

Software through Pictures[®] Core

Release 7.1

Fundamentals of StP



Software through Pictures Core Fundamentals of StP

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Table of Contents

Preface

Intended Audience	xix
Typographical Conventions	xx
Contacting Aonix.....	xx
Reader Comments	xx
Technical Support	xxi
Websites.....	xxi
Related Reading	xxii

Chapter 1 Introduction

About Software through Pictures	1-1
Software through Pictures Core	1-2
Software through Pictures Applications	1-5
Using StP to Create Models.....	1-6
Analyzing the Design Domain	1-6
Capturing Concepts with StP	1-6
StP Application Types	1-9
The Repository	1-9
StP ASCII Files	1-10
StP Core Component Summary.....	1-11

Chapter 2 Using Basic Features of StP

Starting the Editors	2-2
Using the Window	2-2
Title Bar	2-3
Menu Bar	2-4
Standard Toolbar	2-4
Window Pane	2-4
Scroll Bars	2-4
Message and Status Area	2-5
Dialog Boxes and Confirmation Windows	2-5
Using the Mouse	2-5
Using Toolbars	2-5
Using Menus	2-7
Using Standard Menus	2-7
Using Shortcut Menus	2-9
Invoking Commands	2-10
Using Keyboard Shortcuts	2-11
Using Access Keys	2-11
Cancelling a Command Choice	2-12
Using Dialog Boxes	2-12
Using Autosave	2-14
Adding Annotations	2-15
Using the Message Area and Log	2-15
Displaying the Message Log	2-16
Using the Message Log to Trace Errors	2-17
Saving and Printing the Message Log	2-17
Deleting Messages	2-18
Changing Message Log Options	2-19
Exiting an Editor	2-19

Summary	2-20
---------------	------

Chapter 3 Using the StP Desktop

Starting the Desktop	3-1
Starting StP from Windows NT	3-2
Reopening the Desktop from an Editor	3-2
The Desktop Window	3-2
Selecting Categories and Objects	3-5
Using the Model Pane	3-5
Using the Objects Pane	3-5
Invoking a Command on an Object	3-6
Using the Desktop Toolbar	3-6
Using the Desktop Menus	3-8
File Menu	3-8
View Menu	3-10
Code Menu	3-10
Report Menu	3-11
Repository Menu	3-11
Tools Menu	3-14
Help Menu	3-16
Exiting the Desktop and StP	3-16
Exiting the Desktop	3-16
Exiting StP	3-17
Working with Projects and Systems	3-17
Creating Projects and Systems	3-18
The Default Project and System	3-20
Opening an Existing System	3-20
Copying a System	3-21
Destroying a System	3-22
Showing System Space	3-22

Performing Basic Desktop Procedures	3-23
Starting an Editor.....	3-23
Opening an Existing Diagram or Table	3-23
Printing Diagrams and Tables.....	3-24
Copying Diagrams and Tables.....	3-25
Deleting Diagrams and Tables.....	3-26
Renaming Diagrams and Tables.....	3-26
Searching for Files with Syntax Errors	3-27
Checking Semantics.....	3-28

Chapter 4 Drawing Diagrams

How Diagrams Are Used in StP	4-2
Using the Diagram Editors.....	4-2
Starting the Diagram Editor.....	4-2
Parts of the Diagram Editor	4-3
Using the Pointer	4-6
Using the Diagram Editor Menus	4-8
File Menu	4-9
Edit Menu	4-10
View Menu.....	4-11
GoTo Menu	4-13
Tools Menu	4-13
Drawing Area Shortcut Menus.....	4-14
Opening a Diagram	4-16
Using the Editor's Open Dialog Box.....	4-17
Reopening Diagrams from the Recent Files List.....	4-18
Opening Multiple Diagrams Concurrently	4-18
Undoing, Redoing, and Cancelling Operations	4-19

Inserting Symbols	4-19
Inserting a Symbol.....	4-20
Inserting Multiple Symbols.....	4-20
Selecting Symbols	4-21
Selecting a Symbol or Arc.....	4-22
Adding to a Selection	4-22
Selecting an Area of the Diagram.....	4-22
Cancelling a Selection	4-23
Drawing Arcs and Splines.....	4-23
Arc Types	4-24
Drawing a Single Arc.....	4-24
Inserting a Vertex.....	4-25
Drawing Orthogonal Arcs.....	4-26
Drawing Splines.....	4-26
Redirecting an Arc.....	4-27
Adding Labels to Symbols and Arcs.....	4-28
Typing Labels Manually	4-28
Completing Partial Labels	4-29
Selecting a Label from a List	4-30
Copying Text to Labels from Other Sources	4-30
Controlling Label Placement.....	4-31
Attaching Symbols to Arcs	4-31
Adding Notes or Comments.....	4-32
Using Display Marks.....	4-33
Setting Current Symbol Options	4-34
Editing Label Placement.....	4-37
Modifying Symbol Size.....	4-38
Designating Symbols as ViewPoints.....	4-39

