a Quick Fix is archived. The bold format shows the Quick Fix version in both examples.

Quick Fix versioning before making it an Archived object

Version number	Version Status
1	Archived
1.01	Quick Fix

Quick Fix versioning before
making it an Archived object,
continued

Version number	Version Status
2	Approved
3	Work in Progress

Quick Fix versioning after
making it an Archived object

Version number	Version Status
1	Archived
1.01	Archived
2	Approved
3	Work in Progress

Quick Fix Version Numbers

Unlike other statuses, if the object is in or has been through any of the Quick Fix statuses, the version number always appears with a decimal point (for example, 8.01).

Note: You can have only one active Quick Fix per object at a time. For example, you cannot have a Quick Fix in Progress version 1.01 and version 2.01 at the same time. You must Approve a Quick Fix before making another.

An object can have up to 99 Quick Fix versions per major version. For example, if you made 99 Quick Fixes of version 1 of a page, the version numbers would range from 1.01 to 1.99. The ability to make Quick Fixes becomes disabled after the 99th Quick Fix per major version.

About Packaging Quick Fixes

You can substitute the Quick Fix versions for the Approved version during packaging to test your changes. If you want to keep the changes, you can submit the Quick Fix for approval. After it is approved, the object maintains the Quick Fix version number, but has a status of Approved or Archived.

For information about packaging Quick Fix versions, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

Converting a Quick Fix to a Work in Progress

If you realize that a Quick Fix is not a one-time fix, but needs to become part of the ongoing production cycle of an object, you can convert a Quick Fix to a Work in Progress. A Quick Fix can become a Work in Progress, but a Work in Progress cannot become a Quick Fix. You must manually delete the Quick Fix version when you convert it to a Work in Progress.

A new version number is assigned each time you make a Work in Progress and an object keeps this version number as it travels through the approval process. Keep in mind, however, that a version is not the same as a status. If the object is in, or has been through, a Quick Fix status, the version number appears with a decimal point (for example, version 8.01). If the object has not been through a Quick Fix status, the version number appears without a decimal point.

Caution: If you convert a Quick Fix to a Work in Progress, you overwrite your current Work in Progress and any changes you have made to it.

To convert a Quick Fix to a Work in Progress:

1. In Design Manager, in the Library, right-click the appropriate object select **History**.

The history of the object appears in the Edit Panel.

2. In the Edit Panel, right-click the Quick Fix and select **Make Work in Progress**.

The Design Manager dialog box opens.

3. Click **Yes**.

The **Design Manager** dialog box closes and the Quick Fix becomes the new Work in Progress.

Alternatively, if you want to convert the Quick Fix to a new object, you can clone the Quick Fix. When you clone the Quick Fix, it becomes a new Work in Progress object. For example, suppose you clone version 1.01. The following table demonstrates cloning in this situation.

Quick Fix versioning before
cloning it to make a new Quick
Fix

Version number	Version Status
1	Archived
1.01	Quick Fix in Progress
2	Approved
3	Work in Progress

If you clone Quick Fix version 1.01, the cloned Quick fix becomes version number 1, as shown in the following example.

Quick Fix versioning after it has been cloned

Version number	Version Status
1	Work in Progress

Deleting and Recovering Quick Fix Versions

If you soft-delete a Quick Fix version and you have not created other Quick Fix versions, you can restore the Quick Fix version with its original version number. However, if one or more Quick Fixes have been created for the major version since the soft-delete, the restored Quick Fix version is assigned the next minor version number in the current list of Quick Fixes.

For example, suppose you delete version 2.01, and then create versions 2.02 and 2.03. The following table provides a sample of the versioning in this situation.

Quick Fix versioning after deleting and continuing through approvals

Version number	Version Status
1 *Keep in mind that the Quick Fix in Progress version 2.01 has been deleted, so if you restore the deleted Quick Fix in Progress, it is restored as version 2.04.	
1	Archived
2	Archived
2.01*	Quick Fix in Progress*
2.02	Archived
2.03	Approved
3	Work in Progress

If you restore the previous Quick Fix version 2.01, it becomes version number 2.04. This progression is shown in the following example.

Quick Fix versioning after restoring the deleted Quick Fix

Version number	Version Status
1	Archived
2	Archived
2.02	Archived
2.03	Approved

Quick Fix versioning after
restoring the deleted Quick Fix,
continued

Version number	Version Status
2.04	Quick Fix in Progress
3	Work in Progress

You cannot restore a Quick Fix version if the original Approved or Archived version has been deleted. However, if the original object was soft deleted, you can restore it and then restore the Quick Fix version.

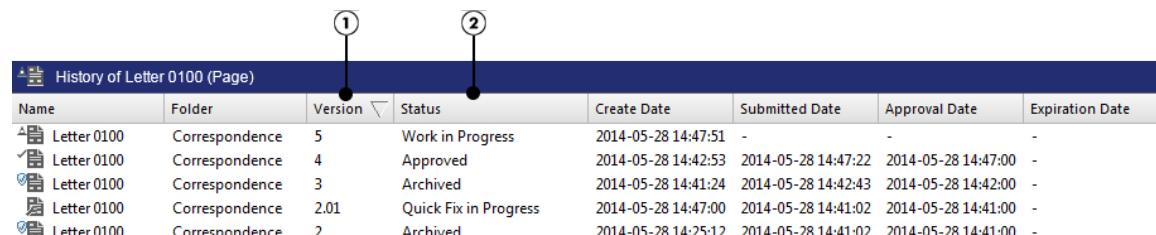
You cannot restore a soft deleted Quick Fix version if a Quick Fix in Progress version exists for the object.

14.5.9 Viewing the Status and Version History of an Object

There are times when you might want to verify whether you are working on the latest version of an object. In Design Manager, you can view the history of an object in the Edit Panel.

To see the history of an object, right-click the appropriate object in the Library and select **History**. The history of the object opens in the Edit Panel. You can see the current status of an object, all versions of the object, and a list of details related to recent activities.

History View (not all headings are shown)



The screenshot shows a table titled "History of Letter 0100 (Page)". The table has columns: Name, Folder, Version, Status, Create Date, Submitted Date, Approval Date, and Expiration Date. There are five rows of data. Callout 1 points to the "Version" column header. Callout 2 points to the "Status" column header.

Name	Folder	Version	Status	Create Date	Submitted Date	Approval Date	Expiration Date
Letter 0100	Correspondence	5	Work in Progress	2014-05-28 14:47:51	-	-	-
Letter 0100	Correspondence	4	Approved	2014-05-28 14:42:53	2014-05-28 14:47:22	2014-05-28 14:47:00	-
Letter 0100	Correspondence	3	Archived	2014-05-28 14:41:24	2014-05-28 14:42:43	2014-05-28 14:42:00	-
Letter 0100	Correspondence	2.01	Quick Fix in Progress	2014-05-28 14:47:00	2014-05-28 14:41:02	2014-05-28 14:41:00	-
Letter 0100	Correspondence	2	Archived	2014-05-28 14:25:12	2014-05-28 14:41:02	2014-05-28 14:41:00	-

1	Version history column
2	Status history column

Editing Versions of an Object While in History View

If the status of the object is Rejected or Work in Progress, you can change the object's properties and design and then save the object. If the object has a status of Approved or Archived (view-only statuses) and you want to change the object's properties or design, you must close the object in Designer and make a new Work in Progress version.

To edit versions of an object while in History View, do one of the following:

To	Do this
Edit the object's properties in Design Manager	Select and drag the object from within the Edit Panel to the Property Panel.
To edit the object in Designer	Select and drag the object from within the Edit Panel to another area of the Edit Panel. The object opens in Designer.

Deleting an Object from Within the History View

If you see an object listed in the object History View that you are sure you do not need, you might want to delete it. To delete an object from the object History View, right-click the object and select **Delete**. Deleting an object interrupts the chronological tracking of versioning; therefore, a dialog box opens, asking if you want to delete object.

If the following conditions are true, a second dialog box appears, asking if you want to delete all versions of the object (click **No** unless you want to delete every instance of the object):

- Versioning is enabled within the **System Settings**.
- You are a super user.
- The object's status is not Rejected, Work in Progress, Quick Fix Rejected or Quick Fix in Progress.
- The status of the latest active version of the object is not Rejected, Work in Progress, Quick Fix Rejected, or Quick Fix in Progress.
- The latest version of the object being deleted is not checked out or locked by another design user.
- Multiple active versions of the object exist.

14.5.10 Setting Status Icons to Appear in Designer

You can customize Designer so that you can see the status of a Library component in Designer. For example, a Work in Progress object has an orange cone in the upper left corner of the Library component.

To set status icons to appear in Designer:

1. From the **Tools** menu, select **Options**.
The **Designer Options** dialog box opens.
2. Click the **Designer** tab.
3. In the **Design Indicators** area, select the **Show version icons on library components** check box.
4. If you want Designer to display a version icon, select the **Show version icons on library components** check box. For example, a Work-in-Progress version of a component shows an orange cone.

14.5.11 Customizing the Library View

When reviewing a design, it might be helpful to view the status of the objects in your design. Status views help keep the Library organized and make it easier to find objects of a certain status. The version area of the **Status** bar, at the bottom of Design Manager, shows your current view.

Tip: If you do not limit the list to one version status, it might grow too large to manage. For general use, the most convenient **Versions to Show** setting is **Latest**.

To select version statuses to show in the Library:

1. At the top of the Library, click the **Library** bar.
2. From the **Library** drop-down list, highlight **Versions to Show**.
3. From the **Versions to Show** list, choose one of the following options:
 - **Latest**
 - **Work in Progress**
 - **Submitted**
 - **Rejected**
 - **Approved**
 - **Archived**
 - **Quick Fix in Progress**
 - **Quick Fix Submitted**
 - **Quick Fix Rejected**

- **Submitted by me**
- **Pending my approval**

The Library view changes to show only the objects with the status that you selected.

Note: You can create new objects only if you have either **Latest** or **Work in Progress** selected from the **Versions to Show** list.

14.5.12 Opening View-Only Objects

Whether you are using the basic design workflow or the Advanced Design Workflow module, submitted objects are view-only. After objects have been approved or archived, they are also view-only. Objects in a view-only state can be opened and viewed in Design Manager and Designer, but cannot be edited. For example, when a page is view-only in Designer, you can navigate inside text boxes and table cells, but you cannot change them. You can also open the properties on rules, variables, and objects, but you cannot change them. While most options on dialog boxes are inactive, some still appear as editable. Text from view-only objects can be copied. However, a view-only page or other object that is opened cannot be saved.

Chapter 15: Designing for Multiple Languages

If you are designing a communication that will be sent to customers throughout the world, or to areas that use more than one language or dialect, you can use language layers to reuse the same design while still providing information in each customer's language. Language layers are Exstream design objects that allow you to "layer" unique content on a base design. For example, suppose you have a design that is English-only, but you want to make it available for Spanish-speaking customers as well. In this situation, you could place any graphics for this design on the default language layer (automatically created when you create the design), and then add a Spanish language layer and an English language layer to contain the text. When you package this design, English-speaking customers will receive an English version and Spanish-speaking customers will receive a Spanish version.

This chapter discusses the following topics:

- [“How Default Layers Work With Language Layers” below](#)
- [“Adding Language Layers in Design Manager” on page 508](#)
- [“Adding Content to Language Layers in Designer” on page 510](#)
- [“Setting Up the ‘SYS_LanguageCustomer’ System Variable to Send the Correct Language to Customers” on page 511](#)
- [“Referencing a Language Layer during Translation” on page 512](#)

Because you use the default layer to contain general content when working with language layers, it is also recommended you review the information about how default layers work with language layers before adding language layers to your design.

Keep in mind that language layers are not the same as design layers. Design layers allow you to create a named grouping of design components that can be kept static as you work on other objects within a complex design. Language layers allow you to create different layers to accommodate different languages.

For information about design layers, see [“Creating and Setting Up Pages in the Library” on page 30](#).

15.1 How Default Layers Work With Language Layers

When you create a page, message, or paragraph, a default language layer is automatically created. When you place objects directly onto a page, you are placing objects on the default

language layer. When you use multiple language layers, the default language layer can include text in the most widely spoken language of the audience, or the native language of the product or service.

The default language layer can be used in the following ways:

- It can be sent to customers whose local language does not exist for a message or page. If no default layer is available, the message or page is not sent to a customer if it is not available in the customer's language.
- It can be used as a background for all language-specific layers in the standard design, meaning that it does not include text elements. Those reside on each language layer.

Note: You cannot use the default language layer as a background in container designs. Instead, you can use the default language layer to contain objects that you want to share among specific language layers in the same container design.

For more information about using language layers with container designs, see [“How language layers work in container designs” on page 65](#).

Some languages take more words and characters to complete an idea than other languages. The space allowed for one message or slogan may not be sufficient for another language. Language layers can be different sizes because it is possible for language layers to shrink and grow independent of the default layer.

Graphics and text reside on layers in the following order:

1. Template layer
2. Default language layer
3. Specific language layer

To place all common objects on the default layer and to design the language-specific content on the language layer, select the **Use default language as background for other languages** check box in the **Language** area of the page, paragraph, or section properties. Keep in mind that in a container design, the default language layer cannot appear as a background for other languages. Instead, this option specifies whether the default language layer contains default objects that can be shared among other language layers in the same container design. This option improves processing time for both standard designs and container designs, because common objects are created only once.

For more information about creating languages, see *System Administration* in the Exstream Design and Production documentation.

15.2 Adding Language Layers in Design Manager

Before you can add a language layer to a page, message, or paragraph, your system administrator must have created the language object for that language. Even though you add content to a design in Designer, you must add the language layer in Design Manager.

Languages are objects defined in the **System Settings**. Each language has a variety of properties, including the way that dictionaries, dates, and numbers are used. To use multiple languages, your system administrator must enable multiple languages in your system. These languages, once defined, are used to create language layers, which let you create content for multiple languages in a single message or page.

For more information about creating languages, see *System Administration* in the Exstream Design and Production documentation.

15.2.1 Adding Language Layers to Pages

To add a language layer to a page:

1. In Design Manager, drag the page from the Library to the Property Panel.

The page opens in the Property Panel.
2. Click the **Languages** tab.
3. In the **Languages** area, click  .

The **Select language** dialog box opens.
4. From the list of languages, select the appropriate language.

The **Select language** dialog box closes.
5. Click **OK**.
6. If the customer language is not defined in the 'SYS_LanguageCustomer' system variable, and you want to send the default language, select the **Send default language if customer language does not exist** check box.

For information about defining a customer language in the 'SYS_LanguageCustomer' system variable, see "["Setting Up the 'SYS_LanguageCustomer' System Variable to Send the Correct Language to Customers" on page 511](#)".
7. Drag the page into the Edit Panel.

The page opens in Designer for you to add content.

After adding language layers in Design Manager, you must add content to the language layer in Designer.

15.2.2 Adding Language Layers to Messages or Paragraphs

As you do with pages, you must add language layers to messages and paragraphs in Design Manager. However, with messages and paragraphs, you have the additional flexibility to add content in Design Manager. The content you add to messages and paragraphs in Design Manager can have only limited formatting.

You can apply language layers to text messages, graphic messages, and graphic/insert messages; however, language layers are used for graphic/insert messages only if the pre-printed messages run out and Exstream begins to use the message as a graphic message.

For more information about messages, see *Managing Marketing Messages* in the Exstream Design and Production documentation.

For more information about paragraphs, see “[Using Paragraphs and Sections to Build Complex Documents](#)” on page 109.

To add a language layer to a message or paragraph:

1. In Design Manager, drag the paragraph or message from the Library to the Property Panel.
2. Click the **Content** tab.
3. In the **Languages** area, click .

The **Select the new language** dialog box opens.

4. Select the appropriate language and click **OK**.

The **Select the new language** dialog box closes and the language appears in the list of languages in the **Languages** area. After a language is added to the list of languages, it is removed as an option in the **Select the new language** dialog box.

5. If the customer language is not defined in the 'SYS_LanguageCustomer' system variable, and you want to send the default language, select the **Send default language if customer language does not exist** check box.

For information about defining a customer language in the 'SYS_LanguageCustomer' system variable, see “[Setting Up the 'SYS_LanguageCustomer' System Variable to Send the Correct Language to Customers](#)” on page 511.

6. To add text with limited formatting to the language layer:

To	Do this
Add variable text	<p>a. Click  . The Select Variable dialog box opens.</p> <p>b. From the Variable list, select a variable.</p> <p>c. Click OK.</p> <p>The Select Variable dialog box closes and the variable you selected appears in the text box on the Content tab.</p>
Add text from an RTF file	<p>a. Click  . The Open dialog box opens.</p> <p>b. Go to the RTF file you want to use.</p> <p>c. Click Open.</p> <p>The Open dialog box closes.</p>
Add static text	In the Language box, enter text.

7. Drag the message or paragraph into the Edit Panel.

The message or paragraph opens in Designer for you to add content.

After adding language layers in Design Manager, you can add content to the language layer in Designer.

15.3 Adding Content to Language Layers in Designer

After you create a language layer in Design Manager, you can access it from Designer. When you open a page, message, or paragraph with language layers in Designer, it automatically opens the default layer.

Keep in mind that if a language layer does not contain any objects, it is deleted when the page is saved and closed. This also applies to newly-added languages in the page Property Panel. If they are created, but do not have content added to them, they are deleted when the Property Panel is closed.

To design content for a particular design layer:

1. In Designer, open the object to which you want to add language-specific content.
2. On the Standard toolbar, click .

The **Select the language to edit** dialog box opens.

3. Clear the **Show existing languages only** check box. If selected, this check box limits the layers that you can select to only those with objects on them. If the check box is cleared, all of the available design layers appear.
4. From the **Select the language to edit** drop-down list, select the language layer to which you want to add language-specific content.
5. Click **OK**.

The **Select the language to edit** dialog box closes and the language layer you selected opens in Designer.

6. Use the Designer tools to add content to the language layer.

15.4 Setting Up the 'SYS_LanguageCustomer' System Variable to Send the Correct Language to Customers

If you are using multiple language layers to send documents to customers in the appropriate language, you must define the value for the 'SYS_LanguageCustomer' system variable. Set a value for this system variable that corresponds to the name of one of the languages associated with the pages. If the language is the same for all the customers in the run, then you need to set only one value. On the other hand, if the language can be different for each customer in the same engine run, you must define the logic of the language selection for each customer. The following example contains a 'SYS_LanguageCustomer' formula in which the language layer is selected based on the values of a customer-specific variable:

```
if (Marketing.Customer_Language = "America")
then value = "English"
elseif (Marketing.Customer_Language = "Mexico")
then value = "Spanish"
endif
```

In the previous example, the 'Marketing.Customer_Language' variable has been mapped to the data file and is used by the engine to determine the language.

For more information about variables and mapping variables to a data file, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

If you create RTF output, the formula in the 'SYS_LanguageCustomer' system variable determines which spelling dictionary is specified in the RTF file. If you create a separate RTF file for each customer, and want to use a separate dictionary for each file, you must also use convenience breaks.

For more information about setting up RTF output and convenience breaks, see *Creating Output* in the Exstream Design and Production documentation.

To set up the 'SYS_LanguageCustomer' system variable to send the correct language to customers:

1. In Design Manager, expand the **Data Dictionary** heading in the Library.
2. Select the 'SYS_LanguageCustomer' system variable and drag it to the Property Panel.
3. Click the **Values** tab.
4. In the **Formula** area, alter the formula by adding language values for each language that you want to use. Without this formula, the customer's language is not chosen.
5. Make sure that the formula in the **Formula** area includes the user-defined variable that is mapped to the data file and identifies the customer's location.

For more information about the 'SYS_LanguageCustomer' system variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

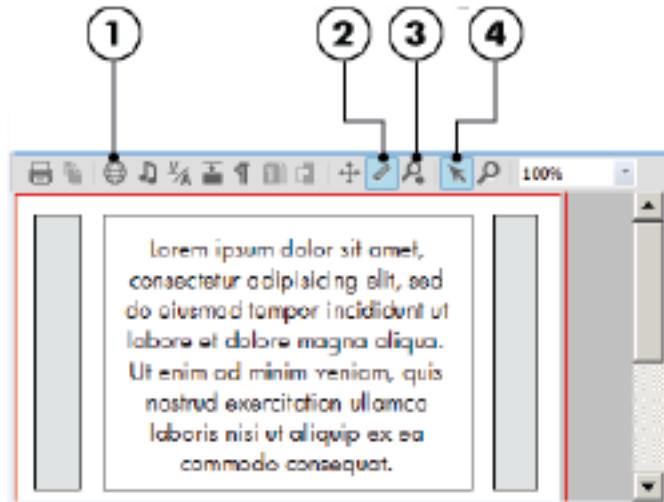
15.5 Referencing a Language Layer during Translation

If you want to translate content directly in Designer, you can use the Translation view to easily reference content during translation. For example, suppose that a page was designed in English. If you want to add a Spanish language layer, but do not have Spanish content available, you can open the English language layer in the Translation view. Then, you can create the Spanish content while referencing the English language layer as a source.

Note: You can use Translation view only with standard designs. Translation view is not supported for container designs.

You can dock the Translation view anywhere in Designer or you can let it float outside of the user interface. You can also set up the Translation view so that it shows the same area of the language layer you are translating at the same magnification. For an overview of the Translation view, see the following graphic.

Translation view



1	Switch layer—Open a different reference language layer in the Translation view.
2	Match scroll—Match the horizontal and vertical position of the reference language layer in the Translation view to the horizontal and vertical position of the translated language layer. For example, if you scroll the language layer that you are translating to the right, the reference language layer in the Translation view scrolls to the right as well.
3	Link views—Coordinate the reference language layer in the Translation view with the translated language layer in Designer. For example, suppose that you are translating two pages: page A and page B. For page A, you must use the English language layer as a reference, but for page B, you must use the en_US language layer. If you link the views, the English language layer appears in the Translation view when you are working on page A and the En_US language layer appears when you are working on page B. If the en_US language layer is in the Translation view and you switch to the English language layer, Designer switches to page A from page B.
4	Match zoom—Match the magnification level of the reference language layer in the Translation view to the magnification level of the translated language layer. For example, if you are viewing the translated language layer at 125% of its designed size, the reference language layer in the Translation view also appears at 125% of its designed size.

15.5.1 Opening a Reference Language Layer in the Translation View

1. In Designer, open the object to which you want to add language-specific content.
2. On the Standard toolbar, click .
- The **Select the language to edit** dialog box opens.
3. Select the **Open in Translation View** check box.
4. From the **Select the language to edit** drop-down list, select the language layer you want

to use as a reference.

5. Click **OK**.

The **Select the language to edit** dialog box closes and the language layer you selected opens in the Translation view.

6. Open the language layer on which you are adding translated text and add translated content as necessary.
7. When you are finished, select **Edit > Save** from the Menu bar.

Chapter 16: Automatically Adding Copies of Documents

Note: The recipient copies functionality is not currently supported in documents that are fulfilled through the OT2 platform using Exstream Document Generation on Demand.

If you want to make copies of documents in an application to send to recipients or destinations in addition to the customer, you can create these additional copies (known as "recipient copies") using a data file to specify the data for the recipients of the copies. For example, suppose you are designing an insurance claim letter to be sent to a claimant (the customer). You might need to create the following copies of the letter:

- For an attorney, a copy with the same documents as the claimant
- For the claimant's agent, a copy without terms and conditions
- For long-term retention in an archive, a copy with only the legally required information

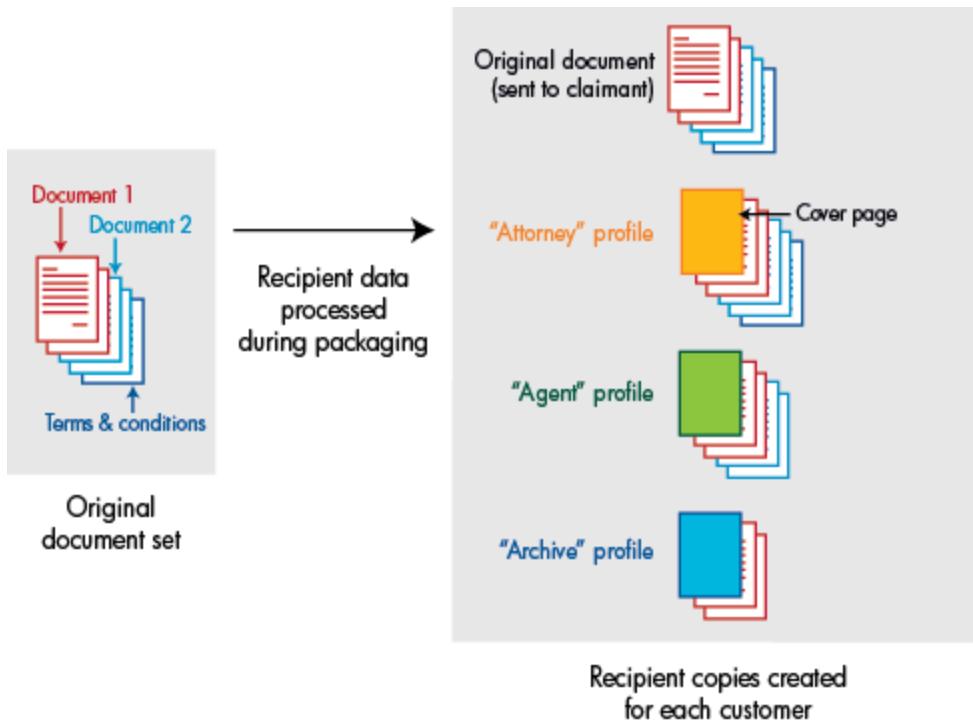
When working with recipient copies, keep in mind that term "original document set" refers to the set of documents in the application that is normally sent to the customer. If it is appropriate for your application, you might instead send a recipient copy to the customer, but this is an uncommon arrangement. In the above example, the original document set is sent to the claimant.

To indicate the necessary documents, the data required, and other basic settings for each type of recipient, you must create recipient profiles, such as "attorney," "agent," and "archive." Then, you store mailing or other information for these recipients in recipient data records in a data file or in data sections in the customer driver data file. The engine processes each indicated recipient as a separate customer, and a separate output is created for each.

The following graphic illustrates how you can customize documents for individual recipients or destinations according to the above example. Each recipient profile specifies a cover page tailored to the type of recipient. The following document sets are shown:

- The original documents ("Document 1," "Document 2," and "terms and conditions") are sent to the claimant.
- The "attorney" profile specifies the same document set as the original.
- The "agent" profile removes the "terms and conditions" document.
- The "archive" profile removes "Document 2" and the "terms and conditions" document so that only "Document 1" is included for archiving.

Illustration of adding recipient copies to a document



Note that a recipient profile can only remove documents from an application; it cannot add a document from outside the application, or reorder the documents in the application. Documents included in a recipient profile appear in recipient copies only if they are included in the application that is using the recipient profile, and they appear in the same order as they appear in the application.

To set up recipient copies, you must complete the following tasks:

1. [“Setting Up Recipient Profiles to Manage Recipient Types” on the next page](#)
2. [“Adding Recipient Profiles to an Application” on page 519](#)
3. [“Setting Up Recipient Data to Automatically Create Recipient Copies” on page 520](#)

You can also complete the following optional tasks as needed:

- [“Creating Cover Pages for Recipient Copies” on page 521](#)
- [“Sending Recipient Copies to Different Outputs” on page 522](#)
- [“Using Convenience Breaks to Create Separate Output Files for Customers and Recipients” on page 523](#)
- [“Naming Output Files Using Recipient Data” on page 524](#)
- [“Adding Design Objects That Appear Only on Recipient Copies” on page 525](#)

This chapter also discusses the following topic:

- “[Processing Considerations for Documents with Recipient Copies](#)” on page 526

16.1 Setting Up Recipient Profiles to Manage Recipient Types

A recipient profile contains basic settings for recipient copies used for a certain type of recipient, such as the documents to include in each copy and the cover page to be added to the copy.

For example, suppose you want to send a claim letter to a claimant, and you want to send a copy of the same documents to an attorney, but you want to archive a copy that has only the documents legally required for retention. In this scenario, you might create "attorney" and "archive" recipient profiles. The "attorney" profile would contain the same documents as the original document set, and the "archive" profile would contain only the legally required documents.

To enable recipient copies, you must create at least one recipient profile.

To create and configure a recipient profile:

1. In Design Manager, in the Library, go to **Environment > Delivery > Recipient Profiles**.
2. Right-click the **Recipient Profiles** heading and select **New Recipient Profile**.

The **New Recipient Profile** dialog box opens.

3. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
4. Click **Finish**.

The recipient profile opens in the Property Panel for you to define.

5. Use the options available to configure the recipient profile:

To	Do this
Include a subset of the original document set	Complete the steps described in "Including a Subset of the Original Document Set" below.
Use the same set of documents as the original	Make sure that no documents appear in the Included documents (if different from the original) box. To remove a document from the list, select it, and then click  .
Renumber the pages in the documents consecutively when using a set of documents different from the original	Select the Renumber all pages in recipient copies check box. If this option is not selected when using a set of documents different from the original, then page numbers are maintained from the matching original documents.
Include a cover page for each copy that uses this recipient profile	<ol style="list-style-type: none">a. Click in the Recipient cover page box. The Select Page dialog box opens.b. Select the page you want to use and click OK. The Select Page dialog box closes and the name of the page you selected appears in the Recipient cover page box. For more information about cover pages, see "Creating Cover Pages for Recipient Copies" on page 521.
Determine when the recipient profile is available based on rule logic	Use the Rule box to define the rule that controls when the recipient profile is available. For information about creating rules, see Using Logic to Drive an Application in the Exstream Design and Production documentation.

6. From the Menu bar, select **File > Save**.

16.1.1 Including a Subset of the Original Document Set

When configuring a recipient profile, you can use the **Included documents (if different from the original)** list to specify a subset of the original document set to include in recipient copies instead of the full set of documents in the original document set. If you leave the list empty, the same documents as those in the original document set are used in recipient copies that use the recipient profile.

To include a subset of documents from the original document set, you add each document that you want to be included to the list. Only the documents in the list appear in recipient copies that use the recipient profile. For example, suppose a claim letter contains "Document 1," "Document 2," and a "terms and conditions" document, but an archive copy only requires "Document 1." You would add "Document 1" to the **Included documents (if different from the**

original) list for the "archive" profile, and only "Document 1" will appear in a recipient copy that uses that profile.

Note that a recipient profile can only remove documents from an application; it cannot add a document from outside the application, or reorder the documents in the application. In other words, documents included in a recipient profile appear in recipient copies only if they are included in the application that is using the recipient profile, and they appear in the same order as they appear in the application. If you want to include a document in a copy for a recipient but not in the customer copy, you might choose to send a recipient copy to the customer instead of the original document set. For example, if you want to send a "summary" document to the client's agent but not to the client, you must add the "summary" document to the application and to the **Included documents (if different from the original)** list for the "agent" profile, and you might create a "client" profile that does not include the "summary" document.

To include a set of documents different from the original:

1. From the Library, drag the recipient profile for which you want to include a different set of documents to the Property Panel.
 2. Under the **Included documents (if different from the original)** box, click .
- The **Select Document** dialog box opens.
3. Click the document you want to add.
 4. Click **OK**.

The **Select Document** dialog box closes, and the document is added to the list.

5. Repeat step 2 through step 4 to add all the documents that you want to appear in recipient copies that use the recipient profile.
6. From the Menu bar, select **File > Save**.

The documents added to the list are used instead of the set of documents used for the original.

16.2 Adding Recipient Profiles to an Application

To specify the recipient profiles that are available to use in an application for adding recipient copies, use the application properties.

Before you can add recipient profiles to an application, you must first create the recipient profiles you need.

For more information about creating and configuring recipient profiles, see "[Setting Up Recipient Profiles to Manage Recipient Types](#)" on page 517.

To add recipient profiles to an application:

1. In Design Manager, from the Library, drag the application to which you want to add a recipient profile to the Property Panel.
2. Click the **Recipients** tab.
3. Below the **Application Recipient Profiles** box, click .

The **Select Recipient Profile** dialog box opens.

4. Select the recipient profile to add to the application and click **OK**.

The **Select Recipient Profile** dialog box closes and the recipient profile you selected appears in the **Application Recipient Profiles** box.

16.3 Setting Up Recipient Data to Automatically Create Recipient Copies

You use recipient data records in a data file to specify the information for recipient copies. When you include the data file containing recipient data records in an application, the engine adds the specified recipient copies automatically during processing. For example, you might store the name and mailing information for customers' agents and case managers in an external system and map it to recipient records in a data file. When you package an application that includes the data file, the engine adds a recipient copy for each recipient data record encountered in production.

If you use recipient data for other purposes during processing, keep in mind that recipient data is not available and cannot be used until the late compose phase (also known as the Queue step) of engine processing.

For more information about the late compose phase of engine processing, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

If you are using sorting and bundling, recipient document sets are indexed separately from customer document sets so that you can sort and bundle recipient document sets appropriately based on the recipient data. For example, if you are sorting by ZIP Code, and you are sending copies to an attorney and an agent who each have a ZIP Code different from the customer's, then the attorney and agent copies will be sorted with the correct ZIP Codes, not with the customer.

For more information about sorting and bundling, see *Creating Output* in the Exstream Design and Production documentation.

You can map recipient data records in a reference file or a customer driver file, in columnar, delimited, or XML format. Keep in mind that ODBC data source data files do not support recipient records. You map recipient data records the same way you map section data, with the following additional requirements:

- When mapping the data file, you must identify where a new recipient begins by completing one of the following tasks:
 - For XML formatted data files, select **Always** from the **Starts recipient** drop-down list in the **XML Tag Mapping Properties** dialog box for the appropriate tag.
 - For columnar or delimited data files, select the **Start new recipient** check box in the **Record Properties** dialog box for the appropriate record type indicator.
- If you are using a reference file, you must complete the following tasks:
 - Include a key variable linked to the customer driver file.
 - On the **Basic** tab of the data file properties, select the **Enable recipient copy processing** check box.
 - On the **Basic** tab of the data file properties, from the **Access** drop-down list, you must select **Disk seek** (columnar or delimited only), **Keyed VSAM** (columnar or delimited only), **Driver-ordered, required**, or **Driver-ordered, optional**. This selection affects the available options in the **IO time** drop-down list on the **Advanced** tab.
- If you want the data to determine the recipient profiles used, you must map the 'SYS_CurrentProfile' system variable. Otherwise, the first recipient profile listed for the application will be used for all copies.

For more information about system variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

For more information about setting up and mapping data files, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

16.4 Creating Cover Pages for Recipient Copies

You might choose to create a cover page that is included at the beginning of each recipient copy of a document set. For example, you might create a page with the words "This is a copy of the letter sent to your customer" so recipients are aware that they are receiving a copy of documents sent to another person. You can use a different cover page for each recipient profile. When the recipient profile that is used for a recipient copy includes a cover page, that cover page precedes the recipient copy in the final output.

Note: Recipient cover pages do not support rules and flowing objects, and you cannot apply a unique name to a recipient cover page.

To create a cover page, simply create a new page and use the design tools in Designer to set up the page as needed. You must then associate the cover page with a recipient profile to add it to the correct recipient copies.

For information about creating pages or using the design tools in Designer, see *Designing Customer Communications* in the Exstream Design and Production documentation.

For information about associating a cover page with a recipient profile, see “[Setting Up Recipient Profiles to Manage Recipient Types](#)” on page 517.

16.5 Sending Recipient Copies to Different Outputs

By default, recipient copies are sent to the output queues associated with the application, just as customer documents are. However, you can send customer documents and recipient copies to different output queues using rules. Depending on the rules you create, you can send all recipient copies to a different output queue from the customer document, send recipient copies to different output queues based on recipient profiles, or select output queues for individual recipient copies.

To send recipient copy to a different output from the customer copy:

1. Create all desired output queues and add them to the application.

For more information about creating output queues, see *Creating Output* in the Exstream Design and Production documentation.

2. For any output queue that you want to process only customer documents, specify a rule that excludes recipient copies. You can use the following rule that tests the 'SYS_CurrentProfile' variable to include only customer documents:

```
IF(SYS_CurrentProfile = "") THEN
INCLUDE
ENDIF
```

3. For each output queue that you want to process recipient copies, complete one of the following tasks:

To	Do this
Send all recipient copies to the output queue	Specify the following rule for the output queue: <pre>IF(SYS_CurrentProfile <> "") THEN INCLUDE ENDIF</pre>
Send all recipient copies using a certain recipient profile to the output queue	Specify the following rule for the output queue: <pre>IF(SYS_CurrentProfile = "MyRecipientProfile") THEN INCLUDE ENDIF</pre> For example, if you want to send recipient copies that use the "archive" profile to the queue, specify the rule as follows: <pre>IF(SYS_CurrentProfile = "archive") THEN INCLUDE ENDIF</pre>
Send specific recipient copies to the output queue	<ol style="list-style-type: none">Create and map a variable to a recipient data area that determines which output queue should be used. For example, you might create a variable named 'RecipientQueue' and map it to the actual desired output queue name in the recipient data. For more information about setting up recipient data, see "Setting Up Recipient Data to Automatically Create Recipient Copies" on page 520.Specify a rule that includes the desired recipient copies. For example, if you mapped the 'RecipientQueue' variable as described in the previous step and you are creating an output queue for PDF output, you might use the following rule: <pre>IF(RecipientQueue = "PDF") THEN INCLUDE ENDIF</pre>

For more information about setting rules for output queues, see *Creating Output* in the Exstream Design and Production documentation.

For more information about using rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

16.6 Using Convenience Breaks to Create Separate Output Files for Customers and Recipients

When you send groups of customer documents and recipient copies to the same output queue, all customer documents and associated recipient copies are included in the same file by default.

If you want to use separate files for different customers or for recipient copies, you can use convenience breaks based on variables mapped to customer and recipient data.

To set up convenience breaks, use the settings on the **Breaks** tab of the output queue object properties. The settings are the same as those you use when creating convenience breaks for output without recipient copies. Keep in mind, however, that each recipient copy in the output is included in the customer count. Therefore, if you enter a value in the **Customers** box in the **When to create convenience breaks** area, the engine counts both customers and recipients, and a break occurs when the specified count is reached. This results in the following special cases for convenience breaks used with recipient copies:

To	Do this
Break the output into separate files for each customer document and recipient copy	In the Customers box, enter 1.
Break the output into a separate file for each customer, including associated recipient copies with the customer document in each file	<p>Depending on the structure of your customer and recipient data, do one of the following:</p> <ul style="list-style-type: none">• If you have a variable that changes with each customer but remains the same for the recipient copies associated with each customer, click  in the Variable change box and select that variable.• If you do not have an appropriate variable to create the desired breaks, or if you need to include other conditions, click the Rule box and create a custom rule that identifies the breaks between customers.• If you consistently have the same number of recipient copies, add one to the number of recipients (for the customer) and enter that number in the Customers box. <p>Note: If you are using sorting and bundling, recipient copies must be sorted with customers. If recipients and customers are separated by sorting, you cannot group customers with associated recipient copies into output files.</p>

For more information about setting up convenience breaks, see *Creating Output* in the Exstream Design and Production documentation.

16.7 Naming Output Files Using Recipient Data

You can use a variable that is mapped to recipient data to name output files just as you can with customer data.

On the output queue properties, on the **Basic** tab, click  in the **Variable for file naming** box and select a variable mapped to recipient data that you want to use for naming output files. For example, if you have a 'CustomerName' variable that contains the name for each customer

or recipient, you can select the 'CustomerName' variable to name output files with the customer or recipient name.

16.8 Adding Design Objects That Appear Only on Recipient Copies

If you want to add an additional design object to recipient copies, such as text that says "COPY" or a barcode, you can use a rule to control when the object is placed on a page. However, because the rules will be processed during the late compose phase when recipient copies are processed, you must configure the composition time of the object accordingly. For example, if you want a barcode to appear only on a recipient copy using the "archive" profile, you must set the barcode to be composed during the late compose phase of processing and then add a rule that only allows the barcode to appear when the "archive" recipient profile is used.

To set up a design object to appear on recipient copies:

1. In Designer, open the page that contains the object you want to configure, select the object, and click .
2. Click the **Dynamic Size and Placement** tab.
3. From the **When to compose** drop-down list, select **Late Rule**.

For more information about the **When to compose** setting, see "[Controlling When Objects Are Placed on a Page](#)" on page 395.

4. Click the **Rule** tab.
5. Depending on which copies you want to include the object, specify one of the following rules:

To	Do this
Include the object on all recipient copies	Specify the following rule: <pre>IF(SYS_CurrentProfile <> "") THEN INCLUDE ENDIF</pre>
Include the object on all recipient copies using a certain recipient profile	Specify the following rule for the output queue: <pre>IF(SYS_CurrentProfile = "MyRecipientProfile") THEN INCLUDE ENDIF</pre> For example, if you want to include the object on all recipient copies that use the "archive" profile, specify the rule as follows: <pre>IF(SYS_CurrentProfile = "archive") THEN INCLUDE ENDIF</pre>

For more information about using rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

6. Click **OK**.
7. From the Menu bar, click **File > Save**.

16.9 Processing Considerations for Documents with Recipient Copies

When an application with recipient data is processed by the engine, the engine automatically identifies the added recipients and treats each recipient as a customer. Any processing feature that performs counts based on customers, such as page counts or barcodes, considers each recipient copy as a new customer. Cover pages are not included in page counts, however. Also, keep in mind that recipient data is not available and cannot be used until the late compose phase (also known as the Queue step) of engine processing.

For more information about the late compose phase of engine processing, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

If you must process an application containing recipient data, but you want to include only the original customers in the output, you can use the `DISABLE_RECIPIENT_COPIES` engine switch to suppress recipient copies during the engine processing.

For information about the `DISABLE_RECIPIENT_COPIES` switch, see *Switch Reference* in the Exstream Design and Production documentation.

Chapter 17: Optimizing a Design for HTML Accessibility Tools

You can use the accessibility features in Exstream to control and optimize the way that your HTML content is interpreted by accessibility tools. For example, suppose that you are creating a newsletter that will be emailed to customers in HTML format. Visually impaired customers will then use accessibility tools to read their newsletters.

You can create accessible HTML with the following output types:

- HTML5 using container designs
- HTML (email)

By default, when you create a new HTML5 output object that uses a container design, or an HTML (email) output object, the WCAG 2.0 accessibility standard will be applied to your output. You can also specify an accessibility standard for an existing HTML output object.

For more information about creating container designs, see “[Designing for HTML and HTML \(Email\) Output](#)” on page 41.

In Designer, you can create accessible HTML content with a variety of design elements, as well as with imported HTML content.

This chapter discusses the following topics:

- “[Creating Accessible HTML Output](#)” below
- “[Defaults for Accessible HTML Output](#)” on the next page
- “[Adding Alternate Text in Accessible HTML Output](#)” on page 532
- “[Changing a List in Accessible HTML Output](#)” on page 535
- “[Identifying Headings in Accessible HTML Output](#)” on page 536
- “[Identifying Table Headers and Data Cells in Accessible HTML Output](#)” on page 535
- “[Setting the Reading Language for Accessible HTML Output](#)” on page 537
- “[Skipping a Text Object in Accessible HTML Output](#)” on page 552

17.1 Creating Accessible HTML Output

When you create a new HTML output object that uses a container design label or an HTML (email) output object in Exstream version 16.2.0 or later, the WCAG 2.0 accessibility standard will be applied to your output by default.

The setting that controls this is the **Accessibility standard** list on the **Basic** tab of the output object properties. If you have applications created in versions prior to 16.2.0, you must manually specify the accessibility standard in the HTML output object properties:

1. In Design Manager, open an HTML or HTML (email) output object in the Property Panel.
2. Click the **Basic** tab.
3. Make the following selections based on the type of HTML output object:

For this type of output object	Do this
HTML	<ol style="list-style-type: none">a. From the Version list, select 5.b. Select the Use container design check box.c. From the Container design label box, select a container design label. <p>The WCAG 2.0 standard will be automatically selected for HTML5 output objects after you enable container designs.</p>
HTML (email)	Select WCAG 2.0 from the Accessibility standard list.

Important: Since container design is a requirement for producing accessible HTML, make sure to review the design pages of your existing applications. If they use only standard designs, then you must redesign them to use container designs.

For more information about creating container designs, see “[Designing for HTML and HTML \(Email\) Output](#)” on page 41.

17.2 Defaults for Accessible HTML Output

Exstream uses HTML techniques to achieve WCAG 2.0 compliance, including standard HTML structure and attributes that enhance the accessibility of the output.

You can customize how some design elements are represented in the HTML markup by setting a reading language, adding alternate text, specifying whether to read it, or marking text paragraphs and table cells as headings.

In Designer, you can view or customize accessibility on the **Accessibility** tab of the hyperlink properties, text paragraph properties, table cell properties, or any of the design object properties.

The following attributes can be added to the HTML output based on the selections that you make on the **Accessibility** tab.

- **alt**—This attribute is added to `` when **Read alternate text** is selected on the **Read options** list. This attribute is included only for non-textual objects.

- `aria-hidden="true"`—This attribute and value are added when **Do not read** is selected on the **Read options** list. This attribute is included only for text objects.
- `aria-level`—This attribute is added to indicate the level of an element within a structure, such as with headings and lists.
- `headers`—This attribute is added to identify which table headers are associated with a table data cell.
- `lang`—This attribute is added if an option other than **Default** is selected on the **Accessibility language** list.
- `role`—This attribute is added to identify lists, some headings, and layout tables (such as those created by grid layout containers).
- `title`—This attribute is added to `<a>` when **Read alternate text** is selected on the **Read options** list. This attribute is included only for hyperlinks.

Unlike in accessible PDF output, however, you cannot change the read order of objects in accessible HTML output. Read order is handled by the accessibility tool associated with the browser or email client.

Note: For HTML output, the engine ignores accessibility settings applied to page, message, and paragraph objects in Design Manager.

The following table provides an overview of the default HTML structure and customization options available for accessible HTML output:

Design element	Default HTML structure	Customization options
Headings	<p>To specify that the contents of a text paragraph should be interpreted as a heading, it must be marked as such in Designer or use the appropriate tagging structure in the imported HTML.</p> <p>In HTML output, headings are produced using standard HTML tagging. Exstream supports levels <code><h1></code> through <code><h6></code>. For example:</p> <pre><h2>Heading text</h2></pre> <p>If the heading contains an embedded object, the heading text will be enclosed in a <code><div></code> tag that includes the ARIA <code>role</code> and <code>aria-level</code> attributes. For example:</p> <pre><div role='heading' aria-level='2'> Heading text <div> </div> </div></pre> <p>In HTML (email) output, the ARIA <code>role</code> and <code>aria-level</code> attributes will be included in the <code><td></code> tag. For example:</p> <pre><td role='heading' aria-level='3'>Heading text</td></pre>	<ul style="list-style-type: none">• "Identifying Headings in Accessible HTML Output" on page 536• "Setting the Reading Language for Accessible HTML Output" on page 537• "Skipping a Text Object in Accessible HTML Output" on page 552

Design element	Default HTML structure	Customization options
Hyperlinks	<p>Text and object hyperlinks are produced using the standard HTML tagging structure for links, with the typical attributes and styles for hyperlinks. When you add alternate text to a hyperlink on text or an image, the engine populates the <code>title</code> attribute. For example, a text hyperlink might look like this in the output:</p> <pre>Hyperlink text</pre>	<ul style="list-style-type: none"> • "Adding Alternate Text in Accessible HTML Output" on page 532 • "Setting the Reading Language for Accessible HTML Output" on page 537 • "Skipping a Text Object in Accessible HTML Output" on page 552
Lists	<p>Text that is formatted as a list in Designer is produced using ARIA standards for ordered and unordered lists, which identifies the list using the <code>role</code> and <code>aria-level</code> attributes.</p> <p>For example, if you create a numbered list in Designer, the resulting HTML output will look like the following:</p> <pre><div role='list'> <div role='listitem' aria-level='1'> <p>1. Item 1</p> <p>2. Item 2</p> </div> </div></pre> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>Note: To produce lists using the standard HTML list tags <code></code>, <code></code>, and <code></code>, include the <code>USE_NATIVE_ELEMENTS_FOR_ACCESSIBLE_HTML_LISTS</code> switch in your control file. Note that some email clients do not render the native list structure in an ideal way.</p> </div>	<ul style="list-style-type: none"> • "Changing a List in Accessible HTML Output" on page 535 • "Setting the Reading Language for Accessible HTML Output" on page 537 • "Skipping a Text Object in Accessible HTML Output" on page 552

Design element	Default HTML structure	Customization options
Non-textual objects	<p>These non-textual objects support accessibility settings for HTML output:</p> <ul style="list-style-type: none"> • Add-ins • Barcodes • Bezier curves • Charts • Check boxes • Empty images • Images • Lines • Polygons • Radio buttons • Shapes <p>All of these objects are converted to images in the HTML output, with the typical attributes and styles for images, including alternate text and the language specified for that alternate text. For example:</p> <pre></pre> <p>In Designer, when you add non-textual objects to your design, they are automatically set to be skipped by accessibility tools. By default, the HTML output includes an empty value for the <code>alt</code> attribute. For example:</p> <pre></pre> <p>To set non-textual objects to be read by accessibility tools, go to the Accessibility tab of the object properties and select Read alternate text from the Read options list. Once you do this, you can specify alternate text or the reading language.</p>	<ul style="list-style-type: none"> • "Adding Alternate Text in Accessible HTML Output" on the next page • "Setting the Reading Language for Accessible HTML Output" on page 537
Tables	<p>Tables that are created in Designer are structured using the standard HTML table structure, with <code><table></code>, <code><tr></code>, <code><th></code>, and <code><td></code> tags. Depending on the table design, the following attributes might also be included: <code>aria-hidden</code>, <code>headers</code>, <code>lang</code>, and <code>role</code>.</p> <p>Table cells in header rows and columns on automated tables are produced using the <code><th></code> tag on each table cell in the row or column. On simple tables, this tag is only used when Table Header Cell is selected from the Read text as list on the table cell properties.</p> <p>Table cells that are not marked as headers on automated tables and all cells in simple tables are treated as data cells, and are produced using the <code><td></code> tag with a <code>headers</code> attribute that identifies which table header it is associated with by using the <code>id</code> attribute value. For example, a table data cell associated with <code><th id="tablerow2"></code> would look like <code><td headers="tablerow2"></code>.</p>	<ul style="list-style-type: none"> • "Identifying Table Headers and Data Cells in Accessible HTML Output" on page 535 • "Setting the Reading Language for Accessible HTML Output" on page 537 • "Skipping a Text Object in Accessible HTML Output" on page 552

Design element	Default HTML structure	Customization options
Text objects	Text boxes and text paragraphs are referred to as "text objects." These objects are included in the HTML output with standard HTML, using standard HTML tagging for text. If, on the Accessibility tab, you make changes to the Read options , Read text as , or Accessibility language lists, the related attributes will be added to the HTML tags.	<ul style="list-style-type: none">• "Identifying Headings in Accessible HTML Output" on page 536• "Setting the Reading Language for Accessible HTML Output" on page 537• "Skipping a Text Object in Accessible HTML Output" on page 552

17.3 Adding Alternate Text in Accessible HTML Output

In accessible HTML and HTML (email) output, Exstream supports alternate text for certain non-textual objects and with hyperlinks.

Note: Exstream does not include alternate text for any text objects created in Designer in accessible HTML output. If you want to keep alternate text on a text object when you import HTML content, then you must not convert the content to Exstream format when you produce HTML or HTML (email) output.

For more information about converted and unconverted HTML output, see the [Using External Content in an Application guide](#).

You can add static text, variable text, or a combination of both, to non-textual objects. If you add static text, the same alternate text will be read for all customers. You might use static alternate text for simple graphics that are not customer-specific, such as a company logo.

If you add variable text, then what is read could differ for each customer. You might use variable alternate text for graphics that can vary based on customer data, such as account information or the customer's preferred language.

You can also specify a reading language for alternate text. For more information, see ["Specifying the Reading Language for Objects and Text in Accessible HTML" on page 539](#).

17.3.1 Alternate Text and Non-Textual Objects

By default, non-textual objects in accessible HTML output are skipped by accessibility tools. However, you can add alternate text to the following non-textual objects:

- Add-ins
- Barcodes
- Bezier curves
- Charts
- Check boxes
- Empty images
- Images
- Lines
- Polygons
- Radio buttons
- Shapes

The alternate text you specify is included as the `alt` attribute on the `` tag in the resulting HTML output. If you do not specify alternate text in the **Alternate text** box, then the `alt` attribute will be empty. For example:

```

```

To determine whether the accessibility tool reads the alternate text of the non-textual object, you must also consider the settings of the parent object on the **Accessibility** tab of the object properties.

Parent object settings	Embedded non-textual object settings	Resulting behavior
On the Read options list, Do not read is selected.	Any combination of settings	Both the parent and embedded object are skipped.
On the Read options list, Read alternate text is selected and a static or variable value is entered in the Alternate text box.	Any combination of settings	The parent object settings are ignored, since alternate text settings are not supported on text objects in accessible HTML output. The <code></code> tag for the embedded object includes an <code>alt</code> attribute.
On the Read options list, Read object text is selected.	On the Read options list, Do not read is selected.	The parent object settings are honored, and the embedded object is skipped.

Parent object settings	Embedded non-textual object settings	Resulting behavior
On the Read options list, Read object text is selected.	On the Read options list, Read alternate text is selected and a static or variable value is entered in the Alternate text box.	The settings for both the parent and the embedded object are honored.

17.3.2 Alternate Text and Hyperlinks

By default, accessibility tools read the URL associated with a hyperlink. However, you can apply alternate text to the hyperlink that the accessibility tool will read instead of the URL. Exstream supports alternate text for both internal and external hyperlinks. The hyperlinks can be associated with specific text or an image.

When you add alternate text to a hyperlink on text or an image, the engine populates the **title** attribute of the `<a>` tag. For example, a text hyperlink would appear like this in the output:

```
<a href="http://www.site.com" title="Our company website">Hyperlink text</a>
```

A hyperlink on an image or other non-textual object would appear like this in the HTML output:

```
<a href="http://www.site.com" title="Our company website"></a>
```

To add alternate text to a hyperlink:

For this type of hyperlink	Do this
Image or other non-textual hyperlink	<ol style="list-style-type: none">In Designer, right-click the object and select Object hyperlink properties.Click the Accessibility tab.In the Read options box, select Read alternate text.In the Alternate text box, enter the text to be read by the accessibility tool. You can insert variables into the alternate text by clicking . To open a larger text entry window, click .
Text hyperlink	<ol style="list-style-type: none">In Designer, right-click the hyperlink and select Edit text hyperlink.Click the Accessibility tab.In the Read options box, select Read alternate text.In the Alternate text box, enter the text to be read by the accessibility tool. You can insert variables into the alternate text by clicking . To open a larger text entry window, click .

Note: If you leave the **Alternate text** box on the hyperlink properties blank, the engine suppresses the **title** attribute in the output.

17.4 Changing a List in Accessible HTML Output

Text that is formatted as a numbered or bulleted list in Designer is automatically identified as a list item. On the **Accessibility** tab of the text paragraph properties, **List Item** is selected from the **Read text as list** by default. As a result, accessibility tools announce that the text is grouped into a list, which can help your customers put the information into context.

If you want the items in the list to be identified as a list by the accessibility tool, then you don't need to do anything. However, if you want to change a list so that it is read as regular text instead of a list, do the following:

1. In Designer, select one or more list items, right-click, and select **Text paragraph properties**.
2. Click the **Accessibility** tab.
3. From the **Read text as list**, select **Paragraph**.
4. Click **OK**.

17.5 Identifying Table Headers and Data Cells in Accessible HTML Output

Tables that are created in Designer are structured using the standard HTML table structure, with `<table>`, `<tr>`, `<th>`, and `<td>` tags. Depending on the table design, the following attributes might also be included: `aria-hidden`, `headers`, `lang`, and `role`.

If you're importing HTML that contains tables, make sure that your table structure and styling follows the guidelines for Exstream. For information about using tables in imported HTML content, see the *Importing External Content* in the Exstream Design and Production documentation guide.

Table cells in header rows and columns on automated tables are produced using the `<th>` tag on each table cell in the row or column. On simple tables, this tag is only used when **Table Header Cell** is selected from the **Read text as** list on the table cell properties.

Non-header cells are produced using the `<td>` tag with a `headers` attribute that identifies the associated table header using the `id` attribute. For example, a non-header cell associated with the header cell `<th id="tablerow2">` might look like `<td headers="tablerow2">`.

If a table has multiple header rows or columns, header cells can also reference other header cells. For example, a header cell associated with the header cell `<th id="tablerow2">` might look like `<th id="tablerow3" headers="tablerow2">`.

If the existing HTML tagging structure reflects the way that you want the table to be read, then you don't need to do any customization. However, if you want to change a table data cell in a simple table to a header, or change a table header in an automated table to a data cell, you can do the following:

1. In Designer, select one or more table cells, right-click, and select **Cell properties**.
2. Click the **Accessibility** tab.
3. From the **Read text as** list, select one of the following options:
 - **Default**—The engine encloses the cell content in the default tag based on the type of cell. If it's part of a header, then the default tag is `<th>`. If the content in the table cell is not part of a header, the default tag is `<td>`.
 - **Table Data Cell**—The engine encloses the cell content in a `<td>` tag. Apply this to cells within a header row or column to change the default `<th>` tag to a `<td>` tag in the HTML output.
 - **Table Header Cell**—The engine encloses the cell content in a `<th>` tag. Apply this to cells within a non-header row or column to change the default `<td>` tag to a `<th>` tag in the HTML output.
4. Click **OK**.

17.6 Identifying Headings in Accessible HTML Output

In Designer, you can identify the text within a text paragraph as a heading. Using headings is a way to enable your customers to more easily navigate the communication and identify key information. When you identify a text paragraph as a heading, accessibility tools announce the text as a heading.

To identify a heading:

1. In Designer, select the text paragraph that you want to mark as a heading.
2. Right-click the text and select **Text paragraph properties**.
3. Click the **Accessibility** tab.
4. Select the heading type from the **Read text as** list.

17.7 Setting the Reading Language for Accessible HTML Output

Most accessibility tools can read content in numerous languages. However, if the language or languages used in the document are not specified, then the accessibility tool cannot interpret the document properly. For example, if the document contains Spanish content, but the default reading language specified in the design is American English, the accessibility tool will read the Spanish content with American English rules of pronunciation. This can alter the meaning of the content for your customers, or even render the content meaningless.

Exstream supports setting the reading language on design objects within Designer and within imported HTML content. In HTML, the reading language is defined using the `lang` attribute. If you select a language from the **Accessibility language** list on the **Accessibility** tab of the object properties, then Exstream adds the `lang` attribute to the resulting HTML or HTML (email) output.

When Exstream creates the `lang` attributes in the HTML output, the engine applies the language settings starting from the lowest level first, and then moves upward in the hierarchy until a language is set for each element in the HTML output.

In the following example, the default language for the application is American English, but one text box has the reading language set to Spanish. All other design objects use the default language.

The screenshot shows a healthcare news page with the following components and their language settings:

- Page Header:** "Healthcare News" (Default Language: American English)
- Image:** A heart icon with a red background and a blue outline (Default Language: American English)
- Text:** "Keeping Quality Healthcare Affordable" (Default Language: American English)
- Section:** "Top 10 Health Habits" (Default Language: American English)
- Text Box:** "¿Habla español? Información en español" (Accessibility Language: Spanish)

Three callout boxes provide details on the language settings:

- The default language:** Shows the "Language" dropdown set to "American English".
- The accessibility language for the language object:** Shows the "Accessibility language" dropdown for the page header, listing "English (American)" and "Spanish" (selected).
- The accessibility language for the text box:** Shows the "Accessibility language" dropdown for the text box, listing "Spanish" (selected) and other options like "Romanian", "Russian", "Samoan", "Swedish", "Tagalog", "Thai", "Tongan", "Turkish", and "Ukrainian".

The resulting HTML might look like the following:

```
<html lang="en-US">  
...  
  <div lang="es">  
    <h2>¿Habla español?</h2>  
...  
When this HTML is interpreted by an accessibility tool, the Spanish rules of pronunciation would be used for the text box with Spanish specified as the reading language, but American English rules of pronunciation would be used for all other content within the document.
```

To make sure that the reading language is specified correctly in your application, review the following topics:

- [“Specifying the Default Reading Language for Accessible HTML” below](#)
- [“Specifying the Reading Language for Objects and Text in Accessible HTML” on the next page](#)
- [“Specifying the Accessibility Reading Language in Imported HTML” on page 546](#)
- [“Supported Accessibility Language Codes” on page 586](#)

17.7.1 Specifying the Default Reading Language for Accessible HTML

English is the default reading language for applications and all of the designs within them. You can change the default reading language for the entire application by selecting a different locale in the application object properties in Design Manager. On a more granular scale, you can associate language layers with individual design pages.

When Exstream creates HTML or HTML (email) output, it sets the `lang` attribute for the `<html>` tag based on the language for the current customer.

Tip: If you are using data to set the language for each customer, any customers that do not have a language specified will be assigned the same language as the previous customer in the engine run.

For imported HTML content, you can include the `lang` attribute on the `<html>` tag to set the default reading language for all of the imported content. If the HTML is unconverted, then all language settings specified inside the `<body>` tag of the HTML are left as-is to be interpreted by the browser or email client. If the HTML is converted, then only the language settings for tags that correspond to objects in Designer are included in the output. If your imported HTML content does not include the `lang` attribute, the engine will apply the reading language specified on the properties of the text paragraph that contains the placeholder variable. If that text paragraph is

set to use the default language, then the engine applies the language associated with the locale on the application object.

For information about importing HTML content, see the *Importing External Content* in the Exstream Design and Production documentation guide.

To associate a locale with an application:

1. In Design Manager, open the application object in the Property Panel.
2. On the **Basic** tab, in the **Default locale** field, click .
3. In the **Select Locale** dialog box, select a locale and click **OK**.
4. Save the application object.

For more information about using languages and locales, see the *System Administration* in the Exstream Design and Production documentation guide.

17.7.2 Specifying the Reading Language for Objects and Text in Accessible HTML

The default accessibility language will be used for all content in an application. However, you can choose to specify a separate accessibility language for an individual design object, or for an individual text paragraph within a design object. For example, suppose that you are producing a customer invoice for which English is the default accessibility language, but you want to include one paragraph in Spanish. In this case, you would specify Spanish as the accessibility language for that particular text paragraph so that the accessibility tool would read that text using the correct pronunciation.

For the objects that you add directly to a design page in Designer, such as a text box, a table, or an image, you can specify the accessibility language on the **Accessibility** tab of the object properties.

To specify an accessibility language, you can select the language you want from the **Accessibility language** list on the **Accessibility** tab of the object properties. Alternatively, you can select a variable that contains a custom ISO language code.

Tip: If you use a variable with a custom ISO code, make sure to verify that your accessibility tools read the custom code correctly. The engine does not validate the language code.

For a list of supported language codes, see “[Supported Accessibility Language Codes](#)” on [page 586](#).

Note: For HTML and HTML (email) output, the engine ignores all reading language settings for Library objects in Design Manager, such as pages, paragraph objects, and text messages.

Setting a Reading Language for Non-Textual Objects

Because non-textual objects do not contain text, they are skipped by default and therefore do not have a reading language assigned. You can, however, specify alternate text for these objects and set a reading language for that alternate text.

If the non-textual object is embedded within a text box or a table cell, then the reading language setting overrides the language specified on the parent object. However, if you set the reading language to **Default**, then no lang attribute is included, and the accessibility tool must interpret which reading language to use based on the HTML hierarchy.

For example, suppose that you have an embedded object with the reading language set to **Default**, and the parent object has the reading language set to **French (Canadian)**. The accessibility tool will apply Canadian French pronunciation rules to the alternate text of the embedded object.

You can set a reading language for the following non-textual objects:

- Barcodes
- Bezier curves
- Charts (traditional only)
- Empty image objects
- Images
- Lines
- Polygons
- Shapes

To specify a reading language for the alternate text on a non-textual object:

1. In Designer, select the object and click .
2. In the **[Object] Properties** dialog box, click the **Accessibility** tab.
3. In the **Read options** box, select **Read alternate text**.

4. Select a reading language:

To	Do this
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">In the Accessibility language control typelist, select Static.From the Accessibility language list, select the language that you want.
Select a variable that contains an ISO language code	<ol style="list-style-type: none">In the Accessibility language control type list, select Variable.In the Custom accessibility language box, click .In the Select Variable dialog box, select a variable that contains an ISO language code.

- Enter the text for the accessibility tool to read in the **Alternate text** field.
- Click **OK**.

Setting a Reading Language for Text Objects

The reading language that you assign on the **Accessibility** tab within Designer is applied to the content contained within the text objects by default. For example, if you select **Japanese** from the **Accessibility language** list on the table properties, the resulting HTML might look like the following:

```
<table lang="jp">
```

Unless you specify a reading language for an object embedded within a text object, the embedded object will inherit the language setting of the parent object.

You can specify a different reading language for individual text paragraphs, which could be useful if you have multiple languages within a text box or a table with different languages in individual table cells. You can also set a reading language for the alternate text specified for a hyperlink.

To specify a reading language for a text object:

For this text object	Do this						
Hyperlink	<ol style="list-style-type: none">1. In Designer, select a text hyperlink.2. Right-click and select Edit text hyperlink.3. In the Hyperlink Properties dialog box, click the Accessibility tab.4. From the Read options list, select one of the following options to determine how the accessibility tool will read the hyperlink:<ul style="list-style-type: none">• Read object text—The accessibility tool will read the text and URL associated with the hyperlink (based on the settings within the accessibility tool)• Read alternate text—The accessibility tool will read the text that you enter in the Alternate text box.5. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>6. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

For this text object	Do this						
Table	<ol style="list-style-type: none">1. In Designer, select a table and click .2. In the Table Properties dialog box, click the Accessibility tab.3. From the Read options list, select Read object text. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Note: Alternate text is not supported for tables in accessible HTML output.</p></div> <ol style="list-style-type: none">4. Select a reading language:<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>5. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

For this text object	Do this						
Table cell	<ol style="list-style-type: none">1. In Designer, select one or more table cells.2. Right-click and select Cell properties.3. In the Cell Properties dialog box, click the Accessibility tab.4. From the Read options list, select Read object text. <p>Note: Alternate text is not supported for table cells in accessible HTML output.</p> <ol style="list-style-type: none">5. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>6. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

For this text object	Do this						
Text box	<ol style="list-style-type: none">1. In Designer, select a text box and click .2. In the Text Box Properties dialog box, click the Accessibility tab.3. From the Read options list, select Read object text. <p>Note: Alternate text is not supported for text boxes in accessible HTML output.</p> <ol style="list-style-type: none">3. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>4. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static as the Accessibility language control type.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

For this text object	Do this						
Text paragraph	<ol style="list-style-type: none">1. In Designer, select one or more text paragraphs.2. Right-click and select Text paragraph properties.3. In the Text paragraph properties dialog box, click the Accessibility tab.4. From the Read options list, select Read object text. <p>Note: Alternate text is not supported for text paragraphs in accessible HTML output.</p> <ol style="list-style-type: none">5. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. From the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, Select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>6. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. From the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, Select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. From the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, Select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

17.7.3 Specifying the Accessibility Reading Language in Imported HTML

If you're importing HTML content, and you want to specifically define the reading language that will be used by accessibility tools for the imported content, then you must include the `lang` attribute in the imported HTML. If you do not include a `lang` attribute on the top-level tag, then Exstream applies the language setting of the text paragraph that contains the placeholder variable as the default language.

If you add a `lang` attribute on a `<div>`, `<table>`, or `<p>` tag, Exstream applies that language to all child elements contained within that tag, unless the child element includes a `lang` attribute.

For example, suppose that you have the following imported HTML content:

```
<div lang="es">
  <h2>¿Habla español?</h2>
  <p>Llame a uno de nuestros representantes de habla hispana.</p>
```

```
  
</div>
```

In this example, the corresponding Designer element is an image embedded in a text box. The specified reading language for the text box is Spanish, and the reading language for the image's alternate text is English. Because the child element (in this case, the image), includes a `lang` attribute value, the alternate text of the embedded object would be read using English pronunciation rules.

For a list of accessibility languages supported in Exstream, see ["Supported Accessibility Language Codes" on page 586](#).

You can include the `lang` attribute for the following elements:

HTML tag category	Tags that support the <code>lang</code> attribute during HTML import
Basic HTML structure	<ul style="list-style-type: none">• <code><html></code>• <code><body></code>• <code><h1></code> through <code><h6></code>• <code><div></code>• <code><p></code> <p>Note: With unconverted HTML imports, the engine removes the <code><html></code> and <code><body></code> tag from the resulting HTML output, and any language declarations made in those tags would be lost. For converted HTML, however, these tags are retained in the HTML output, as would the language declarations.</p> <p>For more information about converted and unconverted HTML content, see the Importing External Content in the Exstream Design and Production documentation guide.</p>
Hyperlinks	<ul style="list-style-type: none">• <code><a></code>

HTML tag category	Tags that support the lang attribute during HTML import
Images	<ul style="list-style-type: none"> • <p>Tip: If an image is a hyperlink, and the lang attribute has different values on the <a> and elements, the behavior for imported HTML content differs from that of images placed in Designer. For images included in the imported HTML content, the lang attribute value on the tag is honored in the output. For images placed in Designer, the lang attribute value on the <a> tag is honored in the output.</p> <p>For example, suppose that an image has French specified as the reading language for the alternate text and the hyperlink has English specified as the reading language. In typical HTML, it might appear like the following:</p> <pre> </pre> <p>In accessible HTML and PDF output, French is specified as the reading language for both the alternate text and the hyperlink.</p> <p>For example, the imported HTML content would result in the following converted HTML output:</p> <pre> </pre> <p>The same imported HTML content would result in the following language properties in accessible PDF output:</p>  <p>Whereas the Designer content would result in the following HTML output:</p> <pre> </pre> <p>In the HTML output for either case, incorrect rules of pronunciation will be applied to either the image alternate text or the hyperlink. To avoid this issue, make sure that the lang attributes for the <a> and elements contain the same value. If you are producing HTML output, you can also choose to produce unconverted HTML output to maintain the language declaration for the image and alternate text. PDF output honors the language settings that you apply in Designer.</p>
Lists	<ul style="list-style-type: none"> • <dd> • <dl> • <dt> • • •

HTML tag category	Tags that support the lang attribute during HTML import
Special text formatting	<ul style="list-style-type: none"><blockquote>
Tables	<ul style="list-style-type: none"><table><th><tr><td><thead><tbody><tfoot>

17.7.4 Supported Accessibility Language Codes

To specify an accessibility language, you can select the language that you want from the **Accessibility language** list on the **Accessibility** tab of the object properties. You can also use an ISO 639–1 or ISO 639–2 language code by creating a scalar string variable that contains a custom ISO language code as its value. For more information about creating a variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

Important: Keep in mind that accessibility languages are the languages that are available to be read by accessibility tools. The list of accessibility languages does not represent the languages supported in Exstream output.

Related topics:

- “Setting the Reading Language for Accessible HTML Output” on page 537
- “Specifying the Reading Language for Objects and Text in Accessible HTML” on page 539
- “Setting the Reading Language for Accessible PDFs” on page 581
- “Specifying the Reading Language for Objects and Text in Accessible PDFs” on page 583

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive)

Language name	ISO 639–1	ISO 639–2
Amharic	am	
Arabic	ar	
Armenian	hy	

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive), continued

Language name	ISO 639–1	ISO 639–2
Bengali	bn	
Catalan	ca	
Cebuano		ceb
Chinese (PRC)	zh-CN	
Chinese (Taiwan)	zh-TW	
Chinese (Hong Kong SAR)	zh-HK	
Chinese (Singapore)	zh-SG	
Czech	cs	
Danish	da	
Dutch	nl	
English (American)	en-US	
English (Australian)	en-AU	
English (British)	en-GB	
Farsi (Persian)	fa	
Finnish	fi	
French	fr	
French (Canadian)	fr-CA	
French (Creole)		cpf
German	de	
Gujarati	gu	
Hawaiian		haw
Hindi	hi	
Hmong		hmn
Hungarian	hu	

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive), continued

Language name	ISO 639–1	ISO 639–2
Igbo	ig	
Ilokano		ilo
Italian	it	
Japanese	ja	
Khmer	km	
Korean	ko	
Kru		kro
Lao	lo	
Marshallese	mh	
Navajo	nv	
Nepali	ne	
Norwegian	no	
Norwegian (Bokmål)	nb	
Norwegian (Nynorsk)	nn	
Oromo	om	
Pohnpeian		pon
Polish	pl	
Portuguese	pt	
Portuguese (Brazilian)	pt-BR	
Punjabi	pa	
Romanian	ro	
Russian	ru	
Samoan	sm	
Spanish	es	

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive), continued

Language name	ISO 639–1	ISO 639–2
Swedish	sv	
Tagalog	tl	
Thai	th	
Tongan	to	
Turkish	tr	
Ukrainian	uk	
Urdu	ur	
Vietnamese	vi	
Yoruba	yo	

17.8 Skipping a Text Object in Accessible HTML Output

If you do not want a text object to be read by an accessibility tool, you can change the settings of the object so that it is skipped by accessibility tools. Keep in mind that non-textual objects are automatically skipped.

When you skip a text object, in the HTML output, the object includes an `aria-hidden="true"` attribute. For example:

```
<h1 aria-hidden="true">Heading</h2>
```

Note that this attribute is not supported in all browsers.

To skip a text object:

For this text object	Do this
Hyperlinks	<ol style="list-style-type: none">In Designer, highlight the hyperlink, right-click, and select Edit text hyperlink.On the Hyperlink Properties dialog box, click the Accessibility tab.In the Read options box, select Do not read text.

For this text object	Do this
Table	<ol style="list-style-type: none">1. In Designer, select the table and click .2. On the Table Properties dialog box, click the Accessibility tab.3. In the Read options box, select Do not read text.
Table cell	<ol style="list-style-type: none">1. In Designer, place the cursor in the table cell, right-click, and select Cell properties.2. On the Table Properties dialog box, click the Accessibility tab.3. In the Read options box, select Do not read text.
<p>Note: To skip an entire row or column, repeat these steps for each corresponding table cell.</p>	
Text box	<ol style="list-style-type: none">1. In Designer, select the text and click .2. On the Text Properties dialog box, click the Accessibility tab.3. In the Read options box, select Do not read text.
Text paragraph	<ol style="list-style-type: none">1. In Designer, highlight one or more text paragraphs, right-click, and select Text paragraph properties.2. On the Text paragraph properties dialog box, click the Accessibility tab.3. In the Read options box, select Do not read text.

Chapter 18: Optimizing a Design for PDF Accessibility Tools

If you have licensed the PDF module, you can use the accessibility features in Exstream to control and optimize the way that a PDF or PDF/A document will be read by screen readers and text-to-speech converters. Exstream provides the tools that are described in the following sections to enable you to create compliant accessibility content. For example, suppose that you are creating student progress reports that will be emailed to parents in PDF format. Visually impaired parents and guardians will then use screen readers or text-to-speech converters to read the reports.

Note: The PDF/VT output type does not support accessibility.

The accessibility features available in Exstream allow you to customize the accessibility tags on a variety of design elements in Design Manager and Designer in order to provide the most relevant information to the accessibility tool.

When you create accessible PDFs, Exstream also allows you to import accessible HTML content at run time and have the accessibility information maintained in the PDF output.

When you create an accessible PDF design, Exstream also allows you to import, either at design time or at run time, accessible PDFs from external sources and have the accessibility information retained in your final output.

You cannot use accessibility tagging in designs that are sent to a PDF output object that uses the following features:

- Multiple-ups
- Overlays
- Imaging each page

Note: If you're producing PDF output but are not concerned with accessible PDF output, you can disable accessibility tagging for all objects in Design Manager by selecting **None** in the **Accessibility standard** list on the **Basic** tab of the PDF output object properties.

Alternatively, you can disable accessibility tagging for specific objects by selecting **Do not read text** in the **Read options** box on the **Accessibility** tab of the object properties in Design Manager or Designer.

Related information

- “[Adding Accessibility Tags to PDFs](#)” below
- “[Specifying the Reading Settings for Design Objects Used in Accessible PDFs](#)” on page 570
- “[Changing the Read Order in Accessible PDFs](#)” on page 577
- “[Setting the Reading Language for Accessible PDFs](#)” on page 581
- “[Retaining Imported PDF Accessibility](#)” on page 589

18.1 Adding Accessibility Tags to PDFs

Note: You can use accessibility features with PDF and PDF/A output, however, the PDF/VT output type does not support accessibility.

This section discusses how you can add accessibility tags in Exstream to create PDF output that can be read by a screen reader or a text-to-speech converter. It is important to understand that Exstream automatically includes accessibility tags in PDF output for certain design objects by default, but that you must manually modify your design to add accessibility tags for other design objects.

To set up a design to be read by accessibility tools, you must first turn on accessibility tagging by selecting an accessibility standard from the **Accessibility standard** list on the PDF output object. By default, when you enable accessibility tagging in Exstream, all text contained within textual design objects (such as table cells, text boxes, and paragraphs) will be read by an accessibility tool, but non-textual objects (such as images, charts, and shapes) will be skipped by accessibility tools. However, you can customize this behavior. For example, if your design includes an image that you do not want an accessibility tool to skip, you can specify alternate text for the image object, so that an accessibility tool will announce a description of that image.

Exstream also allows you to add and customize accessibility tags for additional design components such as titles, headings, and lists. However, keep in mind that you must manually add the accessibility tags to each of these components in your design.

In this section, you can find an overview of the default accessibility tagging provided by Exstream, as well as instructions for customizing the default tagging and manually adding additional accessibility tags.

This section discusses the following topics:

- “[Creating accessible PDF output](#)” on the next page
- “[Default Tagging in Accessible PDFs](#)” on page 557
- “[Customizing the Title of an Accessible PDF](#)” on page 558

- “Marking Headings in PDFs with Accessibility Tags” on page 559
- “Table Structure in Accessible PDFs” on page 560
- “Working with Lists in Accessible PDF Output” on page 565
- “How Does Exstream Add PDF Accessibility Tags to Hyperlinks?” on page 567
- “Specifying the Page Number Being Read in Accessible PDFs” on page 569
- “Specifying Accessibility Settings for Library Objects Used in Accessible PDFs” on page 569

18.1.1 Creating accessible PDF output

To create accessible PDF output:

1. In Design Manager, from the Library, drag a PDF or PDF/A output object to the Property Panel.
2. Click the **Basic** tab.
3. In the **Accessibility standard** list, select one of the following accessibility standards as required by your organization:

Accessibility standard	Description
WCAG 2.0	When you select WCAG 2.0 , Exstream applies the default accessibility tagging for objects in your design to the output. However, you can also customize these settings and other accessibility objects in your design as needed.
PDF/UA PDF/UA is not supported with PDF version 1.3.	<p>When you select PDF/UA, Exstream applies the default accessibility tagging for objects in your design to the output. However, you can also customize these settings and other accessibility objects in your design as needed.</p> <p>Important: Selecting the PDF/UA option in the Accessibility standard list does not automatically make your document PDF/UA-compliant. At a minimum, you must design your document so that it is compliant with PDF/UA guidelines and standards.</p> <p>For information about PDF/UA documentation guidelines, see the PDF/UA documentation that your organization references.</p> <p>Keep in mind that Exstream does not validate your documentation that you design for PDF/UA compliance. If you create a document that is rejected by a PDF validation tool, then you must go back and fix your design using the design customization tools in Exstream. For example, suppose that your document is rejected because of a skipped heading level (such as a document with a heading level 1 followed by a heading level 3). To correct this issue, re-open your document in Designer and adjust the heading levels to occur in sequence (without skipping heading level 2 in this example) before re-generating the output.</p>

Keep in mind that if your design includes design time or run time import of a PDF with accessibility tagging, then the accessibility standard of the imported PDF should match the accessibility standard that is specified on the PDF output object. If these standards do not

match, the imported PDF might lose some accessibility features in your final PDF output.

4. From the Menu bar, select **Edit > Save**.

For information about the default tagging structure that Exstream provides when you enable accessibility tagging in the output, see *Designing Customer Communications* in the Exstream Design and Production documentation.

18.1.2 Default Tagging in Accessible PDFs

When you [enable accessibility tagging for an output object](#), Exstream adds PDF accessibility tags in the following manner by default:

Design element or attribute	Default PDF accessibility tagging
Textual design objects	For textual design objects, such as text boxes or table cells, the screen reader reads the text that is contained in the design object.
Non-textual design objects	Non-textual design objects, such as images, charts, and shapes, are skipped by the screen reader and are tagged with the /Artifact accessibility tag in PDF output.
Tables	Tables are automatically tagged with table row <TR> accessibility tags and table data <TD> accessibility tags. For automated tables that include any type of header row, table header <TH> tags are added as child tags to the table row <TR> tags. Simple tables in do not have header rows, so table row <TR> accessibility tags and table data <TD> accessibility tags are the only tags that are added to the cells in simple tables.
Lists	When you apply a bulleted or numbered list style on the Formatting toolbar in Designer, the text paragraph is automatically marked as a list item in accessible PDF output. The Exstream engine automatically includes the parent list (<L>) tag, the list item tag, and the list item body <LBody> tag in the PDF output. For a bulleted or numbered list, the list item label <Lbl> tag is also automatically included to identify the bullet or number. For a screen reader to read nested lists correctly, you must make sure to use the Promote button (on the Drawing Objects toolbar in Designer) in order to designate a nested list level. You cannot use a tab stop or other method to designate a nesting level.
Hyperlinks	The /Link accessibility tag is automatically added to the hyperlinks in PDF output so that they are recognized by a screen reader or text-to-speech converter. Unless you specify alternate text for a text hyperlink, an accessibility tool will announce "link" for the text hyperlink by default.
Read order	For designs created in Exstream version 7.0 or later, the accessibility information of objects is read in the order in which the objects were added to the design. Therefore, the first object placed on the page has a read order of one, the second object has a read order of two, and so on. You can, however, change the read order of objects .
Tab order	The tab order for accessibility information matches the read order for accessibility information for each page.

Design element or attribute	Default PDF accessibility tagging
Document title	The name of your Exstream application will populate the /Title entry in the document information dictionary of a PDF document.
Default accessibility language	The default accessibility language that will populate the /Lang entry in the document information dictionary of a PDF document is the default accessibility language that is specified for the language object that you specify for the default locale object in your application. The default accessibility language for any new language object is English (American).

18.1.3 Customizing the Title of an Accessible PDF

By default when you enable accessibility tagging in Exstream, the PDF output includes the name of your Exstream application as the PDF document title. This is the title that will be read by the screen reader or text-to-speech converter. If you want to specify a customized title (for example, "Explanation of Benefits for John Smith"), you can use the Exstream SYS_Title system metadata object to populate the /Title entry in the document information dictionary of a PDF document.

To specify a custom PDF title to be read by a screen reader:

1. In Design Manager, in the Library, right-click the PDF output object and select **Metadata...**.

The **Metadata** dialog box opens.

2. In the **Available Metadata** list, click the SYS_Title metadata object and then click .

The SYS_Title metadata object appears in the **Applied Metadata** list.

3. In the **Applied Metadata** list, click the SYS_Title metadata object.

In the **Metadata value** column, the **Value** area becomes available.

4. If you want to specify a static text value for the SYS_Title metadata object, enter a text value in the **Value** box. (If you do not enter a value, the default value, "Document Title" will be read as the title.)

5. If you want to use a variable attribute value for the SYS_Title metadata object:

- a. In the **Metadata value** area, click .

The **Select Variable** dialog box opens.

- b. Select the variable that contains the attribute value to be used in the output.
- c. Click **OK**.

The **Select Variable** dialog box closes and the variable that you selected appears in the box.

6. Click **OK**.

The **Metadata** dialog box closes.

7. From the Library, drag the PDF output object to the Property Panel.
8. Click the **Basic** tab.
9. In the **PDF metadata settings** area, select the **Include metadata objects in the output** check box.
10. From the Menu bar, select **Edit > Save**.

When the PDF output is produced, the attribute value that you specified will populate the /Title entry in the document information dictionary of a PDF document, and the screen reader will read this as the PDF document title.

For more information about adding metadata to PDF output, see *Creating Output* in the Exstream Design and Production documentation.

18.1.4 Marking Headings in PDFs with Accessibility Tags

You can manually add accessibility tags to the headings in your Exstream design, so that they are announced as headings by a screen reader or text-to-speech converter. Without these heading tags, an accessibility tool will read the document as a continuous paragraph.

You can mark headings in Exstream Design and Production by selecting the desired heading level option from the **Read text as** drop-down list in the properties for a text paragraph (for example **Heading**, **Heading 1**, or **Heading 2**). When the PDF output is produced it will include the corresponding accessibility tags (for example, `<H>`, `<H1>`, and `<H2>`) that identify the hierarchical structure of content to the screen reader. You can specify up to seven levels of structural headings.

To add accessibility tags to headings:

1. In Designer, open the page that contains the heading for which you want to specify an accessibility tag.
2. Select the text.
3. Right-click the text and select **Text paragraph properties**.

The **Text paragraph properties** dialog box opens.

Note: Keep in mind that accessibility tags can be added only at the text paragraph level, and not at the object level.

4. Click the **Accessibility** tab.
5. From the **Read text as** drop-down list, select the heading tag according to the hierarchy of

your document.

6. Click **OK**.

The **Text paragraph properties** dialog box closes.

7. Repeat step 2 through step 6 as needed to tag all of the headings in your design.

8. From the Menu bar, select **File > Save**.

When the PDF output is produced, the heading levels that you specified for the heading text paragraphs will be included in the accessibility tag structure of a PDF document.

The following illustration shows the accessibility tags for headings in a rendered PDF, as seen in the Tags navigation pane in the Adobe Acrobat Reader interface.

Example of heading tags in Adobe Acrobat Reader



18.1.5 Table Structure in Accessible PDFs

When you enable accessibility tagging in Exstream, table row `<TR>` accessibility tags and table data `<TD>` accessibility tags are added by default, regardless of the table type.

When you specify a header row for an automated table, the `<TH>` accessibility tag is automatically added to the PDF output for all of the cells within the header row. Simple tables do not have header rows, so if you want to specify a header row, you must [manually tag table cells as headers](#).

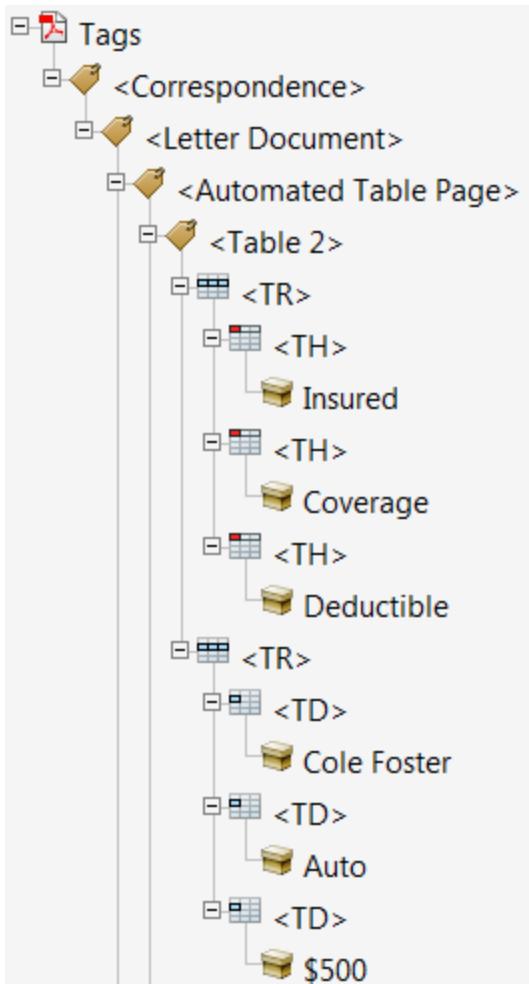
For table header cells, you can also [add header cell IDs](#), and then associate data cells with the header cell IDs. Associating table data cells with table header IDs preserves the logical relationship between the rows and columns so that the information is read correctly, and is required for Section 508 compliance.

If your design contains a table that you do not want the screen reader to announce in table format (for example, if the table is being used as a layout tool), you can [specify that only the content is read](#). When you do this, the table is set as a division container and the `<Table>`, `<TD>`, and `<TH>` tags are replaced with the `<Div>` tag.

By default, the content in the table will be read in top-to-bottom, row by row order. However, Exstream allows you to [customize the read order of table cells](#) within a single row.

Note: If you convert a table into a Library component, the accessibility settings on the table object are reset so that it is skipped by screen readers. To enable screen readers to read the table content, you must select **Read object text** in the **Read options** box on the **Accessibility** tab of the table object properties.

Example of table header tags in Adobe Acrobat Reader



Note: It is a known limitation that a screen reader might misread a table when all of the following conditions are met: 1) Some table rows include variables, and some table rows do not include variables; 2) None of the rows includes a rule; and 3) For each of the table rows, the **Fixed height in Engine** check box is selected (in the **Row Properties** dialog box, on the **Row Properties** tab).

The workaround for this issue is to clear the **Fixed height in Engine** check box for one or more of the rows.

Marking a Table as a Layout Table So That Only the Content is Read

Note: The functionality discussed in this topic applies only to accessible PDF output.

By default when you enable accessibility tagging to produce accessible PDF output in Exstream, tables are tagged so that screen readers and text-to-speech converters will announce table headers, rows, and any cells tagged as header cells.

However, if your design includes a table that is used only for layout , this way of reading the table could be a poor experience for your customers.

You can set the table so that screen readers read only the content, instead of announcing table headers, rows, and header cells. To do this, you can select an option that instructs the software to use division container tags (**<Div>** tags) instead of the default **<Table>**, **<TR>**, **<TD>**, and **<TH>** tags.

1. In Designer, right-click the table and then click **Table properties**.
2. Click the **Accessibility** tab.
3. From the **Read text as** list, select **Division**.
4. Click **OK**.

Note: You must select **Read object text** from the **Read options** list in order for the contents of the table to be read by screen readers and text-to-speech converters.

Manually Tagging Table Cells as Headers

If you have a simple table and you want to designate a header cell, you can manually tag the cell as a header. When you do this, the **<TH>** tag is added to a table cell in PDF output. (To designate an entire row as a header row, you must tag each cell in the row individually as a table header cell.)

You can do this for automated tables as well, in addition to the table cells that are automatically tagged in header rows.

1. In Designer, open the page that contains the table in which you want to specify a table header cell.
2. In the table, click within the cell that you want to specify as a table header cell.
3. Right-click and select **Cell properties....**
The opens.
4. In the **Cell Properties** dialog box, click the **Accessibility** tab.
5. In the **Read text as** list, select **Table Header Cell**.
6. Click **OK**.

Setting and Referencing Table Header Cell IDs

For table header cells, you can add header cell IDs that you can use to associate table cells with a specific header cell. Associating table cells with table header IDs preserves the logical relationship between the rows and columns so that the information is read correctly. Using table header cell IDs is required for Section 508 compliance, but it is also helpful to screen reader users when a table has two or more logical row or column headers.

In the following example, Data Cell A is logically related to both Row Header and Column Header 1, just as Data Cell B is logically related to both Row Header and Column Header 2.

	Column Header 1	Column Header 2
Row Header	Data Cell A	Data Cell B
	Data Cell X	Data Cell Y

In this case, you would first set table header cell IDs on Row Header, Column Header 1, and Column Header 2.

Then, you would associate Data Cell A with the IDs for Row Header and Column Header 1. Similarly, you would associate Data Cell B with the IDs for Row Header and Column Header 2.

For Data Cell X and Data Cell Y, your logical data relationship should determine which table header IDs that you associate with the data cells—only the column headers or both the column header and the row header—and the order in which they should appear in the list of associated IDs for the table data cells.

Important: Table header cell IDs and references to those IDs are not supported in [layout tables](#).

Set an ID value for a table header cell

To set an ID value for a table header cell, the cell must be part of an automated header row or column, or you must have selected the **Table Header Cell** option in the **Read text as** list on the table cell properties.

If, at any level, **Do not read text** is selected in the **Read options** list, the engine does not include those table header cell IDs in the PDF output.

Important: Each table header cell ID within a PDF must be unique. To avoid duplicates, the engine will rename the ID when you generate PDF output from your design. However, if you dynamically import a PDF that contains header cell IDs, the engine does not validate whether there are duplicate IDs in the final PDF output.

1. In Designer, select a table header cell and right-click it, and then click **Cell properties**.
2. In the **Cell Properties** dialog box, click the **Accessibility** tab.
3. In the **Header cell ID** box, enter a value to use for the table header cell ID.
4. Click **OK**.

Note: Complex text is not supported for header IDs.

If you set an ID value within a table, but do not set IDs on all of the header cells, [Table Analyst](#) will issue a warning message.

Reference the table header cell ID

You can reference an ID value on a table header cell or a table data cell.

1. In Designer, select a table cell and right-click it, and then click **Cell properties**.
2. In the **Cell Properties** dialog box, click the **Accessibility** tab.
3. In the **Available header cell IDs** box, select one or more table header cell IDs that you want to associate with the table data cell and click .

You can enter characters or click  to filter the list of options. If the ID that you are looking for does not appear in the list, check the header cell properties. Make sure that **Do not read text** is not selected from the **Read options** list.

4. If you reference multiple table header cell IDs on a data cell, you can reorder them in the **Associated header cell IDs** box by clicking  or . You can also remove an

association by highlighting an ID and clicking .

5. Click **OK**.

Note: If you later select **Do not read text** in the **Read options** list in the table data cell properties, the engine will not include the references to the table header ID and the screen reader will skip the data cell.

18.1.6 Working with Lists in Accessible PDF Output

When you apply a bulleted or numbered list style on the Formatting toolbar in Designer, the text paragraph is automatically marked as a list item in accessible PDF output. On the **Accessibility** tab of the text paragraph properties, **List Item** is selected from the **Read text as** list by default. As a result, accessibility tools announce that the text is grouped into a list, which can help your customers put the information into context.

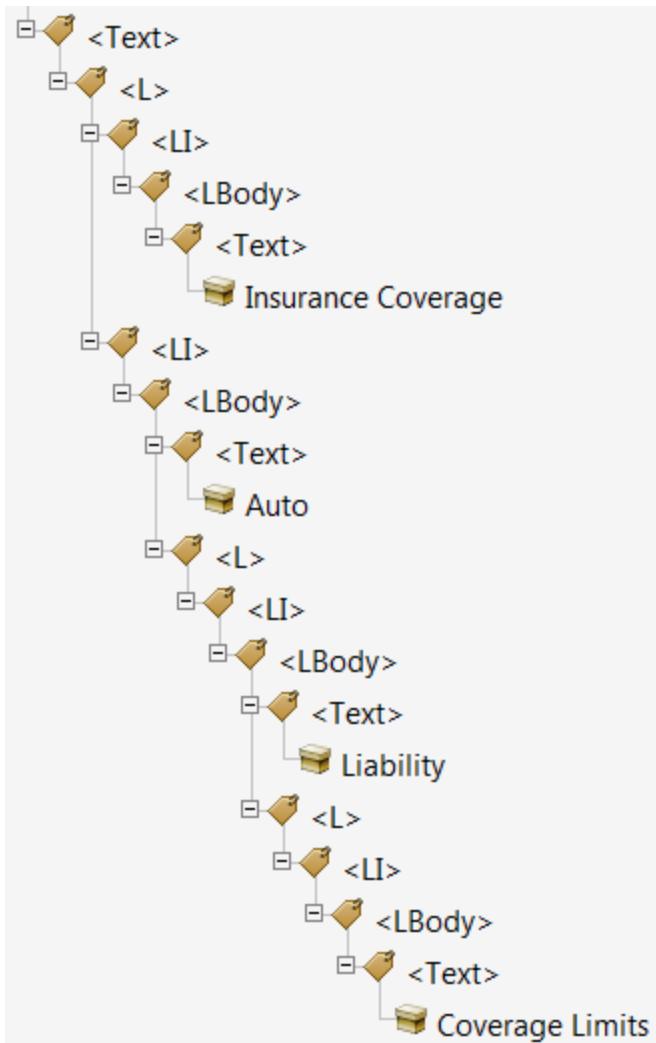
The Exstream engine automatically includes the parent list (`<L>`) tag, the list item (``) tag, and the list item body (`<LBody>`) tag in PDF output. For a bulleted or numbered list, the list item label (`<Lbl>`) tag is also automatically included to identify the bullet or number.

The engine groups consecutive text paragraphs marked as list items into a single list until it encounters a text paragraph that is not marked as a list item, at which point the list is closed. When the engine encounters subsequent list items, a new list is created and the appropriate tag structure is created as previously described.

When the PDF output is produced, the appropriate list tags for the list items will be included in the accessibility tag structure of a PDF document.

The following illustration shows the accessibility tags for a nested list in a rendered PDF, as seen in the Tags navigation pane in the Adobe Acrobat Reader interface.

Example of the <L>, , and <LBody> list tags in Adobe Acrobat Reader



Exstream supports accessibility tagging for nested list levels up to eight levels deep. In order for a screen reader to read nested lists correctly, you must make sure to use the **Promote** button (on the Drawing Objects toolbar in Designer) in order to designate a nested list level. You cannot use a tab stop or other method to designate a nesting level.

Promote button on the Drawing Objects toolbar in Designer



For more information about using the **Promote** button and designing lists in Exstream, see *Designing Customer Communications* in the Exstream Design and Production documentation.

By default, screen readers read the bullets or numbers in the list. If you want to prevent a screen reader from reading bullets or numbers in lists, use the DONT_READ_BULLETS_AND_NUMBERS engine switch when you produce output.

For more information about the DONT_READ_BULLETS_AND_NUMBERS engine switch, see *Switch Reference* in the Exstream Design and Production documentation.

Tip: If you want the list items in your design to be identified as a list by the accessibility tool, then you don't need to do anything. However, if you want to change a list so that it is read as regular text instead of a list, do the following:

1. In Designer, select one or more list items, right-click, and select **Text paragraph properties**.
2. Click the **Accessibility** tab.
3. From the **Read text as** list, select **Paragraph**.
4. Click **OK**.

Consider the following example list:

```
Insurance Coverage Availability
1. Auto
2. Home
3. Life
```

Depending on the accessibility settings and use of the DONT_READ_BULLETS_AND_NUMBERS switch, the list might be read by a screen reader as follows:

For this accessibility setting	A screen reader might read the list as
Paragraph is selected from the Read text as list	"Insurance coverage availability. One. Auto. Two. Home. Three. Life."
List item is selected from the Read text as list	"Insurance coverage availability. List of three items. One. Auto. Two. Home. Three. Life. List end."
List item is selected from the Read text as list, and the DONT_READ_BULLETS_AND_NUMBERS switch is specified	"Insurance coverage availability. List of three items. Auto. Home. Life. List end."

18.1.7 How Does Exstream Add PDF Accessibility Tags to Hyperlinks?

By default when you enable accessibility tagging in Exstream, the /Link accessibility tag is automatically added to the hyperlinks in PDF output so that they are recognized by a screen

reader or text-to-speech converter. Without these hyperlink tags, an accessibility tool will not recognize that the text is a hyperlink.

When your design includes a text hyperlink, an accessibility tool announces "link" for the text hyperlink by default. If you want an accessibility tool to announce the actual hyperlink text, you must specify the hyperlink text as alternate text in the properties for the text hyperlink.

Alternatively, you can specify descriptive text as the alternate text to be announced by a screen reader. For example, the screen reader can announce "OpenText home page" instead of announcing "www.opentext.com".

Note: Keep in mind that you can add accessibility tags only to text hyperlinks in Exstream designs, not to hyperlinks on objects.

Adding PDF Accessibility Tags to Alternate Text for Text Hyperlinks

1. In Designer, open the page that contains the text hyperlink for which you want to add accessibility tags for the alternate text.
2. Select the text.
3. Right-click and select **Edit text hyperlink....**

Note: If you are creating a text hyperlink, you must first select the text you want, right-click and select **Add text hyperlink....**

The **Hyperlink Properties** dialog box opens.

4. Click the **Accessibility** tab.
5. From the **Accessibility tag options** list, select **Read alternate text**.
6. In the **Alternate text** area, use the controls to enter a static alternate text value or to select a variable that is used to provide the alternate text value.

For more information about the methods that you can use for specifying alternate text using the **Alternate text** area to enter a static alternate text value, see "[Adding Static Alternate Text](#)" on page 574 and "[Adding Variable Alternate Text](#)" on page 575.

7. Click **OK**.

When the PDF output is produced, the /Alt accessibility tag is added to the alternate text for the text hyperlink.

18.1.8 Specifying the Page Number Being Read in Accessible PDFs

In PDF output, there are two locations from which a screen reader announces page numbers: on the page itself, and in the PDF navigation control in the Adobe Page Navigation toolbar. The numbers on the pages themselves might be in different formats (the front matter of the document might be numbered with lowercase Roman numerals, for example, while the main content of the document uses Arabic numerals). The number read in the page navigation feature, on the other hand, reflects the number of the page out of the total number of pages in the document. If you want to be sure that the page number that is announced by a screen reader's navigation feature is consistent with the page number that is announced when the screen reader reads the page, you can use the PAGELABELVAR engine switch in your control file when you run the engine to produce output. This switch lets you specify the variable (for example, 'SYS_PagelnDocument') that provides the page number value that a screen reader's navigation feature announces.

Tip: Note that this switch is best used in conjunction with your existing page numbering process. To ensure consistency, you can use the same variable that provides the page number that appears on the page as the variable that you specify for the PAGELABELVAR engine switch.

For more information about adding page numbers to Exstream designs, see *Designing Customer Communications* in the Exstream Design and Production documentation.

This switch has no default value; the argument is the name of the variable that provides the page number value.

For example:

```
-PAGELABELVAR=<variable name>
```

18.1.9 Specifying Accessibility Settings for Library Objects Used in Accessible PDFs

For the objects that you add directly to a design page in Designer, such as a text box, a table, or an image, you specify accessibility settings on the **Accessibility** tab of the objects properties in Designer. However, for objects that you design separately from the design page, such as page objects, paragraph objects, and message objects, you specify accessibility settings on the **Accessibility** tab of the object properties in Design Manager.

To specify accessibility settings for a page object, a paragraph object, a text message object, or a graphic message object in Design Manager:

1. In Design Manager, from the Library, drag the page object, the paragraph object, the text message object, or the graphic message object to the Property Panel.

2. Click the **Accessibility** tab.

3. In the **Read options** box, specify how the text should be read:

To have the screen reader	Select
Read the object text as it appears in the design	Read object text
Read alternate text in place of the object text	Read alternate text , and then specify the alternate text in the Alternate text box. Note: Keep in mind that when you change the Read options to Read alternate text , the accessibility options that are specified for any lower-level object within the page object, the paragraph object, the text message object, or the graphic message object are not honored.
Skip the object when reading the PDF	Do not read text

4. In the **Accessibility language** list, select the language that you want the screen reader to use for pronunciation rules.

Tip: Alternatively, you can enter an ISO 639-1 or ISO 639-2 language code for a supported language (for example, "es" for Spanish).

For a list of the supported accessibility languages and corresponding ISO 639-1 and ISO 639-2 codes, see "[Supported Accessibility Language Codes](#)" on page 586.

5. Click **OK**.

When the PDF output is produced, the language that you specified for the page object, paragraph object, the text message object, or the graphic message object will include a separate /Lang entry for that object in the PDF document.

18.2 Specifying the Reading Settings for Design Objects Used in Accessible PDFs

The term "reading settings" refers to how a screen reader behaves when it encounters an object in a PDF document that includes accessibility tags. For textual objects, a screen reader can announce the text that is contained within the object. In addition, for both textual and non-textual objects, a screen reader can announce alternate text or ignore the object. These settings are found in Designer and in Design Manager in the **Read options** list on the **Accessibility** tab of the properties for the object.

Because the page designs that you can create in Exstream are complex and contain many levels of content, it is important to understand how the accessibility settings that you select on higher level objects will affect the accessibility settings on the lower level objects contained within them. It is also important to understand how you can change the default accessibility settings for objects by adding alternate text or by instructing the screen reader not to read certain objects.

This section discusses the following topics:

- “[How Embedded Objects Are Affected by PDF Accessibility Settings](#)” below
- “[Adding Alternate Text to Objects in Accessible PDFs](#)” on the next page
- “[Skipping an Object in Accessible PDFs](#)” on page 576

18.2.1 How Embedded Objects Are Affected by PDF Accessibility Settings

The accessibility settings that you specify on a higher level object, such as a page or a table row, controls how the accessibility information is read for the lower level objects that it contains, such as a text box, an image, or a table cell. For example, if you specify that a page cannot be read by an accessibility tool, then all of the objects contained within the page are not read, even if their individual settings specify that the objects are to be read. On the other hand, if you specify that the content of a higher level object should be read, then the objects that it contains can be read (if specified by their individual settings). For use with accessibility settings, the following types of objects are considered to be higher level objects:

- Any object that can contain embedded objects
- Frames (these objects are always set to **Read object text**)
- Graphic messages
- Pages
- Tables
- Table cells
- Table rows
- Text boxes

The following table lists the accessibility options available for higher level objects and describes how each option will affect the objects within the larger object:

How accessibility settings on higher-level objects affect lower-level objects

If you use this setting on the higher level object	Then this happens
Do not read	No objects within the higher level object are read, regardless of their individual accessibility settings. For example, if you select Do not read on a graphic message, then none of the objects within the graphic message will be read by the accessibility tool.
Read alternate text	The higher level object's specified alternate text is read, but no objects within the higher level object are read, regardless of their individual accessibility settings. For example, if you select Read alternate text on a graphic message, the accessibility tool will read the message's alternate text (for example, <code>Advertisement for plan upgrade</code>), but will not read any of the objects within the graphic message.
Read object text	The individual objects within the higher level objects are read according to their accessibility settings. For example, if you select Read object text on a graphic message, then the accessibility tool will analyze the first object within the graphic message. If the object has a setting of Read alternate text , the accessibility tool will read it (for example, <code>Detailed plan description</code>). If the object has a setting of Read object text , then the accessibility tool will read all of the text in the object. Finally, if an object within the higher level object is specified as Do not read , it is not read.

Before applying accessibility settings to your design, review the following behavioral notes related to objects within other objects:

- You cannot change the accessibility options for templates because the accessibility options for messages and pages that use templates are controlled at the message or page level.
- You cannot change the accessibility setting for embedded frames; they are always set to **Read object text**. However, as described in the previous table, you can control whether the individual objects contained within the frame are read by the accessibility tool by setting up the accessibility options on those objects.
- The accessibility options of components are handled on a per instance basis. Each instance of a component will have its own accessibility options. If you change the accessibility options on one instance of a component, those changes will not affect another instance of the same component.

18.2.2 Adding Alternate Text to Objects in Accessible PDFs

Alternate text is content that an accessibility tool reads in place of the text within an object or to describe a non-textual object, such as an image. If you include alternate text for an object that contains text, such as a text box, only the alternate text is read by the accessibility tool. For example, suppose you use a text box to contain a description that most customers will not need to read. You can include alternate text for the text box. Then, when a screen reader encounters the text, it can simply present "A detailed description of the liability statement," rather than all of the text in the box.

You can specify alternate text for the following types of objects:

- Add-ins
- Barcodes
- Bezier curves
- Charts
- Check boxes
- Components
- Custom buttons
- Empty images
- Graphic messages
- Images
- Indexes
- Lines
- Pages
- Paragraphs
- Polygons
- Radio buttons
- Shapes
- Signature buttons
- Tables
- Table cells
- Table of contents
- Text boxes
- Text messages

If you convert a paragraph to a message object, the accessibility tags and read order remain the same. Similarly, if you convert a text message to a paragraph object, the accessibility tags and read order remain the same. If a shape is converted to a text object, the tags and read order remain the same.

The default behavior for objects that do not contain text that can be read by the accessibility tool is to be skipped. By specifying alternate text for these types of objects, you can ensure that they are included in the presentation of the document. The following object types are skipped unless you provide alternate text:

- Add-ins
- Barcodes
- Bezier curves
- Charts
- Check boxes
- Empty images
- Images
- Lines
- Polygons
- Shapes

You can provide either static or variable alternate text, depending on the design needs. The process for adding alternate text using one of these two methods is discussed in the following sections. Alternate text is limited to 64K, including variable alternate text.

Adding Static Alternate Text

You can enter static alternate text to be read in place of an image or text in all instances of the object. For example, to describe a picture of a car, you might enter `A blue car` as the alternate text.

To add static alternate text:

1. Do one of the following
 - In Design Manager, from the Library, drag the object to the Property Panel.
 - In Designer, select the object, and click .

The object's properties open.

Tip: When you specify an option from the **Accessibility tag options** box, you can select multiple table cells and set the accessibility options for all of the cells at one time. The properties you set using this method apply to each individual cell.

2. Click the **Accessibility** tab.
3. In the **Accessibility tag options** box, select **Read alternate text**.

If the accessibility tag option was previously **Do not read**, then the object's read order is set to last on the design page. If the object contains other objects (for example, a page containing design objects or a text box containing embedded objects), you receive a warning message informing you that the accessibility options for all objects embedded within that object will be disabled.

4. Use the **Alternate text** area to specify the text that will be read by the accessibility tool:

To	Do this
Provide a small string of text, such as "A blue car"	In the Alternate text box, enter the text.
Provide a large amount of text or text that contains variables	<ol style="list-style-type: none">a. Below the Alternate text box, click . The Edit Text dialog box opens.b. Enter the text to be read in place of the object. To insert a variable, click  and select the variable.c. Click . The Edit Text dialog box closes and the text you entered appears in the Alternate text box.

5. If you are defining the alternate text for a design object, click **OK**.

The object's properties dialog box closes.

For information about controlling the warnings that are issued when accessibility options are disabled, see *System Administration* in the Exstream Design and Production documentation.

Adding Variable Alternate Text

You can use variables to provide versatile alternate text to accommodate a variety of situations. For example, you might use variable text in the following circumstances:

- To describe the data within a chart
- To insert customer-dependent variable text (for example, a customer address)
- To use the same alternate text for multiple objects
- To accommodate variable text that describe each possible image that could be inserted
- To supply text in different languages, depending on the customer.

If you use array variables, they must be indexed the same way you index variables in formulas and rules. For example, the alternate text for a chart might be: "In the month of <StringArrayVar(1)> we shipped <IntegerArrayVar(1)> units. In the month of <StringArrayVar(2)> we shipped <IntegerArrayVar(2)> units."

You cannot use placeholder variables to define alternate text.

To add variable alternate text:

1. Do one of the following:
 - In Design Manager, from the Library, drag the object to the Property Panel.
 - In Designer, select the object, and click .

The object's properties open.

Tip: When you customize the accessibility tags of a table, you can select multiple table cells and set the accessibility options for all of the cells at one time. The properties you set using this method apply to each individual cell.

2. Click the **Accessibility** tab.
3. In the **Accessibility tag options** box, select **Read alternate text**.

If the object contains other objects (for example, a page containing design objects or a text box containing embedded objects), you receive a warning message informing you that the accessibility options for all objects embedded within that object will be disabled.

4. Below the **Alternate text** box, click .

The **Select variable** dialog box opens.

5. Select the variable that provides the alternate text and click **OK**.

The **Select variable** dialog box closes and the variable you selected appears in the **Alternate text** box.

6. If you are defining the alternate text for a design object, click **OK**.

The object's properties dialog box closes.

For information about controlling the warnings that are issued when accessibility options are disabled, see *System Administration* in the Exstream Design and Production documentation.

18.2.3 Skipping an Object in Accessible PDFs

If you do not want an object to be read by a text-to-speech converter or screen reader, you can set up the object's properties so it is skipped by accessibility tools. For example, if the document contains a repeating header, you can set up the header so that it is not read for each page in the document.

To specify an object to be skipped by an accessibility tool:

1. Do one of the following:
 - In Design Manager, from the Library, drag the object to the Property Panel.
 - In Designer, select the object, and click .

The properties for the object open.

2. Click the **Accessibility** tab.
3. From the **Accessibility tag options** box, select **Do not read**.

The read order is set to zero and the accessibility settings become inactive. If the object contains other objects (for example, a page containing design objects or a text box containing embedded objects), you receive a warning message informing you that the accessibility options for all objects embedded within that object will be disabled.

4. If you are defining the alternate text for a design object, click **OK**.

The object's properties dialog box closes.

For information about controlling the warnings that are issued when accessibility options are disabled, see *System Administration* in the Exstream Design and Production documentation.

Tip: If you want to prevent a text-to-speech converter or screen reader from reading bullets or numbers in a list, use the DONT_READ_BULLETS_AND_NUMBERS engine switch.

For more information about the DONT_READ_BULLETS_AND_NUMBERS engine switch, see *Switch Reference* in the Exstream Design and Production documentation.

18.3 Changing the Read Order in Accessible PDFs

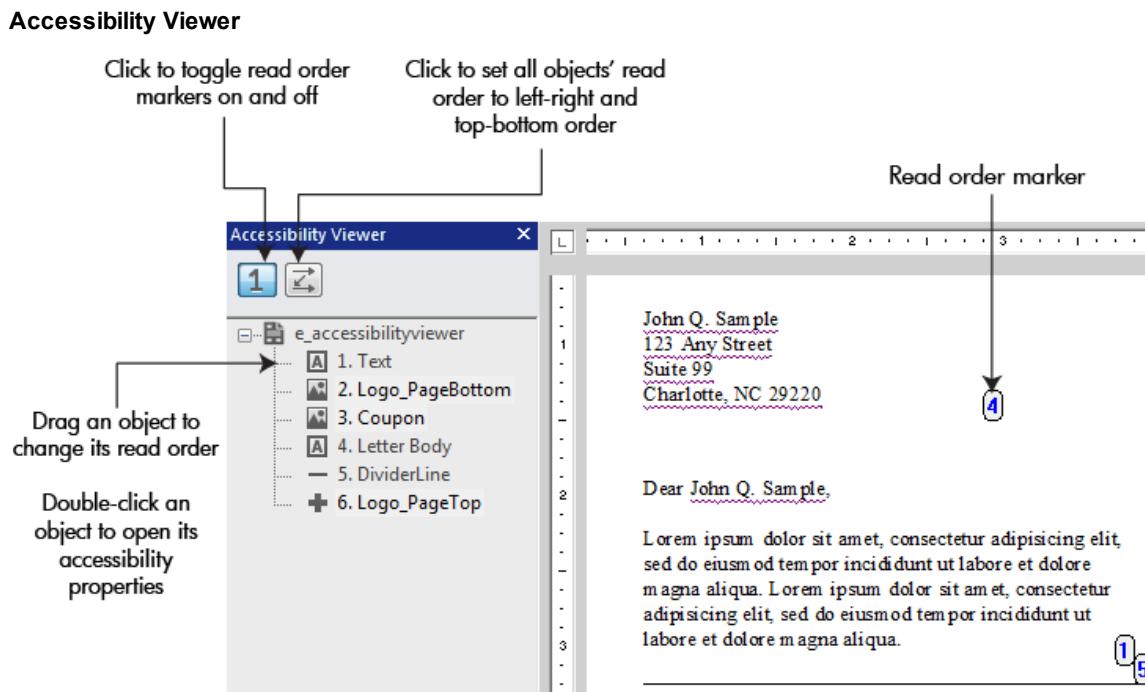
The term "read order" is used to describe the order in which the accessibility information associated with design objects will be read by a screen reader or text-to-speech converter. If the database has been upgraded to Exstream version 7.0 or later from an earlier version, the default read order is left-to-right, top-to-bottom. If the design was created in a database at version 7.0 or later, the accessibility information of objects is read in the order in which the objects are placed on the design. Therefore, the first object placed on the page has a read order of one, the second object has a read order of two, and so on. Because the order in which you place objects on a page during the design phase might not reflect the order in which you want the accessibility tags to be read, you can change the order after you have completed the design.

Before setting the read order of objects, review the information about object-specific read order in ["Notes on the Read Order Behavior for Specific Objects in Accessible PDFs" on page 580](#).

Each time you create a design object, a read order number is assigned. Read order markers in Designer allow you to see the current order in which the objects will be read. You can use the Accessibility Viewer to toggle the view of read order markers on and off in Designer. You can see and change the read order of the following types of objects in the Accessibility Viewer:

- Charts
- Check boxes
- Custom buttons
- Frames
- Indexes
- Images
- Library components
- Radio buttons
- Shapes
- Signature buttons
- Tables
- Tables of contents
- Text boxes

To open the Accessibility Viewer, select **View > Accessibility Viewer** from the Menu bar. The following illustration describes the parts of the Accessibility Viewer and how you can use it to view and edit the accessibility properties of design objects.



Unlike the read order of design objects, the read order of application-level objects is determined during the engine run, based on the order in which they appear in the document. For example, pages or paragraph objects will be read in the order they appear in the document. In other words, you cannot set the first page in a document to be read between the third and fourth pages.

You can either allow the read order to be set automatically, or you can manually set the read order for specific objects.

18.3.1 Allowing the Read Order to Be Set Automatically in Accessible PDFs

When the read order of objects is set automatically, the accessibility information is read from left-to-right, top-to-bottom for all objects on the page. When you use this method, keep in mind that the read order is based on the objects' current positions. If you re-order objects, repeat these steps to refresh the left-to-right, top-to-bottom read order.

To allow the read order to be set automatically:

1. Open the Accessibility Viewer.
2. At the top of the Accessibility Viewer, click .

18.3.2 Manually Setting the Read Order of Objects in Accessible PDFs

You can manually set the read order of objects to ensure that specific objects will be read by accessibility tools in a certain order. For example, if the description of an illustration appears after the image, you can manually set the read order so the description is read before the accessibility information for the image.

1. In Designer, select the object for which you want to change the read order.
2. Click .
The object's properties open.
3. Click the **Accessibility** tab.
4. In the **Read order** box, enter the numerical order in which you want the text to be read. For example, if you want a text box to be read second, but the read order number is 5, then enter 2 in the **Read order** box.
5. Click **OK**.
The object's properties closes.

Tip: You can also drag and drop the object names in the Accessibility Viewer to change the read order of the objects.

18.3.3 Notes on the Read Order Behavior for Specific Objects in Accessible PDFs

When designing a document including accessibility tags, keep in mind the following behaviors:

- All tagged paragraphs in a section will be read before the screen reader or text-to-speech converter proceeds to any objects outside of the section.
- All tagged objects inside a frame will be read before the screen reader or text-to-speech converter proceeds to any objects outside the frame.
- The text for all tagged embedded objects will be read inline with the tagged higher level object. For example, if an image is embedded so it appears in a line of text, when the text is read, the image alternate text will be read as part of the text.
- If you convert a paragraph to a message object, accessibility tags and read order remain the same. Similarly, if you convert a text message to a paragraph object, accessibility tags and read order remain the same.

- If you import an accessible PDF as a background image (design-time import), the imported PDF content will be read first in the PDF output, followed by any objects or layers created on top of the image.
- If you import a multiple-page accessible PDF that has accessibility tags that span pages, the object read order of the PDF output might change. For example:
 - If you have a table that spans multiple pages, but you import only one of those pages, you might lose some of the accessibility tags.
 - If the first page of an accessible PDF has Tag 1 and Tag 3, while Tag 2 is on the second page, the PDF output will reorder those based on sequential order.
- If a shape is converted to a text object, tags and read order remain the same.
- You can tag individual cells within a table; however, tagged table cells do not appear in the Accessibility Viewer and tag read order can only be changed on the **Accessibility** tab of each table cell's properties. Read order for table cells is not listed in the Accessibility Viewer because the viewer is designed to show only high-level, named objects.
- You can change the read order of table cells within a row, but you cannot change the read order of the table rows. All tagged table cells in a row will be read before the screen reader or text-to-speech converter proceeds to the next table row containing tagged cells.
- If the document has multiple layers, then tagged objects on the layers will be read in the following order:
 - a. Template
 - b. Default language
 - c. Current language

For example, all tagged objects on the template will be read first, then tagged objects on the default language layer, and lastly, the tagged objects on the current language layer.

18.4 Setting the Reading Language for Accessible PDFs

If you design for different languages, you must specify the default language in which the alternate text or object content is presented. However, you can override the default language used for the accessibility information on individual design objects or on text paragraphs that appear on a page. For example, if the default accessibility language is English, but you want the alternate text on a particular text box to be read in Spanish, you can change the accessibility language for that text box to Spanish.

To specify the language to be read by a screen reader, complete the following tasks as necessary:

- “[Specifying the Default Reading Language for Accessible PDFs](#)” below
- “[Specifying the Reading Language for Objects and Text in Accessible PDFs](#)” on the next page

18.4.1 Specifying the Default Reading Language for Accessible PDFs

Note: You can use accessibility features with PDF and PDF/A output, however, the PDF/VT output type does not support accessibility.

When you use language layers in an application, you can customize a PDF so that a screen reader will read it using the language preferences of the person who is using the screen reader. English is used by default as the reading language for an application. You can change the default reading language by adjusting the settings on the language object and the locale object in your application. The accessibility language that you specify will populate the /Lang entry in the document information dictionary of a PDF document.

The default reading language will be used by all documents, pages, design objects, and text paragraphs in an application unless you choose to specify a different reading language for individual design objects or text paragraphs.

For information about specifying the reading language for an individual design object or text paragraph, see “[Specifying the Reading Language for Objects and Text in Accessible PDFs](#)” on the next page.

To specify the default accessibility language to be read by a screen reader:

1. In Design Manager, from the Library, drag the language object to the Property Panel.
2. In the **Accessibility** area, select a reading language:

To	Do this
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">In the Accessibility language control type list, select Static.In the Accessibility language list, select the language that you want.
Select a variable that contains an ISO language code	<ol style="list-style-type: none">In the Accessibility language control type list, select Variable.In the Custom accessibility language box, click .In the Select Variable dialog box, select a variable that contains an ISO language code.

Tip: Make sure to verify that your accessibility tools read the custom code correctly. The engine does not validate the language code.

3. From the Library, drag the desired locale object to the Property Panel.
4. In the **Language** box, click .
5. In the **Select Language** dialog box, select the language that you want.
6. Click **OK**.
7. In Design Manager, from the Library, drag the desired application object to the Property Panel.
8. In the **Default locale** box, click .
9. In the **Select Locale** dialog box, select the locale.
10. Click **OK**.

When the PDF output is produced, the default accessibility language that you specified will populate the /Lang entry in the document information dictionary of a PDF document.

For more information about using language layers, see *Designing Customer Communications* in the Exstream Design and Production documentation.

18.4.2 Specifying the Reading Language for Objects and Text in Accessible PDFs

The default accessibility language will be used by all documents, pages, design objects, and text in an application. However, you can choose to specify a separate accessibility language for an individual design object, or for an individual text paragraph that is within a design object. For example, suppose that you are producing a customer invoice for which English is the default accessibility language, but you want to include one paragraph in Spanish. In this case, you can specify Spanish as the accessibility language for that particular paragraph so that the screen reader will read the text using the correct pronunciation.

For the objects that you add directly to a design page in Designer, such as a text box, a table, or an image, you specify the accessibility language on the **Accessibility** tab of the object properties in Designer. However, for objects that you design separately from the design page, such as page objects, paragraph objects, and message objects, you specify the language on the **Accessibility** tab of the object properties in Design Manager. In both cases, you also have the option of selecting a variable that contains a custom ISO language code.

Tip: If you use a variable with a custom ISO code, make sure to verify that your accessibility tools read the custom code correctly. The engine does not validate the language code.

To specify the accessibility language to be read by a screen reader for an individual design object or a text paragraph within a design object:

To	Do this							
Specify the reading language for a design object designed separately from the design page (such as a page, paragraph, or message)	<ol style="list-style-type: none">1. In Design Manager, from the Library, drag the page object, the paragraph object, the text message object, or the graphic message object to the Property Panel.2. Click the Accessibility tab.3. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>4. Click OK.		To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this							
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.							
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.							

To	Do this						
Specify the reading language for a design object added directly to a design page (such as a text box, table, or image)	<ol style="list-style-type: none">1. In Designer, open the page that contains the object for which you want to specify an accessibility language.2. Click the object, and then click .3. Click the Accessibility tab.4. Select a reading language:<table border="1"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>5. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control typelist, select Static.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. Select Variable as the Accessibility language control type.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

To	Do this						
Specify the reading language for a text paragraph within a design object	<ol style="list-style-type: none">1. In Designer, open the page that contains the text paragraph for which you want to specify an accessibility language.2. Highlight the text paragraph. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p>Note: Keep in mind that you can specify the accessibility language for all of the content within a text paragraph, but you cannot specify the accessibility language for only some of the content within a text paragraph.</p></div> <ol style="list-style-type: none">3. Right-click the text paragraph and select Text paragraph properties.4. Click the Accessibility tab.5. Select a reading language:<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>To</th><th>Do this</th></tr></thead><tbody><tr><td>Select a language from the default list provided by Exstream</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.</td></tr><tr><td>Select a variable that contains an ISO language code</td><td><ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.</td></tr></tbody></table>6. Click OK.	To	Do this	Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.	Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.
To	Do this						
Select a language from the default list provided by Exstream	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Static.b. In the Accessibility language list, select the language that you want.						
Select a variable that contains an ISO language code	<ol style="list-style-type: none">a. In the Accessibility language control type list, select Variable.b. In the Custom accessibility language box, click .c. In the Select Variable dialog box, select a variable that contains an ISO language code.						

When the PDF output is produced, the language that you specified for the design object or the text paragraph will include a separate /Lang entry for that object in the PDF document.

18.4.3 Supported Accessibility Language Codes

To specify an accessibility language, you can select the language that you want from the **Accessibility language** list on the **Accessibility** tab of the object properties. You can also use an ISO 639–1 or ISO 639–2 language code by creating a scalar string variable that contains a custom ISO language code as its value. For more information about creating a variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

Important: Keep in mind that accessibility languages are the languages that are available to be read by accessibility tools. The list of accessibility languages does not represent the languages supported in Exstream output.

Related topics:

- “Setting the Reading Language for Accessible HTML Output” on page 537
- “Specifying the Reading Language for Objects and Text in Accessible HTML” on page 539
- “Setting the Reading Language for Accessible PDFs” on page 581
- “Specifying the Reading Language for Objects and Text in Accessible PDFs” on page 583

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive)

Language name	ISO 639–1	ISO 639–2
Amharic	am	
Arabic	ar	
Armenian	hy	
Bengali	bn	
Catalan	ca	
Cebuano		ceb
Chinese (PRC)	zh-CN	
Chinese (Taiwan)	zh-TW	
Chinese (Hong Kong SAR)	zh-HK	
Chinese (Singapore)	zh-SG	
Czech	cs	
Danish	da	
Dutch	nl	
English (American)	en-US	
English (Australian)	en-AU	
English (British)	en-GB	
Farsi (Persian)	fa	

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive), continued

Language name	ISO 639–1	ISO 639–2
Finnish	fi	
French	fr	
French (Canadian)	fr-CA	
French (Creole)		cpf
German	de	
Gujarati	gu	
Hawaiian		haw
Hindi	hi	
Hmong		hmn
Hungarian	hu	
Igbo	ig	
Ilokano		ilo
Italian	it	
Japanese	ja	
Khmer	km	
Korean	ko	
Kru		kro
Lao	lo	
Marshallese	mh	
Navajo	nv	
Nepali	ne	
Norwegian	no	
Norwegian (Bokmål)	nb	
Norwegian (Nynorsk)	nn	

ISO 639–1 and ISO 639–2 language codes supported in Exstream (case-sensitive), continued

Language name	ISO 639–1	ISO 639–2
Oromo	om	
Pohnpeian		pon
Polish	pl	
Portuguese	pt	
Portuguese (Brazilian)	pt-BR	
Punjabi	pa	
Romanian	ro	
Russian	ru	
Samoan	sm	
Spanish	es	
Swedish	sv	
Tagalog	tl	
Thai	th	
Tongan	to	
Turkish	tr	
Ukrainian	uk	
Urdu	ur	
Vietnamese	vi	
Yoruba	yo	

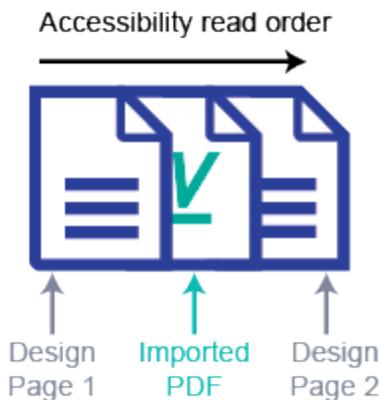
18.5 Retaining Imported PDF Accessibility

In addition to being able to [create accessible PDFs](#) within Exstream Design and Production, you can also import PDFs that already contain accessibility tagging, and have Exstream retain the tags when creating accessible PDF or PDF/A output. Accessible PDFs can be imported either

at design time or run time. This functionality lets you leverage existing accessible content without the need to reapply accessibility tags.

After final accessible output is created, accessibility tools read the imported content at the point of insertion. For example, if an accessible PDF is imported between pages of a document, then the accessibility tool reads any accessible content on the first page of the PDF, then the imported content, followed by the next page of the PDF.

Example of accessibility read order



This section discusses the following topics:

- “[Importing accessible PDFs at design time](#)” below
- “[Importing accessible PDFs at run time](#)” on page 592
- “[Notes on importing accessible PDFs](#)” on page 595

18.5.1 Importing accessible PDFs at design time

Note: To import a PDF into a design at design time, you must have licensed the Design PDF module.

1. In Design Manager, in the Library, right-click either the **Documents** heading or the **Pages** heading and then click **Import PDF**.
2. In the **Import PDF** dialog box, select the PDF that you want to import.

3. Choose how the PDF pages will be added to the Library:

To	Do this
Import the PDF pages only	<ol style="list-style-type: none">Clear the Create Document check box.In the Base Page Name box, enter the name to apply to each imported page. For example, if you enter Page, the pages are named Page 1 and Page 2.
Import the PDF pages and automatically add them to a new document	<ol style="list-style-type: none">Select the Create Document check box.In the Document Name box, enter the name to apply to each imported page and the new document. The imported pages will be numbered sequentially as they are named. For example, if you enter New PDF, the document is named New PDF and the pages are named New PDF 1 and New PDF 2.

4. Define the type of page that should be used to import each page from the selected PDF:

To	Do this
Specify a paper type for each page of the PDF	<ol style="list-style-type: none">In the Page Type list, click Use specified Paper Type.In the Paper Type box, select a paper type. Make sure that you select a paper type that is the same size as the pages of the PDF file. If the sizes differ, the PDF content could be cut off when viewed in Designer or when printed.
Apply a template to each page of the PDF	<ol style="list-style-type: none">In the Page Type list, click Use specified Page Template.In the Page Template box, select a page template. Make sure that you select a page template that is the same size as the pages of the PDF file. If the sizes differ, the PDF content could be cut off when viewed in Designer or when printed.

5. Identify which pages to import from the selected PDF:

To	Do this
Import all of the pages in the PDF file	In the Page Range area, click All .
Import specific pages from the PDF file	In the Page Range area, click Page . In the adjacent box, enter the pages that you want to import. To indicate a range, separate numbers with a hyphen (for example, 1–5). To indicate separate pages or to identify multiple ranges, separate numbers with a comma (for example, 3–7, 12–18, 30).

6. Click **Open**.

The pages and, if specified, the document are added to the Library. The **Log** dialog box opens.

7. Click **Save to File** to save a copy of the log, or click **OK** to close the **Log** dialog box.

18.5.2 Importing accessible PDFs at run time

Note: To import PDFs at run time, you must have licensed the Dynamic Content Import module.

To import an accessible PDF at run time, you first need to create a placeholder variable, then you need to create a placeholder document.

1. Create a placeholder variable.
 - a. In the Library, right-click the **Data Dictionary** heading and then click **New Variable**.
 - b. In the **New Variable** dialog box, enter a name in the **Name** box. You can also enter a description in the **Description** box (optional).
 - c. In the **Type** list, click **Placeholder**.
 - d. In the **Placeholder Type** list, click **PDF**.
 - e. If the PDF being imported has more than one page, select the **Array** check box.
 - f. In the **Design sample** box, enter some sample text to show in Designer (optional).
 - g. Click **Finish**.

The variable opens in the Property Panel.

- h. Click the **Placeholder** tab.
- i. Select an option to specify which files to import for the customers in the run:

To	Do this
Import a different file for each customer in the run	Select the The file for each customer is unique check box.
Import the same file for each customer in the run	<ol style="list-style-type: none">i. Clear the The file for each customer is unique check box.ii. In the Maximum number of files to hold in memory box, enter the number of files to place in memory, so that they do not have to be read each time for each customer. The maximum number allowed is 9999.

- j. If you are importing multiple-page PDFs, make a selection in the **Pages to import** list to specify which pages to import at run time:

To	Do this
Import all of the pages in the file	Select All .

To	Do this
Specify a range of pages to import	<ol style="list-style-type: none">i. Select Range.ii. In the adjacent box, enter the starting and ending pages. To indicate a range, separate the numbers with a hyphen (for example, 1 - 5). To indicate separate pages or to identify multiple ranges, separate the numbers with a comma (for example, 3 - 7, 12 - 18, 30).
Use a variable to identify which pages to import	<ol style="list-style-type: none">i. Select Variable.ii. In the adjacent box, click  and select a string or integer variable to control which pages are imported.

- k. If you are importing a file that is stored in the common asset service (CAS):
 - i. Select the **CAS resource** check box and set the value of the variable to the CAS resource ID for the file.

The CAS resource ID is a Base64-encoded string and acts as an identifier that is used to locate the file in the CAS repository. For more information about the format for entering a CAS resource ID, see *Importing External Content* in the Exstream Design and Production documentation.
 - ii. In the control file for your application or from the command prompt, use the MGWUSER and MGWPASSWORD engine switches to specify the user name and password for the OTDS user that you want to use to sign in to the CAS repository at run time.
 - iii. Optionally, you can use engine switches to override the OTDS and management gateway connection settings specified on the **Integration** tab in **System Settings**.

For more information about the switches that you can use when creating a placeholder variable, see *Importing External Content* in the Exstream Design and Production documentation.
2. Create a placeholder document.
 - a. In the Library, right-click the **Documents** heading and then click **New Document**.
 - b. In the **New Document** dialog box, enter a name in the **Name** box. You can also enter a description in the **Description** box (optional).
 - c. Click **Finish**.

The document opens in the Property Panel.
 - d. Click the **Basic** tab.

- e. In the **Document type** list, click **Placeholder (use pre-composed content)**.
- f. In the **Placeholder** box, click  and select the placeholder variable to associate with the placeholder document.
- g. Add pages to the placeholder document:
 - i. In the **Contents** area, click  and select **Add Page**.
 - ii. In the **Select Page** dialog box, select the pages that you want to add to the placeholder document. Be sure that you include the following pages:
 - The design page, either with or without a placeholder frame
 - The design page that you want to use as the last page of the document (optional)
 - iii. Click **OK**.
 - iv. Repeat step i through step iii until all of the pages that are needed to import the content correctly are listed in the **Contents** area.
- h. Save the placeholder document and open it in the Edit Panel.
- i. In the Edit Panel, find the design page with the placeholder frame and double-click its far right column.
- j. In the **Document Page Properties** dialog box, in the **Position of page in document** list, select one of the following options for positioning the page:

To	Do this
Place the page as it appears in the Edit Panel and Library	Select As Ordered .
Create one page for each element in the placeholder variable array	Select Filler Page (as required) . The engine uses the layout of the design page as a template in creating the additional pages.
Create one page for each element in the placeholder array, but only up to a maximum specified number of pages	Select Fixed Number Filler and in the adjacent box, enter the maximum number of pages that can be generated. Regardless of how many elements in the placeholder variable are mapped, the engine stops importing after the specified number of pages.
Use the selected page as the final page	Select Last Page (replaces last filler page) .

- k. Click **OK**.

For more information about importing content at run time, see *Importing External Content* in the Exstream Design and Production documentation.

18.5.3 Notes on importing accessible PDFs

- For best results, the accessibility standard of the imported PDF should match the accessibility standard that is specified on the PDF output object in Design Manager. If these standards do not match, the imported PDF might lose some accessibility features in your final PDF output.

For more information about specifying the accessibility standard for accessible PDF output in Exstream, see “[Creating accessible PDF output](#)” on page 556.

- PDFs that are converted into editable design objects using the PDF Converter do not retain accessibility tagging. If you are creating PDF or PDF/A output, you can reapply accessibility tags in your Exstream design.

For more information about creating accessible PDF output, see “[Optimizing a Design for PDF Accessibility Tools](#)” on page 554.

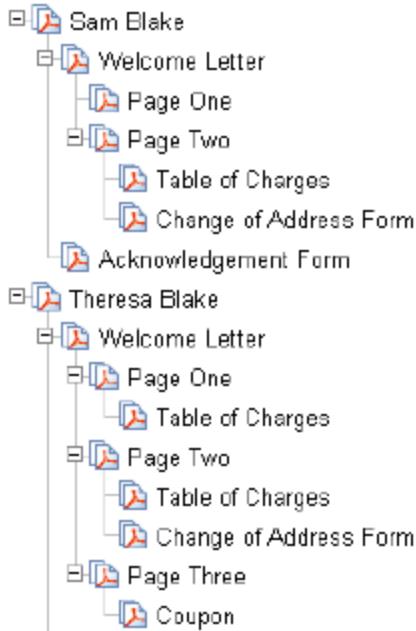
- If you import an accessible PDF as a background image (design-time import), the imported PDF content will be read first in the PDF output, followed by any objects or layers created on top of the image.
- If you import a multiple-page accessible PDF that has accessibility tags that span pages, the object read order of the PDF output might change. For example:
 - If you have a table that spans multiple pages, but you import only one of those pages, you might lose some of the accessibility tags.
 - If the first page of an accessible PDF has Tag 1 and Tag 3, while Tag 2 is on the second page, the PDF output will reorder those based on sequential order.
- If you use an inline placeholder variable to import a multiple-page PDF file, only one page is imported to the final PDF output.
- If you create accessible PDF output using an imported accessible PDF, and then import the resulting output to create another accessible PDF, the final output might have missing accessibility tags.
- If your accessibility tool does not read the PDF output correctly, you can remove the accessibility tags from an imported PDF by using the DSB_PDF_ACC_TAG_IMPORT engine switch. This engine switch disables all of the accessibility tags in a PDF that are dynamically imported into an application at run time, but does not affect any accessibility tags that are created within the Exstream environment.

Chapter 19: Adding Bookmarks to PDF Output

If you have licensed the PDF, PDF/A, PDF/VT, or VDX module, you can use the bookmark features in Exstream to customize the bookmarks that appear when customers look at a document in a PDF viewer. Bookmarks are useful navigational tools that allow readers to see an overview of the document and quickly navigate to a specific area. Unlike a table of contents, which appears only at the beginning of a document, in most PDF viewers the bookmarks are always visible, regardless of the reader's location in the document.

By default, PDF outputs are set up to generate bookmarks at the customer and document levels. You can choose, however, to produce a PDF without bookmarks at the customer level or document level, or add bookmarks at page level as well. For more granular navigation, you can add bookmarks at the text and object level, such as for headings, tables, or charts. You can also include existing bookmarks from PDFs imported at run time.

Example of PDF bookmarks



To add bookmarks to your PDF, PDF/A, PDF/VT, or VDX output, make selections in the **PDF bookmarks** area on the **Basic** tab of the output object properties. The selections you make there will determine which bookmark types are included in the output. If you do not select any check boxes, no bookmarks will be generated in the output, even if you have set up variables or bookmark markers.

Exstream provides some customization options for bookmarks, such as using a variable to specify the text used for the bookmark name in the PDF output.

Related topics:

- “[Adding PDF Bookmarks for Customers](#)” below
- “[Adding PDF Bookmarks for Documents and Pages](#)” on the next page
- “[Adding PDF Bookmarks for Text and Objects](#)” on page 600
- “[Including Existing PDF Bookmarks in PDF Output](#)” on page 602

19.1 Adding PDF Bookmarks for Customers

Exstream automatically produces bookmarks at the customer level when you create a new PDF output object. You can disable them by clearing the **Customers** check box on the **Basic** tab.

Without any customization, the customer bookmarks are blank in the PDF output. You can customize customer bookmarks by adding sequential numbering (which is useful if your PDF contains multiple customers) or by using a variable to specify the name used for the customer bookmark in the PDF output. Using variables can allow you to create more meaningful bookmark names for the bookmarks and make it easier for customers to navigate the file.

19.1.1 Add Sequential Numbering to Customer Bookmarks

1. In Design Manager, open the output object in the Property Panel.
2. On the **Basic** tab, in the **PDF bookmarks** area, make sure that the **Customers** check box is selected.
3. Select the **Include numbering for customers** check box.

The numbers added to the customer bookmarks are determined by the order in which the customer appears in the output file. The bookmark for the first customer in the file is 1, the bookmark for the second customer is 2, and so on.

19.1.2 Use a Variable to Specify the Customer Bookmark Name

1. In Design Manager, open the application object in the Property Panel.
2. On the **Basic** tab, in the **Customer identification variables** area, click  in the **Customer ID for reporting** box.
3. In the **Select Variable** dialog box, select a variable and click **OK**.

You can use anything from a simple static string variable to a more complex formula variable to specify the bookmark name. It can be a variable that you already use in the application (such as an account number), or a variable you create specifically for the bookmark name (such as a variable that uses a formula to combine variables for the customer name and account number).

For example, if you use a variable for the customer account number, and the value of that variable for the first customer is 73831697, then the bookmark in PDF output will be named 73831697—or 1:73831697 if you have selected the **Include numbering for customers** check box on the PDF output object properties.

Related topics:

- [“Adding Bookmarks to PDF Output” on page 596](#)
- [“Adding PDF Bookmarks for Documents and Pages” below](#)
- [“Adding PDF Bookmarks for Text and Objects” on page 600](#)
- [“Including Existing PDF Bookmarks in PDF Output” on page 602](#)

19.2 Adding PDF Bookmarks for Documents and Pages

Exstream automatically produces bookmarks at the document level when you create a new PDF output object. You can disable them by clearing the **Documents** check box on the **Basic** tab.

Bookmarks for pages are not included in the PDF output by default. To include them, you must select **Pages** on the **Basic** tab of the PDF output object properties.

Without any customization, document and page bookmarks are based on their name in the Library in Design Manager. For example, if a page appears as Letter_Page in the Library, its bookmark in the PDF file will be Letter_Page.

To create more meaningful bookmark names for the bookmarks and make it easier for customers to navigate the file, you can use a variable to specify a custom bookmark name. You can use anything from a simple static string variable to a more complex formula variable to specify the bookmark name.

For example, to make a page object that appears in the Library as `Letter_Page` easier to understand in the PDF output, you might create a string variable with a more descriptive name, such as `Privacy Notice Letter`. If you have a multi-page document, you might want to create a more complex variable that combines static text and a system variable to include the page number (such as `Privacy Notice Letter Page 1`).

To use a variable to specify the document or page bookmark name:

1. In Design Manager, open the document or page object in the Property Panel.
2. On the **Basic** tab, in the **ID for bookmark** box, click .
3. In the **Select Variable** dialog box, select a variable and click **OK**.

Note: If you are defining the bookmarks to be used in a placeholder document and you specify an array variable, each element of the array will use the bookmark information from the corresponding element in the array.

If you include multiple-up (MUP) sheets in your design, bookmarks have a unique behavior on MUP pages. You cannot include bookmarks on the MUP sheet or on objects within the pages placed on a MUP sheet. If you do place bookmarks on those objects, they are ignored and do not appear in the output. However, you can place a bookmark on the pages that are placed on the MUP sheet. In the final PDF, the page-level bookmarks behave like object bookmarks, and when a customer clicks on the page-level bookmark, the area of the MUP sheet in which the page is located appears in the PDF viewer.

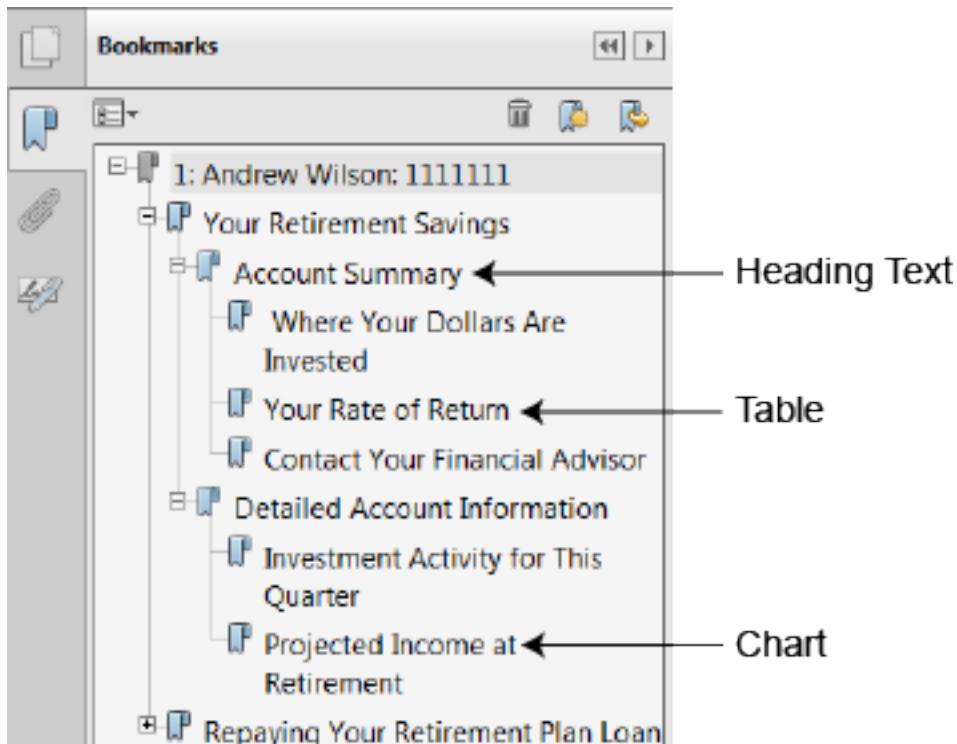
Related topics:

- “[Adding Bookmarks to PDF Output](#)” on page 596
- “[Adding PDF Bookmarks for Customers](#)” on page 597
- “[Adding PDF Bookmarks for Text and Objects](#)” on the next page
- “[Including Existing PDF Bookmarks in PDF Output](#)” on page 602

19.3 Adding PDF Bookmarks for Text and Objects

You can associate PDF bookmarks with text and objects on a page. Then when a customer clicks the bookmark in the PDF file, the object appears at the top of the viewing window. For example, you can associate a bookmark with a text box or text paragraph that is used as a heading in a section of long content. Then, the customer can use the bookmarks associated with heading text to navigate to more specific areas within a page. In addition to creating bookmarks for areas of selected text, you can create bookmarks for all types of design objects, such as charts, images, tables, and entire text boxes.

Example of PDF bookmarks for text and objects



Note: Variable Data Exchange (VDX) output does not support bookmarks for text or objects.

19.3.1 Creating Bookmarks for Text

1. In Designer, highlight or place the cursor in the text paragraph, right-click, and select **Paragraph > Add PDF Bookmark**.
2. In the **PDF Bookmark Properties** dialog box, specify the content of the bookmark:

To	Do this
Use all of the text in the selected paragraph as the bookmark text (available for text only)	From the Text source list, select Use paragraph .
Use a variable to provide custom text for each customer (If the variable value is empty, no bookmark is created.)	<ol style="list-style-type: none">a. From the Text source list, select Use variable.b. Click .c. In the Select Variable dialog box, select the variable that will provide the bookmark values and click OK.
Use static text for the bookmark text	From the Text source list, select Specify text and enter the text to use for the bookmark.

3. Click **OK**.

The  icon appears over the text to indicate that a bookmark is associated with it.

19.3.2 Creating Bookmarks for Objects

1. In Designer, right-click an object and select **Add PDF Bookmark**.
2. In the **PDF Bookmark Properties** dialog box, specify the content of the bookmark:

To	Do this
Use a variable to provide custom text for each customer (If the variable value is empty, no bookmark is created.)	<ol style="list-style-type: none">a. From the Text source list, select Use variable.b. Click .c. In the Select Variable dialog box, select the variable that will provide the bookmark values and click OK.
Use static text for the bookmark text	From the Text source list, select Specify text and enter the text to use for the bookmark.

3. Click **OK**.

The  icon appears over the object to indicate that a bookmark is associated with it.

Related topics:

- “[Adding Bookmarks to PDF Output](#)” on page 596
- “[Adding PDF Bookmarks for Customers](#)” on page 597
- “[Adding PDF Bookmarks for Documents and Pages](#)” on page 598
- “[Including Existing PDF Bookmarks in PDF Output](#)” below

19.4 Including Existing PDF Bookmarks in PDF Output

If you have external PDFs that you import at run time, you can include those bookmarks in your PDF output by selecting the **Imported bookmarks** check box on the **Basic** tab of the PDF output object. Any bookmarks in the imported PDF are maintained exactly as they were originally created. These bookmarks cannot be changed in Exstream, only in the source PDF file.

You must have licensed the Dynamic Content Import module to import PDF files at run time.

Bookmarks from imported PDF files appear under the placeholder document's bookmark if the placeholder document's bookmark is present. If a placeholder document bookmark does not exist, the bookmarks from the imported files appear under the customer bookmark. You can [customize the bookmark name](#) for a placeholder document as you would for any other type of document.

Keep in mind that bookmarks in imported PDFs might be organized differently than bookmarks in your PDF output from Exstream. For example, bookmarks in Exstream output follow the hierarchy of the customers, documents, and pages, whereas bookmarks in imported PDF files might be organized based on chapters or sections.

Related topics:

- “[Adding Bookmarks to PDF Output](#)” on page 596
- “[Adding PDF Bookmarks for Customers](#)” on page 597
- “[Adding PDF Bookmarks for Documents and Pages](#)” on page 598
- “[Adding PDF Bookmarks for Text and Objects](#)” on page 600

Chapter 20: Designing PDF AcroForms

If you have licensed the Interactive Forms module, you can create editable PDF AcroForms as output. AcroForm is a type of PDF that supports using interactive controls to enter the necessary information in a form electronically instead of by manually writing it. For example, you can provide an interactive enrollment form to your customers that allows them to add their contact details, choose from a list of policy types, and select additional plan options.

When designing a PDF AcroForm, you can add the following interactive controls in Designer:

- **Text fields**—Allow your customers to enter free-form text.
- **Combo boxes**—Allow your customers to select from a list of predefined options.
- **Date pickers**—Allow your customers to select a date from a calendar interface.
- **Check boxes**—Allow your customers to select or clear check boxes individually.
- **Radio buttons**—Allow your customers to select one option from a set of radio buttons.

You can add these interactive controls to the following locations within your design.

Supported location within the design	Text fields	Combo boxes	Date pickers	Check boxes	Radio buttons
Text paragraphs within text boxes or table cells in a page object	X	X			
Text paragraphs within embedded text boxes or table cells in a paragraph object	X	X			
Text paragraphs within embedded text boxes or table cells in a text message object	X	X			
Text paragraphs in a paragraph object					
Text paragraphs in a text message object					
Interactive areas within text boxes or table cells in a page object	X	X			
Interactive areas, including those embedded in text boxes and table cells, in a paragraph object	X	X			
Interactive areas, including those embedded in text boxes and table cells, in a text message object	X	X			
Variables within text boxes or table cells in a page object	X		X		
Variables in a paragraph object	X		X		
Variables in a text message object	X		X		

Supported location within the design	Text fields	Combo boxes	Date pickers	Check boxes	Radio buttons
Anywhere in the design area in a page object				X	X
Anywhere in the design area in a paragraph object				X	X
Anywhere in the design area in a text message object				X	X

Forms controls cannot be nested. For example, if you create a text field using a text paragraph and that text paragraph also contains a variable or an interactive area, you cannot place forms controls on the variable or interactive area.

For these controls to be present in the output, you must also [enable PDF AcroForms output](#) in Design Manager before you package the application and run the engine.

Exstream supports creating PDF AcroForms for PDF versions 1.4 and later, and for all supported versions of PDF/A. PDF AcroForms output is not supported for PDF/VT, linearized PDFs, PDFs that use subset fonts, or PDFs where each page is an image. When you create PDF AcroForms, the engine forces TrueType fonts because AcroForms support only embedded TrueType fonts.

20.1 Creating PDF AcroForms output

If you have licensed the Interactive Forms module, you can create editable PDF AcroForms as output. You can add interactive controls such as text fields, combo boxes, check boxes, radio buttons, and date pickers to your PDF or PDF/A output. You must add these controls to your design in Designer for them to appear in the output.

For more information about adding PDF AcroForms controls to your design, see *Designing Customer Communications* in the Exstream Design and Production documentation.

Exstream supports creating PDF AcroForms for PDF versions 1.4 and later, and for all supported versions of PDF/A. PDF AcroForms output is not supported for PDF/VT, linearized PDFs, PDFs that use subset fonts, or PDFs where each page is an image. When you create PDF AcroForms, the engine forces TrueType fonts because AcroForms support only embedded TrueType fonts.

To create PDF AcroForms output:

1. Open a PDF or PDF/A output object in the Property Panel.
2. For PDF output, in the **Version** list, select **1.4** or later.
3. Clear the **Linearized** check box, if selected.
4. Select the **AcroForm** check box.

PDF AcroForms support only one customer per file, so breaks on the output queue must be set to break on each customer. To verify that the breaks are set on the output queue:

1. Open the output queue object in the Property Panel.
2. Click the **Output** button .
3. In the **Select Output** dialog box, choose the PDF or PDF/A output object that has PDF AcroForms enabled and click **OK**.
4. Click **OK** on the message that you receive stating that the breaks settings were changed.
5. Save the output queue object.

20.2 Adding a text field to a PDF AcroForm

An AcroForm text field is an editable form field that lets your customers enter a string of text or numbers, such as names or phone numbers. In Designer, you can create a text field using a variable, or the text in a text paragraph or interactive area. Exstream supports creating text fields for string, Boolean, currency, float, integer, and date variables. String variables can be used for fields where you want customers to enter a string of text. Float, integer, currency, and date variables can be used for fields where you want customers to enter a string of numbers. You can use scalar variables or growing array variables.

The way in which you add the interactive field determines how the field will appear in the output within the overall flow of text. If you add a text field to a variable or interactive area, in the output, the text field will appear in place of the variable or interactive area text. If you add a text field to a text paragraph, the text field will appear in place of the full text paragraph.

In the following example, the table has two text fields added. The "Email Address" field was added to a text paragraph and the "Mobile Number" field was added to an interactive area. Notice that the "Mobile Number" field is a fixed width of 2 inches (which was set in the interactive area properties), while the "Email Address" field spans the full width of the table cell.

Please take a moment to review the communication preferences we have on file today. Our goal is to communicate with you the way YOU want!

ON FILE	Make corrections below
Preferred contact method:	Mail <input type="button" value="Contact Method"/>
Email address:	egood@mail.com <input type="button" value="Email Address"/>
Mobile number:	7405946251 <input type="button" value="Mobile Number"/>

To add a text field to a PDF AcroForm:

1. In Designer, insert a variable or enter some text into a text box, table cell, paragraph object, or text message.

2. Access the field options in one of the following ways:

Task	Action
Add a text field to a variable	Select the variable, right-click, and choose Variable interactive area .
Add a text field to an interactive area	Select the text, right-click, and choose Add interactive area .
Add a text field to a text paragraph	a. Place the cursor in the text paragraph, right-click, and choose Text paragraph properties . b. Click the Interactive tab.

3. In the **Field name** box, enter the name to assign to the field in the AcroForm output (up to 255 characters). This is the name that appears in the field properties in your PDF viewer. Each field name must be unique. You can enter SBCS or DBCS characters. Right-to-left text is not supported in AcroForms.
4. If you want all customers to complete this field, select the **Required field** check box.
5. In the **Field type** list, select **Text**.
6. In the **Field width** box, enter the fixed width that you want to use for the field in the output (in inches). The default value is 0.25 inches and the maximum value is 10 inches. This option is not available if you are adding a text field to a text paragraph, as the width of the field is equivalent to the full width of the text paragraph.
7. In the **Maximum length** box, enter the maximum number of characters that you want to allow customers to enter into the text field. If you set this to 0, then there will be no limit to the number of characters that your customers can enter.

Note: If your design includes text fields that contain information that is always the same number of characters, it is a best practice to enter that value in the **Maximum length** box. For example, you might limit the number of characters for a text field that stores the customer's phone number.

8. If you want customers to be able to enter multiple lines of text, select the **Multiple lines** check box. This option is supported only when you add a text field to a text paragraph.
9. In the **Tip and description** box, enter a tooltip for the text field. The first line that you enter will be used as the tooltip in the AcroForm output, and subsequent lines will be ignored.

Note: To improve the customer experience with your interactive forms, OpenText recommends that you add tooltips to all of the fields in your design.

10. Click **OK**.
11. Save your changes.

20.3 Adding a combo box to a PDF AcroForm

An AcroForm combo box is an editable form field that lets your customers make a selection from a list of options, such as for marital status or policy types. In Designer, you can create a combo box from the text in a text paragraph or an interactive area.

The options that appear in the combo box can be static or variable-driven, so you can either specify the text for the individual options or select an array variable that contains the options.

To add a combo box to a PDF AcroForm:

1. In Designer, enter some text into a text box, table cell, paragraph object, or text message.
2. Access the field options in one of the following ways:

Task	Action
Add a text field to an interactive area	Select the text, right-click, and choose Add interactive area .
Add a text field to a text paragraph (text box or table cell only)	<ol style="list-style-type: none">a. Place the cursor in the text paragraph, right-click, and choose Text paragraph properties.b. Click the Interactive tab.

3. In the **Field name** box, enter the name to assign to the field in the AcroForm output (up to 255 characters). This is the name that appears in the field properties in your PDF viewer. Each field name must be unique. You can enter SBCS or DBCS characters. Right-to-left text is not supported in AcroForms.
4. If you want all customers to complete this field, select the **Required field** check box.
5. Specify the options to list in the combo box in one of the following ways:

Task	Action
Create a static list of options	<ol style="list-style-type: none">a. In the Field type list, select Static list.b. Click the Create static list text button .c. In the List Items dialog box, click the Add button .d. In the Text of selected item box, enter a value for one of the combo box options.e. Repeat steps c and d until you have added all of the combo box options. You can use the arrows to re-order the options in the list.f. Click OK.

Task	Action
Create a variable-driven list of options	<ol style="list-style-type: none">a. In the Field type list, select Variable list.b. In the List items box, click the Variable button .c. In the Select Variable dialog box, select the variable that contains the values for the combo box options and click OK. Array variables that are formatted as string, Boolean, currency, float, integer, or date are supported.

6. In the **Field width** box, enter the fixed width that you want to use for the field in the output (in inches). The default value is 0.25 inches and the maximum value is 10 inches. This option is not available if you are adding a combo box to a text paragraph, as the width of the field is equivalent to the full width of the text paragraph.
7. In the **Tip and description** box, enter a tooltip for the combo box. The first line that you enter will be used as the tooltip in the AcroForm output, and subsequent lines will be ignored.

Note: To improve the customer experience with your interactive forms, OpenText recommends that you add tooltips to all of the fields in your design.

8. Click **OK**.
9. Save your changes.

20.4 Adding a check box to a PDF AcroForm

An AcroForm check box is an editable form field that let your customers make selections, such as the type of account or claim. In Designer, you create a check box by placing a check box object on the page, and then giving it a field name for the PDF AcroForm output. You can use multiple check boxes in your design, but each one operates independently from the others and therefore must have a unique field name.

You can specify the initial state of the check box as selected or cleared in the PDF AcroForm output using the variable that is associated with the check box. Regardless of the initial state of the check box, your customers will be able to select or clear it in the output.

If you want to add multiple related check boxes, you can save design time by embedding a check box object in an automated table and then selecting an array variable to control the initial state of the check boxes in the output. When you do this, the engine will use the field name you enter for the first check box in the form, and will append an integer to all of the other check boxes.

For example, suppose that you are designing a form for an automobile insurance claim and you want to include a check box for each automobile on the policy. You can design an automated

table with two columns, where the check box in the first column is tied to an array variable that specifies the initial value of each check box and the array variable in the second column specifies which automobiles are included on the policy.

Automobiles involved:	
<input type="checkbox"/>	AutoArray

If there were three automobiles included in this policy, then the output would include three rows in the automated table, with three check boxes in the first column and the three automobiles on the policy in the second column.

Automobiles involved:	
<input checked="" type="checkbox"/>	2013 Honda Civic
<input type="checkbox"/>	2019 Toyota Highlander
<input type="checkbox"/>	2017 Volkswagen Beetle

Because check boxes operate independently from one another, more than one check box can be selected in the output.

To add a check box to a PDF AcroForm:

1. In Designer, on the Drawing Objects toolbar, click the **CheckBox** button .
2. Adjust the position and size of the check box on the page as needed.
3. Click the **Properties** button .
4. In the **Checkbox Properties** dialog box, click the **Interactive** tab.
5. In the **Field name** box, enter the name to assign to the field in the AcroForm output (up to 255 characters). This is the name that appears in the field properties in your PDF viewer. Each field name must be unique. You can enter SBCS or DBCS characters. Right-to-left text is not supported in AcroForms.
6. In the **Tip and description** box, enter a tooltip for the check box. The first line that you enter will be used as the tooltip in the AcroForm output, and subsequent lines will be ignored.

Note: To improve the customer experience with your interactive forms, OpenText recommends that you add tooltips to all of the fields in your design.

7. Associate a variable with the check box:

- a. Click the **Button** tab.
 - b. In the **Variable** box, click the **Variable** button .
 - c. In the **Select Variable** dialog box, select a Boolean, string, or integer variable, and then click **OK**. If the check box is embedded in an automated table, then you can select an array variable; otherwise, you must select a scalar variable.
 - d. If you have selected an array variable, make sure that the value in the **Array Element** box is *0*.
 - e. In the **Value if clicked** box, enter a value. If the engine encounters a match for this variable value in the data, the check box will be selected in the output. If the variable value does not match, the check box will be cleared in the output.
- Note:** When you use an array variable to specify the initial state of check boxes that are embedded within an automated table, all of the check boxes with variable values in the data that match the value in the **Value if clicked** box will be selected in the output.
8. Add a style to the check box:
 - a. In the **Button style** list, select **Drawn (2d check)**.
 - b. In the **Box style** box, select **Flat**.

Note: These are the only styles that are supported for PDF AcroForms output. If you select other options, the engine will force these styles in the output.

 9. Click **OK**.
 10. Save your changes.

20.5 Adding a radio button set to a PDF AcroForm

An AcroForm radio button is an editable form field that let your customers make a selection from a group of options. Unlike check boxes, a set of radio buttons is considered one field in the PDF AcroForm output. In Designer, you create a radio button set by placing radio button objects on the page, and then assigning the same PDF AcroForm field name to all of the radio buttons that you want to group together.

You can specify the initial state of the radio button as selected or cleared in the PDF AcroForm output using the variable that is associated with the radio button. Regardless of the initial state of the radio button in the output, your customers will be able to select any of the other radio buttons in the set, but only one at a time.

For example, suppose that you are designing a form that includes a set of radio buttons with selections for age range. You could create a radio button for each option, with the field name "Age" assigned to each one. Because they are assigned the same field name, selecting one of the radio buttons in the PDF AcroForm output clears the others.

For this example, you could save design time by embedding a radio button object in an automated table and then selecting an array variable to control the initial state of the radio buttons in the output. In this case, the automated table might have two columns, where the radio button in the first column is tied to an array variable specifying the initial value of each radio button and the array variable in the second column specifies the radio button options.

The image shows a rectangular form field with a thin black border. Inside, the word "Age:" is printed in bold black font. Below it is a radio button icon (an empty circle) followed by the text "AgeArray".

If there were seven options included in the variable values for this radio button set, then the output would include seven rows in the automated table, with seven radio buttons in the first column and the seven options for age in the second column. Only one will be selected in the output.

The image shows a rectangular form field with a thin black border. Inside, the word "Age:" is printed in bold black font. Below it is a list of seven radio button options: "18-24", "25-34", "35-44", "45-54", "55-64", "65 or older", and "Prefer not to say". The last option, "Prefer not to say", has a solid black circle next to it, indicating it is the selected choice.

Note: All of the radio buttons in a set must appear on the same page in the PDF AcroForm output. If the page splits the radio buttons, then the radio buttons on the flow page will not work in the output.

To add a radio button set to a PDF AcroForm:

1. In Designer, on the Drawing Objects toolbar, click the **RadioButton** button .
2. Adjust the position and size of the radio button on the page as needed.
3. Click the **Properties** button .
4. In the **Properties** dialog box, click the **Interactive** tab.
5. In the **Field name** box, enter the name to assign to the field in the AcroForm output (up to 255 characters). This is the name that appears in the field properties in your PDF viewer. You can enter SBCS or DBCS characters. Right-to-left text is not supported in AcroForms.

Important: All of the radio buttons in the set must use the same field name. It is case-sensitive.

6. In the **Tip and description** box, enter a tooltip for the radio button. The first line that you enter will be used as the tooltip in the AcroForm output, and subsequent lines will be ignored.

Note: To improve the customer experience with your interactive forms, OpenText recommends that you add tooltips to all of the fields in your design.

7. Associate a variable with the radio button:

- a. Click the **Button** tab.
- b. In the **Variable** box, click the **Variable** button .
- c. In the **Select Variable** dialog box, select a variable and click **OK**. This variable should be a Boolean, string, or integer variable. You can select an array variable if the radio button is embedded in an automated table. Otherwise, you must select a scalar variable.
- d. In the **Value if clicked** box, enter a value. If the engine encounters a match for this variable value in the data, the radio button will be selected in the output. If the variable value does not match, the radio button will not be selected in the output.

Important: When array variable is used to specify the initial state of the radio buttons in a set, only one of the variable values in the data should match the value in the **Value if clicked** box. If the engine encounters more than one match, it will select the first radio button that matches this value.

8. Add a style to the radio buttons:

- a. In the **Button style** list, select **Drawn (radio)**.
- b. In the **Box style** box, select **Flat**.

Note: These are the only styles supported for PDF AcroForms output. If you select other options, the engine will force these styles in the output.

9. Click **OK**.
10. Save your changes.

20.6 Adding a date picker to a PDF AcroForm

An AcroForm date picker is an interactive form control that lets your customers select a date from a calendar interface. When your customers make a selection from the date picker, the date format that appears in the form is the same as the output format of the date variable that was used to create the date picker.

The following date formats are supported for PDF AcroForms:

- m/d/yy (4/6/01)
- m/d/yyyy (4/6/2001)
- mm/dd/yy (04/06/01)
- mm/dd/yyyy (04/06/2001)
- mm/yy (04/01)
- mm/yyyy (04/2001)
- yyyy-mm-dd (2001-04-06)
- April 6, 2001
- m/d/yy hh:nn (4/6/01 12:00)
- hh:nn (12:00)
- hh:nn:ss (12:32:01)

For more information about setting the output format of a date variable, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To add a date picker to a PDF AcroForm:

1. In Designer, insert a date variable into a text box, table cell, paragraph object, or text message.

2. Select the variable, right-click, and then select **Variable interactive area**.
3. In the **Field name** box, enter the name to assign to the field in the AcroForm output (up to 255 characters). This is the name that appears in the field properties in your PDF viewer. Each field name must be unique. You can enter SBCS or DBCS characters. Right-to-left text is not supported in AcroForms.
4. If you want all customers to complete this field, select the **Required field** check box.
5. In the **Field type** box, select **Text**.
6. In the **Field width** box, enter the fixed width that you want to use for the field in the output (in inches). The default value is 0.25 inches and the maximum value is 10 inches.
7. In the **Maximum length** box, enter **0**.
8. In the **Tip and description** box, enter a tooltip for the date picker. The first line that you enter will be used as the tooltip in the AcroForm output, and subsequent lines will be ignored.

Note: To improve the customer experience with your interactive forms, OpenText recommends that you add tooltips to all of the fields in your design.

9. Click **OK**.
10. Save your changes.

Chapter 21: Using Metadata to Tag Objects in Design Manager and Designer

Exstream offers you the ability to add metadata, or "data about data" to sort and classify both Library and design objects and to help you search a database more efficiently. In addition, for some output types, such as HTML, XML, and PDF, metadata appears in the output file itself, which allows you to easily identify objects for use in processes such as searching and archiving. Metadata consists of user-defined tags that you can add to any object in Design Manager except System Settings, and to any objects in Designer except frames. However, if you are producing HTML or PDF output, you must apply metadata to the application object or the output object, respectively, in order for the metadata to appear in the output.

When you use metadata, you can easily track related objects in your design database. For example, suppose your organization offers both automobile and life insurance policies. You can create two metadata objects named "Auto" and "Life" and apply them to the message objects that are included in documents sent to automobile or life insurance customers. Then, if you must locate all of the messages sent to automobile insurance customers, you can list all the objects with "Auto" metadata.

In addition to using metadata for searching, you can also add metadata to your content to facilitate communications with downstream business processes in your organization. In XML outputs, HTML outputs, and PDF outputs, metadata tags appear in the output. For example, suppose you want to increase the efficiency in the communication between your design workflow process and archival workflow process. You must design several new legal disclosures to be included with all outgoing financial portfolios. These legal disclosures must be archived in a content management database with specific information about the authors, dates of origination, titles, and so on. During the design process, you can add metadata tags to the objects that correlate with the pieces of information that must be easily referenced. When the disclosures are sent for archiving, the database that is used for archival can read generated XML output that specifically points out the metadata tags and archive the disclosures based upon that information.

If you have licensed the XML (Multi-Channel) Output module, you can also use the metadata feature in Exstream to label (or tag) design elements in an application to help you set up for Multi-Channel XML and transformed output. When you use metadata to tag objects for multi-channel output, metadata objects function as descriptive attributes that you can use in an XSL file as a means of identifying the objects you want to include in your final output.

For more information about Multi-Channel XML output, see *Creating Output* in the Exstream Design and Production documentation.

Similarly, if you have licensed the HTML Output module, you can use the metadata feature in Exstream to tag objects in a container design in order to specify the class name for the corresponding elements in HTML output.

Specifying class names in HTML lets you more precisely identify elements when:

- Using [cascading style sheet objects](#) to style the elements in your HTML
- Using an XSL file to transform elements in the HTML for your final output
- Using JavaScript or other scripts to interact with elements in the HTML

For more information about HTML output, see *Creating Output* in the Exstream Design and Production documentation.

The following table describes how metadata behaves with the output types in which metadata appears in the output file itself:

Output type	Notes
EDGAR HTML	Only metadata tags that are applied to an application object appear in the output.
HTML and HTML (email)	<ul style="list-style-type: none">• When producing HTML output from a standard design, only the metadata tags that are applied to the application object appear in the output.• When producing HTML or HTML (email) output from a container design, the engine uses the value of the first metadata tag applied to an element in the design to specify the <code>class</code> name for the corresponding HTML element in the output. You can apply metadata to most design objects in Exstream, including container objects. In addition to applying metadata to a grid layout container at the container level, you can also apply metadata to individual grid cells inside a grid layout container, if you want to style the content in one particular grid cell differently than the content in the rest of the container.
XML (Composed)	Metadata objects that are applied to any Library or design object appear in the output.
XML (Content)	Metadata objects that are applied to any Library or design object appear in the output.
XML (Multi-Channel)	<ul style="list-style-type: none">• You can apply metadata to most Library, environment, and design objects in Exstream. However, not all objects can be exported to Multi-Channel XML output, even if metadata is assigned to those objects.• Metadata tags function as descriptive attributes that you can use in an XSL file as a means of identifying the objects you want to include in the final output.
PDF	<ul style="list-style-type: none">• Only metadata objects that are applied to the PDF output object appear in the output.• In order for the metadata to appear in your output, you must also select the Include metadata objects in the output check box on the output object.
PDF/A	<ul style="list-style-type: none">• Only metadata objects that are applied to the PDF/A output object appear in the output.• In order for the metadata to appear in your output, you must also select the Include metadata objects in the output check box on the output object.
PDF/VT	<ul style="list-style-type: none">• Only metadata objects that are applied to the PDF/VT output object appear in the output.• In order for the metadata to appear in your output, you must also select the Include metadata objects in the output check box on the output object.

Output type	Notes
VDX	<ul style="list-style-type: none">Only metadata objects that are applied to the VDX output object appear in the output.In order for the metadata to appear in your output, you must also select the Include metadata objects in the output check box on the output object.

For more information about applying metadata to PDF, PDF/A, PDF/VT, and VDX output, see *Creating Output* in the Exstream Design and Production documentation.

Related information

[“Using Metadata Objects” below](#)

[“Adding Metadata to Objects” on page 620](#)

[“Adding custom class names to objects in a container design” on page 95](#)

[“Using Metadata to Find Objects” on page 622](#)

[“Generating a Report of Metadata Used in an Application” on page 623](#)

21.1 Using Metadata Objects

Exstream offers you the ability to use two types of metadata objects in your database—metadata objects that you create yourself, and Exstream system metadata objects. With either type, you use the same method to assign metadata values and apply metadata to objects. As you configure metadata objects, however, keep in mind that metadata behaves differently when applied to different output types. For example, when producing PDF, PDF/A, PDF/VT, or VDX output, you must apply the metadata objects to the output object in order for metadata to appear in the output.

For more information about how metadata behaves in different situations, see [“Using Metadata to Tag Objects in Design Manager and Designer” on page 615](#).

This section discusses the following topics:

- [“Creating a Metadata Object” below](#)
- [“Using Exstream System Metadata Objects” on the next page](#)
- [“Assigning a Value to a Metadata Object” on page 619](#)

21.1.1 Creating a Metadata Object

To create new metadata objects, you must have super user access or belong to a design group with the **Environment** access of **Create and delete**. After a metadata object is created, users

with any **View** access can add metadata and use the metadata object. You can also use metadata objects to specify a class name for elements in HTML and HTML (email) output.

1. In Design Manager, in the Library, navigate to **Environment > System > Metadata**.
2. Right-click the **Metadata** heading or subheading and select **New Metadata**.
3. In the **New Metadata** dialog box, in the **Name** box, enter a name. In the **Description** box, enter a description (optional).

You can specify any name for the metadata object, except for names that are used by **system metadata objects** (SYS_Author, SYS_Keywords, SYS_Subject, and SYS_Title).
4. Click **Finish**.

In the Property Panel, you can define default metadata object value. If you are using metadata to specify class names, the value must meet the following criteria:

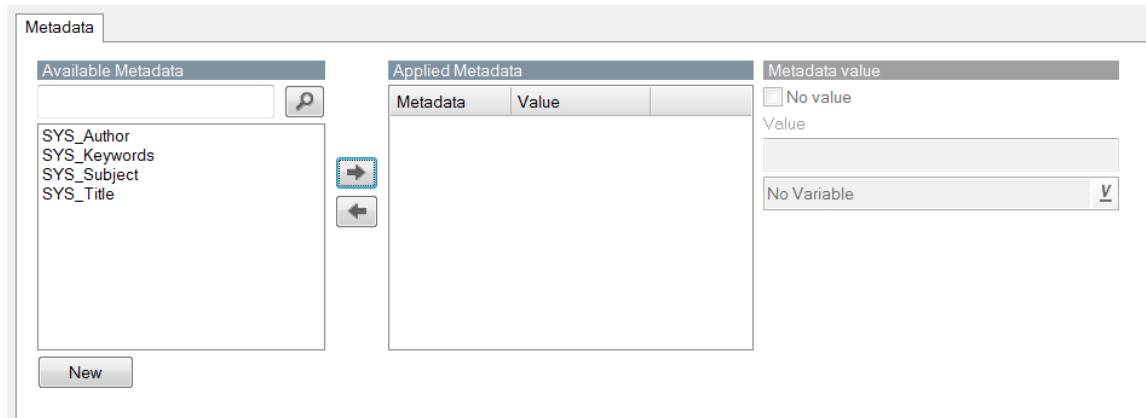
- It must begin with an ASCII letter.
- It must contain only ASCII alphanumeric characters, hyphens (-), and underscores (_).
- If the value includes a variable, then that variable must already exist in the design database.

21.1.2 Using Exstream System Metadata Objects

Exstream offers four system metadata objects that let you apply predefined metadata to objects in your database, saving you the trouble of creating similarly named custom metadata objects. Although they are not limited to use in PDF output, Exstream system metadata objects are particularly useful when applied to PDF output because they map to existing metadata names in the document properties of the PDF.

When you apply metadata to an object (by right-clicking a qualified object in the Library and selecting **Metadata**), the system metadata objects are available in the **Metadata** dialog box:

Metadata dialog box



The following list details how system metadata objects map to corresponding terms in different metadata standards:

- **SYS_Author**—The creator of the object. This system metadata object corresponds to the "Creator" term for the Dublin Core Metadata Initiative, and, in PDF output, the "Author" term for the PDF Document Information Dictionary.
- **SYS_Keywords**—The keywords used to describe the object. This system metadata object corresponds to the "Subject" term for the Dublin Core Metadata Initiative, and, in PDF output, the "Keywords" term for the PDF Document Information Dictionary.
- **SYS_Subject**—The main topic or description of the object. This system metadata object corresponds to the "Description" term for the Dublin Core Metadata Initiative, and, in PDF output, the "Subject" term for the PDF Document Information Dictionary.
- **SYS_Title**—The title of the object. This system metadata object corresponds to the "Title" term for both the Dublin Core Metadata Initiative, and, in PDF output, the PDF Document Information Dictionary.

21.1.3 Assigning a Value to a Metadata Object

You can choose to assign a default value for the metadata for use in creating a name-value pair when applying the metadata to an object, or you can specify no value for the metadata object. You must, however, specify a value for metadata that you apply to PDF, PDF/A, PDF/VT, or VDX output objects. If you allow values for metadata objects that you create, the value is optional. For example, if you only want to use the name of a metadata tag as a search tool in Design Manager and Designer, you can search only for the metadata tag name.

Important: If you are using the metadata feature to apply class names to elements in HTML or HTML (email) output for styling the elements with [cascading style sheet objects](#), then you must assign values to your metadata tags because the values of the metadata tags become the class names of the elements in the output. For more information about using metadata tags for this purpose, see [“Adding custom class names to objects in a container design” on page 95](#).

To assign a default value to a metadata object:

To	Do this
Specify that a metadata object have no value	<ol style="list-style-type: none">1. In Design Manager, from the Library, drag the metadata object to the Property Panel.2. Click the No value check box.3. Save the metadata object.

Note: You must specify a value for metadata objects that you apply to PDF, PDF/A, PDF/VT, and VDX output.

To	Do this
Assign a default text value to the metadata object	<ol style="list-style-type: none">1. In Design Manager, from the Library, drag the metadata object to the Property Panel.2. In the Default value box, enter the default text value you want to assign the metadata3. Save the metadata object.
Assign a default variable value to the metadata object	<ol style="list-style-type: none">1. In Design Manager, from the Library, drag the metadata object to the Property Panel.2. Click  . The Select Variable dialog box opens.3. Select the default variable you want to assign to the metadata object.4. Save the metadata object.

21.2 Adding Metadata to Objects

You can add metadata to objects in both Design Manager and Designer. In Design Manager, you can add metadata to any object in the Library except System Settings. In Designer, you can add metadata to any design object except frames. Keep in mind, however, that for some outputs, you must apply metadata to certain objects in order for metadata to appear in the output.

If you want to apply metadata to design objects for the purpose of styling the corresponding elements in HTML or HTML (email) output with CSS, see “[Adding custom class names to objects in a container design](#)” on page 95

For more information about how metadata behaves in different situations, see “[Using Metadata to Tag Objects in Design Manager and Designer](#)” on page 615.

To add metadata to objects in Design Manager and Designer:

1. To select the object or objects to which you want add metadata, do one of the following:

To	Do this
Add metadata to an object in Design Manager	In the Library, right-click the object to which you want to add metadata and select Metadata .
Add metadata to an object in Designer	Right-click the object and select Metadata . Tip: You can also right-click an object from the Outline Viewer, or click the Metadata tab in the object properties.

2. In the **Metadata** dialog box, in the **Available Metadata** area, highlight the metadata object or objects you want to apply, and click .

The metadata object or objects you selected appear in the **Applied Metadata** area. Each metadata object has the name and default value as defined when you first created the metadata. For example, if you created a metadata object with a default variable value, the metadata appears as follows (the variable name is displayed between angle brackets):

Address <Customer_Address>

If you created a metadata object with a text value, the metadata appears as follows:

Author John Smith

3. To remove a metadata object from the **Available Metadata** area, click .
4. Click **OK**.

21.2.1 Changing the Value of Applied Metadata

Since metadata associated with objects are separate instances of the original metadata you first created, the values can be different for each object to which you apply the metadata. You can change these metadata values after you apply the metadata to an object in Design Manager or Designer. For example, suppose an external workflow system uses metadata objects to identify in which stage the application is. The original value of the metadata is a text value titled "To be reviewed." After the review process, the reviewer changes the text value to "approved." The external workflow system communicating with Design Manager then recognizes that the application is ready for the next stage of your overall workflow process.

To change the value of a metadata object:

1. Highlight the metadata object for which you want to change the value.

The **Metadata value** area becomes active.

2. In the **Metadata value** area, you can make changes to the text value or the variable value for the metadata object you selected.

If you selected the **No value** check box when you first created the metadata object, the **Metadata value** area is inactive.

21.3 Using Metadata to Find Objects

After you have applied metadata to objects in your design, you can use two features in Exstream to help you search for where metadata has been used or to filter search results based on metadata.

You can use the following features to help you find where metadata objects are used in Exstream:

Finding where metadata objects are used in Exstream

To	Do this																																								
Quickly list all Library objects with specific metadata	<p>In Design Manager, from the Library, drag a metadata object into the Edit Panel. In the following example, the "Address" metadata has been opened in the Edit Panel.</p> <p>Example of metadata object opened in the Edit Panel</p> <p>The screenshot shows a table titled "Uses of Promotion (Metadata)". The columns are: Name, Description, Folder, Type, Version, Status, Last Modified, and Modified By. The data rows are:</p> <table border="1"><thead><tr><th>Name</th><th>Description</th><th>Folder</th><th>Type</th><th>Version</th><th>Status</th><th>Last Modified</th><th>Modified By</th></tr></thead><tbody><tr><td>Wireless Detail</td><td>metadata on co...</td><td>Root Folder</td><td>Message Te...</td><td>1</td><td>Work in Prog...</td><td>2014-06-11 2...</td><td>admin</td></tr><tr><td>Letter 0100</td><td>metadata on co...</td><td>Correspond...</td><td>Page</td><td>1</td><td>Work in Prog...</td><td>2014-06-11 2...</td><td>admin</td></tr><tr><td>Letter 0200</td><td>metadata on co...</td><td>Correspond...</td><td>Page</td><td>1</td><td>Work in Prog...</td><td>2014-06-11 2...</td><td>admin</td></tr><tr><td>Correspondenc...</td><td>metadata on co...</td><td>Root Folder</td><td>Page Templ...</td><td>1</td><td>Work in Prog...</td><td>2014-06-11 2...</td><td>admin</td></tr></tbody></table>	Name	Description	Folder	Type	Version	Status	Last Modified	Modified By	Wireless Detail	metadata on co...	Root Folder	Message Te...	1	Work in Prog...	2014-06-11 2...	admin	Letter 0100	metadata on co...	Correspond...	Page	1	Work in Prog...	2014-06-11 2...	admin	Letter 0200	metadata on co...	Correspond...	Page	1	Work in Prog...	2014-06-11 2...	admin	Correspondenc...	metadata on co...	Root Folder	Page Templ...	1	Work in Prog...	2014-06-11 2...	admin
Name	Description	Folder	Type	Version	Status	Last Modified	Modified By																																		
Wireless Detail	metadata on co...	Root Folder	Message Te...	1	Work in Prog...	2014-06-11 2...	admin																																		
Letter 0100	metadata on co...	Correspond...	Page	1	Work in Prog...	2014-06-11 2...	admin																																		
Letter 0200	metadata on co...	Correspond...	Page	1	Work in Prog...	2014-06-11 2...	admin																																		
Correspondenc...	metadata on co...	Root Folder	Page Templ...	1	Work in Prog...	2014-06-11 2...	admin																																		
Use metadata to help you narrow the focus of a filtered search of Library objects	<p>You can use metadata as search criteria for a filtered search in Design Manager.</p> <p>For information about using a filtered search, see <i>Getting Started</i> in the Exstream Design and Production documentation.</p>																																								

Tip: If you are creating Multi-Channel XML output, or you are using container designs to create HTML or HTML (email) output, you can generate a metadata report that lists all of the objects in an application that have metadata applied to them.

For more information about generating a metadata report, see "[Generating a Report of Metadata Used in an Application](#)" on the next page.

21.4 Generating a Report of Metadata Used in an Application

A metadata report is a list of the metadata names, metadata values, and object descriptors (for example, object names, file paths, versions, and so on) used in an application.

This report is helpful in the following scenarios:

- You are using metadata in Multi-Channel XML output. You can use the report to make sure that the names that you are using for metadata are consistent with the names that you are using in the XSL file.
- You are delivering container designs in HTML output, and you are using metadata to specify the class name for elements in the output. You can use this report to validate that the metadata values or the variables that provide metadata values in the design are consistent with what you expect for classes in HTML output when creating XSL files, cascading style sheets (CSS), or scripts that apply to the output.

For more information about using Multi-Channel XML or HTML output, see *Creating Output* in the Exstream Design and Production documentation.

For more information about using a cascading style sheet (CSS) to control the final appearance of container design output, see “[CSS styling in container designs](#)” on page 88.

After you create the metadata report, you can save the report to a text file or you can print it from Design Manager. When you use the report to fine-tune XSL files, CSS, or scripts, saving or printing the report can help facilitate communication between the document designers who are creating and applying metadata in the design and the web developers who provide the XSL files, CSS, or scripts. You can save the report to a text (.txt) file and attach it to email communication, or you can print the report and save or share the hard copy.

To generate a metadata report:

1. In Design Manager, from the Library, right-click an application object and select **Metadata report**.

The **Metadata Report** dialog box opens.

2. If you want to include all objects in the report, even those without metadata, select the **Include objects without metadata** check box. Including all objects lets you see all elements of your design and thus make sure you have included all the objects you meant to include.
3. Click the **Object Selection Settings** button.
The **Object Selection Version Settings** dialog box opens.

4. On the dialog box, use the same options you plan to use when you package the application.

Set the following options:

- a. From the **Version method** drop-down list, select **Version status**.

The **Includes selected status and any statuses above it** slider area appears.

- b. Move the slider to the one of the following options:

- **Approved**—Includes all objects with a status of Approved or Archived. If you select **Approved**, you can choose to substitute Quick Fix versions by selecting the **Substitute Quick Fix versions** check box.
- **Submitted for approval**—Includes all objects with a status of Submitted for Approval, Approved, and Archived
- **Work in progress**—Includes all objects with a status of Work in Progress, Submitted for Approval, Approved, and Archived
- **Rejected**—Includes all objects with a status of Rejected, Work in Progress, Submitted for Approval, Approved, and Archived

- c. If you want the report to include only objects from a specific user, and you selected **Submitted for Approval**, **Work in Progress**, or **Rejected** on the **Includes selected status and any statuses above it** slider, select the **Include versions from the following user** check box.

- d. Under the **Include versions from the following user** check box, click .

The **Select Design User** dialog box opens.

- e. From the list of design users, select a design user.

- f. Click **OK**.

- g. The design user that you selected appears in the box under the **Include versions from the following user** check box.

- h. From the **Effective date** drop-down list, select how effectiveness dates affect which objects can be selected for packaging:

- **As of Now**—Selects the latest valid version of the objects as of the current date (and time, if used)
- **As of Date**—Selects the latest valid versions of the objects as of a specified date (and time, if used). Select the date and time from the adjacent **To** box.
- **Date Range**—Selects the valid version of objects as of a range of dates (and times, if used). Select the date and time from the adjacent **From** and **To** boxes.

- i. From the **Jurisdictions to include** drop-down list, specify whether jurisdictions will be considered when including objects in the report:

- **Ignore**—Ignores jurisdictions and use the latest valid version of objects
- **Single Jurisdiction**—Includes one specified jurisdiction for objects using jurisdictions
- **All Jurisdictions**—Includes all valid jurisdiction version for all objects

j. Click **OK**.

The **Object Selection Version Settings** dialog box closes and the settings you selected appear in the **Version**, **Effective**, and **Jurisdictions** boxes.

5. Click **OK**.

The metadata report opens in the Edit Panel, displaying information as shown in the following example.

Metadata report in the Edit Panel

Metadata usage for application and its dependencies: "Correspondence"									
Type	Metadata	Metadata Value/Vari...	Name	Component N...	Versi...	Version Status	Folder Path	Description	Metadata Description
Page:Text Box	SYS_Author	Document Author	Letter 0100	Text	1	Work in Pro...	Correspondence		The creator of the ...
Page:Text Box	SYS_Subje...	Document Subject	Letter 0100	Text	1	Work in Pro...	Correspondence		The main topic or ...
Page:Text Box	SYS_Title	Document Title	Letter 0100	Text	1	Work in Pro...	Correspondence		The title of the obj...
Page:Text Box	Remittance		Letter 0200	Text Box 2	1	Work in Pro...	Correspondence		
Page:Text Box	Statement		Letter 0200	Text Box 2	1	Work in Pro...	Correspondence		

6. To sort the report, you can do one of the following:

To	Do this
Sort the report so that you can easily see what objects are assigned to a specific metadata name	Right-click the metadata report and select Sort: Metadata, Type, Object .
Sort the report by the type of object (for example, to separate the images from the text objects)	Right-click the metadata report and select Sort: Type, Object, Metadata .
Sort the report so that you can easily see which metadata names are applied to specific individual objects	Right-click the metadata report and select Sort by Object, Type, Metadata .
Quickly sort the report based on the headings in the report	Click one of the headings at the top of the Edit Panel.

7. To save the metadata report, right-click and select **Export List**.

- In the **File name** box, enter a name for the file.
- From the **Save as type** drop-down list, select one of the following options:

- **Comma separated values (.csv)**
 - **Tab delimited text (.txt)**
8. To print the report, right-click and select **Print List**.

Chapter 22: Configuring Documents for the Use of Electronic Signatures

Many types of formal documents, such as policies or enrollments, require the signature of customers in order to be legally binding documents. In electronic documents, these signatures can be collected through the use of an electronic signature service. Electronic signature services help you manage electronic documents that need to be signed by multiple parties while ensuring that regulations are followed so the resulting document is considered legally binding.

If you have licensed the Electronic Signature Integration module, you can create PDF output that is designed for use with electronic signature programs. When you design these types of PDFs, you use unique design objects (called signature design objects) to indicate areas on a page where signatures must be or could be obtained. Then, when you generate these types of PDF files from Exstream, the engine generates an additional XML file that contains the data required by electronic signature programs, such as the location of signature design objects in the document and a list of recipients of the document. You can then use this XML file to integrate the document with your organization's electronic signature program.

Overview of files created to support electronic signatures



For example, suppose you use Exstream to create new customer enrollment packages that must be signed and returned. Using the data provided by a new customer, you can create an enrollment document containing signature design objects in Exstream. When the engine generates the PDF file, it also creates the XML file that contains the data required by your electronic signature program. You can then transform the XML file into a SOAP envelope that is sent to your electronic signature program. The electronic signature program uses the provided information to guide the new customer through the process of electronically signing the document online. Alternatively, after generating the document set up for electronic signatures, you might choose to send an email message to a customer who needs to sign a document using your electronic signature environment. Exstream allows you to specify the email subject and

body for a recipient of a PDF. That data is captured in the XML file generated by the engine. You can then use the XML file to generate an email message informing the customer that his or her signature is required on a document.

To support a document designed for electronic signatures, you must use two unique objects in the Exstream Design and Production environment as you set up your document:

- **A signature report file**—This XML-based data file uses a pre-defined schema to provide the information required by electronic signature programs. Unlike other data files, signature report files do not require mapping since the format is pre-defined. In addition to defining basic information about the document (such as the recipient's names), you also use this data file to provide additional recipient information that is required in your environment, such as a transaction identifier.
- **A signature design object**—Using Designer, you place a signature design object on your design pages to indicate areas where customers must sign. This object does not appear in the PDF file output, but the information provided on the object (such as the required signer and the object's location) is published in the XML file produced by the engine. You can also choose whether certain signature fields are optional for customers to sign.

Note: Signature design objects are different from the signature button that is used in Live documents to prevent changes.

The following sections discuss the process of using these objects to create a PDF document that can be leveraged by your organization's electronic signature program. To set up this type of document, you must complete the following tasks:

1. [“Setting Up a Signature Report File” below](#)
2. [“Setting Up a Signature Design Object” on page 638](#)

22.1 Setting Up a Signature Report File

If you have licensed the Electronic Signature Integration module, a new type of data file—a signature report file—is enabled in your environment. Signature report files are in XML format (only), and do not require mapping. Instead, when you define the properties of the data file, you provide information about the related document and recipients. This information is captured in an XML file produced during the engine run. The XML file is then used to integrate the PDF document into your electronic signature program workflow.

To set up a signature report file, complete the following tasks as needed:

- [“Creating a Recipient Data File” on the next page](#)
- [“Specifying the Email Message Data” on the next page](#)
- [“Specifying an Encoding for a Signature Report File” on page 631](#)

- “[Specifying the Recipient Data](#)” on page 632
- “[Using a Signature Report File with a Message Queue Connector](#)” on page 633

For information on the schema used by the recipient data file, see “[The Signature Report File Schema](#)” on page 635.

22.1.1 Creating a Recipient Data File

1. Select an application mode for the data file by completing one of the following steps:

To	Do this
Create a recipient data file in SBCS mode	In Design Manager, in the Library, right-click the Data Files heading and select New Data File . The New Data File dialog box opens.
Create a recipient data file in DBCS mode	In Design Manager, in the Library, right-click the Data Files heading and select New Data File . The New Data File dialog box opens.
Create a recipient data file in SBCS/DBCS mode	a. In Design Manager, in the Library, expand the Data Files heading. b. In the Library, right-click the type of data file you want to create. For example, select SBCS data file for a new SBCS data file. The New Data File dialog box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. From the **File type** drop-down list, select **Signature Report File**.

Note: When you select **Signature Report File** as the file type, the **File format** drop-down list automatically selects **XML data file** as the format. You cannot select any other options from the **File format** drop-down list.

4. Click **Finish**.

The **New Data File** dialog box closes and the signature report file opens in the Property Panel for you to define.

22.1.2 Specifying the Email Message Data

Using the signature report file, you provide information that will be used in the email message that notifies customers of a document requiring their signature. For example, suppose you want to inform customers that a document requiring their signature is available in your cloud-based electronic signature program. You can provide step-by-step information in the email message to help customers understand how to access their document online and how to electronically sign

it. You can use variables to provide unique message information to each recipient, or you can use the same message for all recipients of the document.

To specify the email message data:

1. In Design Manager, from the Library, drag the signature report file to the Property Panel.
2. Click the **Basic** tab.
3. In the **Signature data options** area, use the **Variable for subject** box or the **Subject** box to specify the subject line of the email sent to customers.

To	Do this
Provide unique subject lines for each customer	<ol style="list-style-type: none">a. In the variable selection box, click  .The Select Variable dialog box opens.b. Select the non-array string variable that provides the subject information.c. Click OK. <p>The Select Variable dialog box closes and the variable you selected appears in the Variable for subject box.</p>
Use the same subject line for all customers	Enter the subject information in the box below the variable selection box.

4. Use the **Variable for message** box or the **Message** box to specify the body of the email sent to customers.

To	Do this
Provide unique email bodies for each customer	<ol style="list-style-type: none">a. In the variable selection box click  .The Select Variable dialog box opens.b. Select the non-array string variable that provides the email body information.c. Click OK. <p>The Select Variable dialog box closes and the variable you selected appears in the Variable for message box.</p>
Use the same email body for all customers	Enter the subject information in the box below the variable selection box.

5. Optionally, you can add metadata to the recipient data file. For example, you might use metadata to include the transaction identification data that is stored in a variable, or to include the password required for encrypted documents. To add metadata, click the **Metadata** button and apply the appropriate metadata tags.

For information about applying metadata to objects, see “[Using Metadata to Tag Objects in Design Manager and Designer](#)” on page 615.

22.1.3 Specifying an Encoding for a Signature Report File

You can specify an encoding for both SBCS and DBCS signature report files. Specifying an encoding for a signature report file lets you generate a report file on a system that uses a specific encoding. For example, suppose that your company wants to offer electronic signatures to its customers in Taiwan. Your company designs and develops its applications for Taiwan on a system that uses traditional Chinese (EUC-TW) as its encoding. You define the properties of the signature report file, such as recipients and recipient email addresses, and set the encoding of the signature report file to EUC-TW. After you complete the remaining required tasks, the engine generates a signature report file according to the encoding that you specify, and the required applications thereafter will include an electronic signature document that meets your business requirements.

To specify an encoding for a signature report file, you must complete the following steps:

1. In Design Manager, from the Library, drag the signature report file to the Property Panel.
2. Click the **Advanced** tab.
3. To specify an encoding for a signature report file, do one of the following, depending on the type of report file that you are creating:

To	Do this
Specify an encoding for an SBCS signature report file	From the Character set drop-down list, select one of the following: <ul style="list-style-type: none">• Native—The engine determines the format of the signature report file automatically.• ASCII—The signature report file contains data in ASCII.• EBCDIC—The signature report file contains data in EBCDIC or it contains z/OS-specific formats, such as packed decimal or zoned. If you are using EBCDIC files in an ASCII environment, the files must have a CR/LF (x0d0a) at the end of each record.• UTF-8—The signature report file uses UTF-8 encoding. UTF-8 is the default encoding for a signature report file.
Specify an encoding for a DBCS signature report file	From the Encoding box, select the encoding of the characters in the data source. The options vary, depending on the encodings enabled on your system.

4. If the data source originates from a platform that is different from the one being used to define the signature report file, you can define the order of the bytes in the data source. From the **Binary integer byte order** drop-down list, select one of the following options:

- **Native**—Use the original byte order.
 - **Big-endian**—Convert the file to big-endian order. The first time that you run Design Manager, it automatically converts EBCDIC data files to big-endian order.
 - **Little-endian**—Convert the file to little-endian order.
5. From the **XML encoding** drop-down list, select the encoding that you want to include in the declaration element. Select the option that most closely matches your native code page, or enter your own encoding. If you do not want to declare an encoding, leave this option blank.
 6. In the **Indentation for tag level** box, enter the number of spaces (from 0 to 10) to indent for each tag level in the signature report file.
 7. To suppress indentation and carriage return or line feeds in the signature report file so that the file size is reduced, select the **Lean XML** check box.
 8. From the **Edit** menu, select **Save**.

22.1.4 Specifying the Recipient Data

In addition to the email message information you define in the signature report file, you must also provide a list of all recipients of the document and their email information. The email addresses you specify here are used to associate each recipient with the locations they must sign in the document (since you specify on the signature design object the email address of the person who must sign in that location).

To specify the recipient data:

1. In Design Manager, from the Library, drag the signature report file to the Property Panel.
2. Click the **Recipients** tab.
3. In the **Recipient names** box, specify a string array variable that provides the full names of all recipients.
4. In the **Recipient emails** box, specify a string array variable that provides the email address of each recipient.
5. Optionally, you can provide additional information about the recipients. For example, the APIs of some electronic signature services might require additional signer types, such as "sender," or allow recipient-specific text. To provide this additional information, complete the following steps:

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that provides the required information. If you select a non-array variable, that information is used for all recipients.

- c. Click **OK**.

The **Select Variable** dialog box closes and the variable you selected appears in the **Additional data** box.

6. From the Menu bar, select **File > Save**.

22.1.5 Using a Signature Report File with a Message Queue Connector

You can configure signature report files so that the engine writes the report file to an output queue that is configured for either one of the message queue connectors provided by Exstream, or user-written DDA routines that were developed for use with message queue software. For example, suppose that you want to send updated marketing campaign communications to your representatives who are working in the field. The marketing campaigns require electronic signature documents that a customer must sign. Your company uses the WSMQ Connector that is configured to connect Exstream Design and Production and IBM WebSphere MQ. Representatives in the field submit requests for the updated marketing campaigns that include the electronic signature documents. The engine receives the request and generates the signature report file and a PDF that includes the electronic signature document. The engine writes the document and report file to the output queue and the WSMQ Connector delivers the generated application with the electronic signature documents that were distributed to customers, as defined by the recipient data in the signature report file.

In Design Manager, you can add a signature report file for use on a message queue connector at the output queue level. The following message queue connectors are supported for use with signature report files:

- Any user-written DDA routine configured to connect to messaging queue software, such as Sun Java MQ, or IBM WebSphere MQ
- The WSMQ Connector
- The MSMQ Connector
- The JMS Connector

For more information about message queue connectors, see *Configuring Connectors* in the Exstream Design and Production documentation.

To use a signature report file with a message queue connector, you must complete the following steps:

1. In Design Manager, from the Library, drag the output queue that you want to use to the Property Panel.
2. Click the **Reports** tab.
3. From the **Layout** drop-down list, select the signature report file that you want to add to the

output queue.

4. To configure a signature report file to a connector for testing purposes, do one of the following:

To	Do this
Specify the signature report file that you want to test	<p>In the Test file box, enter the path to the signature report file that you want to test.</p> <p>If you specify the test file path, you must specify this path in your control file using the DDAFILEMAP engine switch.</p> <p>For more information about the DDAFILEMAP engine switch, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.</p>
Select the connector that you previously defined in the Connectors heading of the Design Manager Library	<ol style="list-style-type: none"> a. From the Test data source type drop-down list, select Connector. The Test Connector box becomes active.  b. Click  The Select Connector dialog box opens. c. Select the connector that you want to use for the test file. d. Configure the remaining output queue properties as needed.

5. To configure a signature report file to a connector for production purposes, do one of the following:

To	Do this
Specify the file path to the signature report file that you want to use in production	<p>In the Production file box, enter the path to the signature report file that you want to use in production.</p> <p>If you specify the file path to the signature report file to use in production, you must specify this path in your control file using the DDAFILEMAP engine switch.</p> <p>For more information about the DDAFILEMAP engine switch, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.</p>
Select the connector that you previously defined in the Connectors heading of the Design Manager Library	<ol style="list-style-type: none"> a. From the Production data source type drop-down list, select Connector. The Production Connector box becomes active.  b. Click  The Select Connector dialog box opens. c. Select the connector that you want to use for the production file. d. Configure the remaining output queue properties as needed.

6. From the **Edit** menu, select **Save**.

22.1.6 The Signature Report File Schema

The following is the schema for the XML created when you include electronic signature functionality in an application.

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xxsd="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.hplexstream.com/ElectronicSignatureReport"
elementFormDefault="unqualified" attributeFormDefault="unqualified"
xmlns="http://www.hplexstream.com/ElectronicSignatureReport" version="1.0">
    <xsd:annotation>
        <xsd:documentation>Holds multiple instances of signatureData, one for
each document.</xsd:documentation>
    </xsd:annotation>
    <xsd:element name="signatures">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element name="signatureData" type="signatureDataType"
maxOccurs="unbounded"/>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
    <xsd:annotation>
        <xsd:documentation>This type allows any valid XML within the tag,
allowing extensibility.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType name="customDataType">
        <xsd:sequence>
            <xsd:any namespace="##any" processContents="lax"
maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="signatureDataType">
        <xsd:sequence>
            <xsd:element name="subject" type="xsd:string" maxOccurs="1"/>
            <xsd:element name="message" type="xsd:string" maxOccurs="1"/>
            <xsd:element name="fileName" type="xsd:string" maxOccurs="1"/>
            <!-- Additional elements can be inserted here -->
            <xsd:element name="customData" type="customDataType" minOccurs="0"
maxOccurs="1"/>
            <xsd:element name="recipients" type="recipientsType" maxOccurs="1"/>
            <xsd:element name="signatureInstances" type="signatureInstancesType"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="signatureInstancesType">
        <xsd:sequence>
            <xsd:element name="signature" type="signatureType"
maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
    <xsd:simpleType name="signatureFieldTypeChoices">
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="Signature"/>
```

```
<xsd:enumeration value="Initial"/>
<xsd:enumeration value="FullName"/>
<xsd:enumeration value="Date"/>
<xsd:enumeration value="Other"/>
</xsd:restriction>
</xsd:simpleType>
<xsd:complexType name="signatureFieldType">
<xsd:simpleContent>
    <xsd:extension base="signatureFieldTypeChoices"/>
</xsd:simpleContent>
</xsd:complexType>
<xsd:complexType name="signatureType">
<xsd:sequence>
    <xsd:element name="signerEmail" type="xsd:string" maxOccurs="1"/>
    <xsd:element name="pageNumber" type="xsd:int" maxOccurs="1"/>
    <xsd:element name="xPosition" type="xsd:int" maxOccurs="1"/>
    <xsd:element name="yPosition" type="xsd:int" maxOccurs="1"/>
    <xsd:element name="signType" type="signatureFieldType"
maxOccurs="1"/>
        <xsd:element name="otherSignType" type="xsd:string" minOccurs="0"
maxOccurs="1"/>
            <xsd:element name="isOptional" type="xsd:boolean" maxOccurs="1"/>
            <!-- Additional elements can be inserted here -->
            <xsd:element name="customSignatureData" type="customDataType"
minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
<xsd:complexType name="recipientsType">
<xsd:sequence>
    <xsd:element name="recipient" type="recipientType"
maxOccurs="unbounded"/>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="recipientType">
<xsd:sequence>
    <xsd:element name="name" type="xsd:string" maxOccurs="1"/>
    <xsd:element name="email" type="xsd:string" maxOccurs="1"/>
    <xsd:element name="type" type="recipientRoleType" maxOccurs="1"/>
    <!-- Additional elements can be inserted here -->
    <xsd:element name="customRecipientData" type="customDataType"
minOccurs="0" maxOccurs="1"/>
</xsd:sequence>
</xsd:complexType>
</xsd:schema>
```

22.2 Setting Up a Signature Design Object

Signature design objects are enabled in Designer when you have licensed the Electronic Signature Integration module. You use the signature design object to designate areas on the page where signatures are required. You also use the signature design object to specify which recipients must sign at the location, whether their signature is optional, and the type of signature that must be collected (such as full name, or initials, and so on). This object does not appear in the PDF output; however, the information about the signature design object (such as which recipients are required to sign at that location) is included in the XML file and used by the electronic signature program to guide customers through the signing process.

Signature design objects are different from signature buttons, which are used to prevent changes in a Live document.

For information about signature buttons, see *Designing for LiveEditor* in the Exstream Design and Production documentation.

To set up a signature design object:

1. In Designer, on the Menu bar, select **Insert > Drawing Object > Signature field**.

A signature design object is placed on the page.

2. Drag the signature design object to the area on the page where the signature will be required. For example, if the signature must be collected at the bottom of a paragraph of policy information, place the signature design object below the paragraph.

3. Select the signature design object and click .

The **Signature Properties** dialog box opens.

4. Click the **Signature** tab.

5. In the **Signer email** box, select a non-array string variable that provides the email address of the recipient that must sign in this location.

6. From the **Signature Type** drop-down list, select the type of signature collected in this location. If you select **Other**, you must enter the type of signature to collect in the **Other Signature Type** box. For example, if your electronic signature service allows fields such as check boxes or combo boxes, you can specify the type of field here. You can then use the metadata associated with signature design object to define the field, such as its width, height, and the items that can be selected.

7. If the signature is optional (for example, a signature is used to indicate a customer wants to add an optional service), select the **Signing here is optional** check box.

8. Optionally, you can include metadata for the signature design object. For example, if your electronic signature service's API allows you to include hints, such as "Sign here if you accept these terms," you can include that information using metadata. Metadata applied to a signature design object is included in the signature report file.

For information about how metadata is included in the XML file, see “[The Signature Report File Schema](#)” on page 635.

For information about applying metadata to objects, see “[Using Metadata to Tag Objects in Design Manager and Designer](#)” on page 615.

9. Click **OK**.

The **Signature Properties** dialog box closes.

You can use many of the standard object properties in Designer to control the settings of the signature design object, such as its reference name or dynamic placement information. For example, you might need to set up the signature design object to move based on the growth of nearby objects.

For information on setting these general properties, see “[General Administrative and Formatting Tasks for Design Objects](#)” on page 371.

Chapter 23: Creating and Setting Up Documents in the Library

Documents are container objects in Exstream. They are used to contain and organize other Library objects that provide the application content. Documents can contain pages, messages, and/or sections. You use documents to organize the content objects into logical categories. For example, suppose you are creating an application to send policy information to customers. You might use one document to contain the pages that provide cover letter information and a second document to contain the pages and sections that provide the policy information.

This chapter discusses the following topics:

- “[Creating a Document](#)” on the next page
- “[Adding Objects to a Document](#)” on the next page
- “[Targeting Documents to Specific Customers](#)” on page 642
- “[Reordering Documents Dynamically](#)” on page 648
- “[Controlling the Page Numbering of Objects in a Document](#)” on page 649
- “[Setting Up a Document for Duplex Printing](#)” on page 650
- “[Controlling How a Document Is Included for Customers in Different Locations](#)” on page 651

You also use document properties to control the inclusion of messages, section, and paragraph objects. In addition, you use the document properties to set up a placeholder document if you are importing external content into an application using that method. These tasks are discussed with the information about those particular design objects.

For information about controlling the inclusion of messages, see *Managing Marketing Messages* in the Exstream Design and Production documentation.

For information about controlling the inclusion of paragraphs and sections, see “[Using Paragraphs and Sections to Build Complex Documents](#)” on page 109.

For information about setting up a placeholder document, see *Importing External Content* in the Exstream Design and Production documentation.

If you are generating PDF, PDF/A, PDF/VT, or VDX output, you can create bookmarks for documents. These bookmarks will appear in a PDF viewer and allow customers to navigate directly to specific documents.

For information about customizing the bookmarks that appear in PDF output for documents, see “[Adding Bookmarks to PDF Output](#)” on page 596.

23.1 Creating a Document

1. In Design Manager, in the Library, right-click the **Documents** heading or an existing document and select **New Document**.

The **New Document** dialog box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. Click **Finish**.

The document opens in the Property Panel for you to define.

23.2 Adding Objects to a Document

You must add at least one page to a document in order for it to be a valid document. You can also add messages and sections to a document as needed. When you add objects to a document, you do not change the source location of the objects; instead, you create a reference to those objects. Referenced objects are denoted by a small arrow in the lower left corner of the object's icon.

To add an object to a document:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Basic** tab.

3. Below the **Contents** box, click .

A drop-down list appears under the button.

4. Select the type of object you want to add.

The **Select [Object]** dialog box opens.

5. Navigate to the object you want to add and select it.
6. Click **OK**.

The **Select [Object]** dialog box closes and the object you selected appears in the **Contents** box.

7. Repeat step 1 through step 4 to add as many objects as needed.

23.3 Targeting Documents to Specific Customers

Because you use an application to contain all possible documents for customers, you might need to target documents to specific customers. For example, suppose that you are creating an application that provides statements for each account a customer holds and you include an informational document about each account type. Not all customers hold the same accounts: some customers have only checking and savings accounts, while other customers have additional IRA and 401K accounts. The application for the project includes the documents for each type of account and informational documents for each type of account, so you must exclude some documents for specific customers. Exstream provides the following methods for targeting documents to specific customers:

Targeting method	Description
Sending a document to all customers	This method is the default behavior. With this method, all documents are included for all customers. For more information about sending a document to all customers, see " Sending a Document to All Customers " on the next page.
Sending a document to customers based on rule logic	This method lets you include or exclude a document based on a rule you create. You can create simple rules or complex rules as needed to accomplish the necessary outcome. For more information about sending a document to customers based on rule logic, see " Sending a Document to Customers Based on Rule Logic " on page 644.
Sending a document to customers based on section data	This method lets you leverage complex data with sections in order to include the correct documents. For more information about sending a document to customers based on section data, see " Sending a Document to Customers Based on Section Data " on page 644.
Sending a document to customers based on an XML node	This method lets you leverage the complex data structure of an XML schema in order to include the correct documents. For more information about sending a document to customers based on an XML node, see " Sending a Document to Customers Based on an XML Node " on page 646.
Sending a document to customers based on a variable	This method lets you specify which documents should be included, as well as the order in which they are included. In addition, you can use a rule to further include or exclude documents after the order has been set. For more information about sending a document to customers based on a variable, see " Sending a Document to Customers Based on a Variable " on page 646.

If an application uses different types of selection methods for different documents, the documents are composed in the following order:

Order	Documents
1	Documents that are not driven by data sections or XML nodes and that do not use an array variable to specify sort order

Order	Documents
2	<p>Documents that are driven by data sections or XML nodes, depending on the type of data file that you use.</p> <p>Keep in mind that if an application has multiple customer driver files, the engine processes them in the order in which they appear under the application in the Library.</p>
3	<p>Post-sort documents that are driven by data sections or XML nodes, depending on the type of data file that you use.</p> <p>Keep in mind that if an application has multiple customer driver files, the engine processes them in the order in which they appear under the application in the Library.</p>

During production, documents do not necessarily retain the order in which they are specified in the application, since the order in which they are specified might not be the order in which they are composed. For example, you can use a variable to change the order in which documents are placed after they have been selected for inclusion. However, non-section-based documents must be placed before section-based documents in the application object.

For information about reordering documents, see “[Reordering Documents Dynamically](#)” on page 648.

23.3.1 Sending a Document to All Customers

To send a document to all customers, do one of the following:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Targeting** tab.
3. Complete one of the following:

To	Do this
Set a targeting rule for a document that has no set rules	Leave the Targeting tab selections at their default settings. That is, Rule should be selected in the Method drop-down list, and the Rule dialog box is empty.
Set a targeting rule for a document that has previously set rules	<p>Remove the targeting rule. To remove a targeting rule from a document:</p> <ol style="list-style-type: none">a. On the Targeting tab of the document properties, click the Rule box. The Rule dialog box opens.b. Toggle to the code view of the Rule dialog box.c. Select and delete all of the logic in the code box.d. Click OK. The Rule dialog box closes and the rule is removed from the document. <p>For more information about using rules, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.</p>

23.3.2 Sending a Document to Customers Based on Rule Logic

Rules allow you tie documents to customer data or to perform advanced calculations that allow you to specify whether the document is included in the generated output, based on the customer data. For example, suppose you need to include a document only for customers who are between 20 and 35 years old. You can use a rule to exclude the document for specific customers if they do not meet the age criteria.

To send a document to customers based on rule logic:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Basic** tab.
3. From the **Method** drop-down list, select **Rule**.
4. Use the **Rule** box to define the rule that controls when the document is included.
5. From the **Rule run time** drop-down list, specify when all the necessary information will be available and the rule can be executed:
 - **Normal**—The inclusion rule is fired at document processing time.
 - **At End**—The inclusion rule is executed after the engine completes all other processing (not just rules).

For information about defining rules, see *Using Logic to Drive an Application* in the Exstream Design and Production documentation.

23.3.3 Sending a Document to Customers Based on Section Data

You can use section data to control when a document is included for a customer. Section data is a good way to control document inclusion when documents are similar in design but contain different types of data. For example, suppose you design a document that you want to send only if a customer has a savings account. You can use the data in the SAVINGS section of the data file to control the document inclusion. The document is included only if the section is available.

When you use section data to select documents, you can combine flowing page content and create a single document. For example, suppose an application contains two documents: a statement and a letter. If they are both selected by the SAVINGS section, you can combine content on flow pages and force it to be counted as a single document throughout the rest of the processing.

To send a document to customers based on section data:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Targeting** tab.
3. From the **Method** drop-down list, select one of the following options to define how the document is included:

To	Do this
Include the document when the specified section is read in the data file	Select Named section .
Include the document after a specified section has been read from the data file	Select End of named section .

4. In the **Section** box, enter the name of the section in the data file.
5. From the **Section/Node document combination** drop-down list, select what happens when the document is included:
 - **Always, starts a new document**—The document is not combined with other documents in the application. This is the default behavior.
 - **Start a new document first time only**—A new document starts only the first time the engine calls the section. The engine does not add subsection content to previous documents after other sections have been processed.
 - **Combine with previous**—The document is always combined with the preceding document. The engine does not add subsection content to previous documents after sections have been processed.
 - **Start new doc first time only, subsections**—A new document starts only the first time the section is called, and any subsections are combined. The engine adds subsection content to previous documents after other sections have been processed.
 - **Combine with previous, subsections**—The document is always combined with the previous document, and any subsections are combined. The engine adds subsection content to previous documents after other sections have been processed.

Note: If you select either the **Combine with previous** option or the **Combine with previous, subsections** option, the following criteria must be true: The content of the combined document must be from the same section as the other document, and a flow page must exist for the previous page.

6. If you want to allow other documents to be combined with this document, select the **Allow documents to be combined with this one** check box.

For more information about section data, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

23.3.4 Sending a Document to Customers Based on an XML Node

If you use schema model data files, you can use XML nodes in the data structure to control when a document is included for a customer. Using an XML node to drive the inclusion of a document in customer output is useful when documents are similar in design but contain different types of data. For example, suppose that you design a document that you want to send only if a customer has a savings account. You can use the SAVINGS node of the data file to control the inclusion of the document. The document is included only if the SAVINGS node exists in the customer's data structure.

For more information about XML nodes and schema model data files, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

By default, if the engine encounters subsequent occurrences of the same XML node that drives document inclusion in the customer data, then the engine will always start a new document. For example, suppose that customers can have multiple SAVINGS nodes, each representing a unique account. Each of the customer savings accounts are delivered in a separate document.

To send a document to customers based on an XML node in the data structure:

1. In Design Manager, from the Library, drag the document to the Property Panel.
2. Click the **Targeting** tab.
3. From the **Method** drop-down list, select **XML node**.
4. In the **Location** box, click `</>` and select the node that you want to drive document inclusion.

The path to the node that you select appears in the **Location** box. Keep in mind that while the node path does contain the information that Exstream needs in order to locate the node in the data, the path is not a valid XPath location.

5. From the Menu bar, select **Edit > Save**.

23.3.5 Sending a Document to Customers Based on a Variable

Often you control which documents are included for specific customers by first creating an application that contains all possible documents and then using XML nodes, section data, or rules to control the inclusion of each document. However, when the order of the documents can change based on the customer, it is often easier to use a variable to control the inclusion and order of documents for specific customers.

When you use the variable method to control document inclusion, in the application properties you specify an array variable that contains all of the possible documents for an application. The

order of documents in the array dictates the order in which the documents are included. Then, in the document properties, you can further specify how the document, messages, and paragraphs are included in the application for each customer using the **Targeting** tab.

To send a document to customers based on a variable:

1. In Design Manager, from the Library, drag the application containing the document that you want to include to the Property Panel.
2. Click the **Documents** tab.
3. In the **List of documents to send to customer (used for variable-driven assembly applications)** box, specify the array variable that provides the document order.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable and click **OK**.

The **Select Variable** dialog box closes and the variable that you selected appears in the **List of documents to send to customer (used for variable-driven assembly applications)** box.

4. From the Library, drag the document that you want to include to the Property Panel.
5. Click the **Targeting** tab.
6. Use the properties on the **Targeting** tab to specify whether the document is subject to a rule after it has been included by the array:

To	Do this
Include the document if the document is in the array and then only if the rule is true	<ol style="list-style-type: none">a. From the Method drop-down list, select Document-assembly variable, check rule.b. Use the Rule box to define the rule that controls when the document is included.c. From the Rule run time drop-down list, specify when all the necessary information will be available and the rule can be executed:<ul style="list-style-type: none">• Normal—The inclusion rule is executed at document processing time.• At End—The inclusion rule is executed after the engine completes all other processing (not just rules). <p>For information about defining rules, see <i>Using Logic to Drive an Application</i> in the Exstream Design and Production documentation.</p>

To	Do this
Include the document if the document is included in the array, regardless of the rule	From the Method drop-down list, select Document-assembly variable, ignore rule . Note: If you use this method, rules on documents are still executed but are ignored.

23.4 Reordering Documents Dynamically

You can control the order in which documents appear in the packaged application, regardless of the order in which the documents appear in the application object. For example, suppose the statement for each type of investment account that a customer holds is located in a separate document. For each customer, you can make sure that the account with the largest balance appears first in the customer's documents. Therefore, the document order might be different for all the customers, but you can still use one application object to contain the documents.

You use an array variable to specify the order in which document should appear. When the engine runs, it reorders the documents according the values of the array elements. The variable is executed after documents have been selected for the application.

For information about variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

Before completing the following task to reorder documents, make sure that you have set up the variable that will control the document order. The variable must be an array integer variable with a value between 1 and the total number of documents, including any section-based documents or node-based documents. Use the order in the array to control the order of documents in the output. For example, if you generate three documents and you want to them to be output in reverse order, you would set the array elements as follows:

Array Element	Value
1	3
2	2
3	1

The variable typically has a reset time of **Before each customer**. The array size should be equal to the number of documents in the application. For example, if you have three documents and four elements in the array, the fourth element cannot correspond to a document. Any documents that are not referenced in the array are ignored.

For information about creating variables, see *Using Data to Drive an Application* in the Exstream Design and Production documentation.

To reorder documents dynamically:

1. In Design Manager, from the Library, drag the application containing the documents that you want to reorder to the Property Panel.
2. Click the **Documents** tab.
3. In the **Document reordering variable** box, select the array integer variable that orders the documents.

- a. Click .

The **Select Variable** dialog box opens.

- b. Select the variable that controls the document order and click **OK**.

The **Select Variable** dialog box closes and the variable that you selected appears in the **Document reordering variable** box.

When the output is processed, the documents are included in the order that they appear in the variable.

23.5 Controlling the Page Numbering of Objects in a Document

Some documents in an application might be used separately from the other application content and therefore should have separate page numbering. For example, suppose you are designing an application to send policy information to customers. Depending on the customer receiving the information, the application might contain up to four documents:

1. Cover letter
2. Auto policy information
3. Home policy information
4. Life policy information

Since each document is meant to be referenced and used individually, you can set up each document so that the page numbering restarts in each document.

Use the properties on the **Composition** tab of the document properties to control how pages are numbered:

To	Do this
Force the page numbering to restart for each document in the application (by default, the page numbering continues throughout the application)	Select the Restart page numbers check box. Selecting this option affects only the 'SYS_PagePrintedValue,- 'SYS_PagePrint,- and 'SYS_PageTotalPrinted' values. For information about page numbering variables, see <i>Using Data to Drive an Application</i> in the Exstream Design and Production documentation.
Display page numbers in tables of contents and indexes from multiple documents as if they were chapters in the same book (for example, if this document were the third document in the application, pages might be numbered 3-1, 3-2, 3-3, and so on, depending on the formatting specified for the table of contents)	Select the Restart document (chapter) count check box.

23.6 Setting Up a Document for Duplex Printing

If you use a duplex printer (a printer that can print on both sides of a sheet of paper), you can use the **Duplex** tab on the document properties to define the duplex settings of the document.

To	Do this
Add content to empty back pages	From the What to do with empty back pages drop-down list, select the type of content you want to add to empty back pages: <ul style="list-style-type: none">• Replace with specified pages—A page you select is added to empty back pages. If you select this option, use the Page to use on empty back pages box to select the page to use.• Replace with marketing—Marketing messages are added to empty back pages.
Specify how the printer handles print settings when it can print a document in simplex or duplex	From the Duplex method when printing on a mixed-plex output drop-down list, select how you want the pages to be printed: <ul style="list-style-type: none">• Pages control simplex and duplex—The selection on each page controls whether the page prints as simplex or duplex.• Force all pages to be duplex—The document is produced as duplex output, regardless of whether you specify the duplex method on the page properties. You can use this option if you are creating multiple-ups, to help make sure the customer page combinations are valid. <p>Tip: If you use different paper types, set the pages to support the use of different paper types on the back of each previous page.</p>

To	Do this
Allow a new document to print on the back side of the last sheet of paper in the current document (if you send multiple documents to the same customer)	Select the The document after this one can start on the back of this one check box.
Force the current document to print on the front side of a new sheet of paper, even if the last page of the document has a blank back side (if you send multiple documents to the same customer)	Select the This document must start on the front of a sheet check box.

23.7 Controlling How a Document Is Included for Customers in Different Locations

If you have licensed the Compliance Support module, you can use the **Regulatory** tab of the document properties to control how content is distributed to customers based on their location and the production dates you are using. The **Regulatory** tab allows you to select jurisdictions and effectivity dates, which instruct the engine to select specific versions of the object based on geographical locations (such as a customer's country/region) or virtual locations (such as a customer's office or home). Jurisdictions target specific information for specific customers while reducing processing time and the number of messages and rules in an application.

For information about using effectivity and jurisdictions, see ["Targeting a Design for Multiple Dates and Locations" on page 461](#).

Chapter 24: Creating and Working With Applications in the Library

Applications are the largest container objects in Exstream. Each application object contains and organizes the content that will be packaged and sent to customers. Application objects can contain several different types of objects, but at a minimum, each application must contain at least one document containing one page, and one customer driver file. These three objects represent the design and the data portion of the output.

For more information about applications and how they relate to the design process, see [“What Makes Up an Application?” on page 18](#).

Many of the options on the application properties allow you to control specific types of functionality at an application level. For example, the **Marketing** tab of the application properties is dedicated to setting application-level properties of messages and marketing pages. Similarly, on the **Documents** tab, the **Footnote text** area allows you to control the appearance of footnotes that appear throughout an application. Because properties like these are directly related to other topics, the information for these properties is located elsewhere. This chapter discusses the general application properties that are not directly related to other topics. For information about the application properties not discussed in this chapter, see the documentation dealing with that object. You can also use the documentation search feature to find information for a specific interface option.

This chapter discusses the following topics:

- [“Creating an Application” below](#)
- [“Adding Objects to an Application” on the next page](#)
- [“Gathering Application Publishing Information” on the next page](#)
- [“Generating a Custom Report of Application Contents” on page 654](#)

24.1 Creating an Application

1. In Design Manager, in the Library, right-click the **Applications** heading or an existing application and select **New Application**.

The **New Application** dialog box opens.

2. In the **Name** box, enter a name. In the **Description** box, enter a description (optional).
3. Click **Finish**.

The application opens in the Property Panel.

24.2 Adding Objects to an Application

As you create and design the components of an application, you can begin associating them with their container objects, and, ultimately, the application object, or you can assemble all the parts of an application at the end of the development process. As you begin putting the pieces of an application together, you can also start testing the various areas of the application. For example, Exstream provides a testing tool designed specifically to help you pinpoint issues in rules. In addition, as soon as the minimum components of an application are in place, you can begin packaging the application and verifying the design in the output.

For information about packaging and using the testing tools available in Exstream, see *Preparing Applications for Production* in the Exstream Design and Production documentation.

You must add at least one document, containing at least one page, and one customer driver file to an application for it to be a valid application. If you want to create output for one of the Exstream output types, you must also add an output queue to the application. As needed, you can also add all of the other types of objects you have created to make up the application content. For example, if you have created campaigns to control how messages are sent to customers, you can add the campaign to an application as well.

When you add objects to an application, you do not change the source location of the objects; instead, you create a reference to those objects. Referenced objects are denoted by a small arrow in the lower left corner of the object's icon. Because the objects that make up the content of an application (such as pages and messages), are contained in larger container objects (such as documents), you can simply add the container object to the application. All of the smaller items contained within the object are associated with the application as well.

To add an object to an application, in the Library, drag the object's icon and drop it in the appropriate application icon. If you are adding a low-level object, such as a page or message, drop it in the container object within the application. For example, to add pages and messages to a document, drag each page and message into the containing document within the application.

24.3 Gathering Application Publishing Information

After an application has been packaged, either in a testing or production environment, you can use the application properties to see when the application was last packaged and by which user. You can use this information for internal auditing purposes or simply to gather information. This information is available on the application properties only if the **Register package date** check box is selected on the **Build Package** dialog box when the application is packaged.

To gather application publishing application:

1. In Design Manager, from the Library, drag the application for which you want to see the packaging information to the Property Panel.
2. Click the **Basic** tab.
3. Look in the **Last registered package** box for information about the user who last published the application and the date on which it was packaged.

24.4 Generating a Custom Report of Application Contents

You can easily create a list of all the objects in an application by right-clicking the application and selecting **List Contents**. However, this list might not reflect all of the objects that are included in an application if objects in the application are excluded due to other criteria, such as effectiveness dates or jurisdictions. An application report, on the other hand, allows you to generate a list of the objects that are included in the application based on specified criteria, such as a specific workflow status or effectiveness dates. You can use this report to keep a record of the properties set for each object in the application, such as the page's orientation, resolution, and margins. You might also find an application report helpful in troubleshooting tasks, since you can easily see each object's settings and how they differ from those in a new version of the application.

To generate an application report:

1. In Design Manager, in the Library, right-click the application for which you want to generate a report and select **Application Report**.
2. In the **Build Application Report** dialog box, make selections to configure the application report location, level of detail, and objects to include in the report:

To	Do this
Specify the location to place the application report HTML file	In the Output file (HTML) box, enter the fully-qualified path and file name; or click  and select an HTML file. Tip: If you want to store the temporary XML file that is produced with the HTML file, select the Use Output Directory for Temp Files check box. This check box is available only if the specified directory has no blanks. This restriction is to prevent problems running the XALAN .exe utility in a DOS window.

To	Do this
Specify the level of detail to include in the application report	In the Report level list, select one of the following options: <ul style="list-style-type: none">• Detail—The application report includes details about the objects that are used within the application. For example, with a page, you will see detailed information about the page, such as the page orientation, languages associated with the page, and any rules that control the inclusion of the page in the output. You will also see detailed information about the objects on the page, such as frames or container designs.• Summary—The application report includes only a summary of the objects that are used within the application. For example, with a page, you will see only high-level information about the page, such as its orientation or resolution.
Specify the Library objects to include in the application report based on their type	Make selections from the Include in report list.

To	Do this
Limit which Library objects to include in the application report based on their approval status, user affiliation, effective dates, or jurisdiction	<ol style="list-style-type: none">a. Click Object Selection Settings.b. To limit the reporting based on the objects' approval status:<ol style="list-style-type: none">i. On the Object Selection Version Settings dialog box, move the Includes selected status and any statuses above it slider to one of the following statuses:<ul style="list-style-type: none">• Approved—Includes all objects with a status of Approved or Archived• Submitted for approval—Includes all objects with a status of Submitted for Approval, Approved, and Archived• Work in progress—Includes all objects with a status of Work in Progress, Submitted for Approval, Approved, and Archived• Rejected—Includes all objects with a status of Rejected, Work in Progress, Submitted for Approval, Approved, and Archivedii. If you selected Approved, you can opt to report on objects with a quick fix version instead of the approved version by selecting the Substitute Quick Fix versions check box.c. To limit the reporting based on the objects last modified by a specific design user:<ol style="list-style-type: none">i. If you selected Submitted for Approval, Work in Progress, or Rejected on the Includes selected status and any statuses above it slider, select the Include versions from the following user check box.<ol style="list-style-type: none">ii. Click .iii. In the Select Design User dialog box, select the design user from the list and click OK.d. To limit the reporting based on effectiveness dates applied to the objects, From the Effective date drop-down list, select one of the following options:<ul style="list-style-type: none">• As of Now—Selects the latest valid version of the objects as of the current date (and time, if used)• As of Date—Selects the latest valid versions of the objects as of a specified date (and time, if used). Select the date and time from the adjacent To box.• Date Range—Selects the valid version of objects as of a range of dates (and times, if used). Select the date and time from the adjacent From and To boxes.e. To limit the reporting based on jurisdictions applied to the objects, From the Jurisdictions to include drop-down list, specify whether jurisdictions will be used to include objects in the report:<ul style="list-style-type: none">• Ignore—Ignores jurisdictions and uses the latest valid version of objects• Single Jurisdiction—Includes one specified jurisdiction for objects using jurisdictions• All Jurisdictions—Includes all valid jurisdiction version for all objectsf. Click OK.

3. Click **Build**.

When the report is completed, the results open in your default browser.