Manipulating Symbols and Arcs	4-40
Scaling Symbols	4-40
Moving Symbols and Arcs	4-41
Cutting, Copying, and Pasting Elements	4-41
Deleting and Replacing Symbols and Arcs.....	4-43
Aligning Symbols and Arcs.....	4-45
Using the Grid.....	4-45
Using the Align Dialog Box.....	4-46
Aligning All Links	4-48
Searching the Diagram.....	4-48
Adjusting the Diagram Display.....	4-50
Centering the Diagram	4-50
Resizing a Diagram	4-50
Panning the Diagram	4-52
Clearing the Drawing Area	4-54
Filtering Your View of the Diagram	4-54
Inserting a Diagram into Another Diagram.....	4-55
Saving a Diagram.....	4-56
Using the Save As Dialog Box	4-56
Diagram Naming Conventions	4-57
If Errors Are Reported While Saving.....	4-57
Deleting Diagrams.....	4-57
Validating Diagrams.....	4-58
Checking Diagram Syntax.....	4-58
Checking Semantics.....	4-58
Changing Options.....	4-59
Remote Messages.....	4-59
Summary	4-60

Chapter 5 Editing Tables

How Tables Are Used in StP	5-1
Using the Table Editors	5-2
Starting the Table Editor	5-2
Parts of a Table	5-2
Using the Standard Toolbar	5-5
Using the Pointer	5-6
Using the Table Editor Menus.....	5-7
File Menu	5-8
Edit Menu	5-9
View Menu.....	5-10
Table Menu	5-11
GoTo Menu	5-12
Tools Menu	5-13
Table Shortcut Menu	5-13
Opening Tables.....	5-15
Using the Editor's Open Dialog Box	5-16
Reopening Tables from the Recent List	5-16
Opening Multiple Tables Concurrently.....	5-16
Displaying and Hiding Parts of the Table	5-17
Specifying a Location	5-17
Searching for a Character String.....	5-18
Hiding/Showing Table Sections	5-20
Selecting Parts of the Table	5-21
Selecting a Cell	5-22
Selecting a Table Area	5-22
Selecting a Cell within a Selected Area	5-23
Selecting a Row or Column.....	5-23
Cancelling a Selection	5-23

Undoing, Redoing, and Cancelling Operations	5-23
Editing Table Cell Content.....	5-24
Typing a Cell Label	5-25
Using the Cell Content Dialog Box	5-25
Completing Partial Labels	5-26
Selecting a Label from a List	5-26
Selecting Valid Values for Cell Labels.....	5-27
Cutting, Copying, and Pasting Cell Content	5-27
Deleting Cell Content.....	5-29
Manipulating Parts of the Table.....	5-29
Scaling	5-30
Spanning Cells.....	5-33
Inserting New Rows, Columns, and Cells	5-34
Deleting Cells, Rows, and Columns	5-35
Modifying the Visual Characteristics of Cells	5-36
Saving a Table	5-39
Using the Save As Dialog Box	5-40
Table Naming Conventions.....	5-40
If Errors Are Reported While Saving.....	5-41
Deleting Tables	5-41
Validating Tables	5-41
Checking Table Syntax	5-42
Checking Semantics.....	5-42
Changing Options.....	5-42
Remote Messages.....	5-43
Summary	5-43

Chapter 6 Annotating Objects

About Annotations	6-1
-------------------------	-----

Using the Object Annotation Editor.....	6-2
Starting the Object Annotation Editor	6-3
Parts of the Object Annotation Editor	6-3
Using the Standard Toolbar	6-5
Using the OAE Menus	6-7
File Menu	6-7
Edit Menu	6-8
View Menu.....	6-9
Help Menu.....	6-9
Creating Annotations	6-10
Adding a Note.....	6-10
Adding a Note Description.....	6-12
Adding Items to Notes.....	6-13
Editing Values	6-15
Adding Annotations for Multiple Objects	6-17
Cutting, Copying, and Pasting a Note or Item.....	6-17
Deleting a Note or Item	6-18
Saving and Closing Annotation Files	6-18
Saving Annotation Information	6-18
Closing an Annotation File	6-19
Printing an Annotation	6-19
Exiting the Object Annotation Editor	6-19
Summary	6-20

Chapter 7 Changing StP Options

How StP Options Are Determined.....	7-1
Changing Options.....	7-2
Using the Options Dialog Box	7-3
Saving Modified Options for Future Sessions.....	7-4

StP Desktop Options.....	7-4
General Desktop Options	7-5
Message Log Options.....	7-6
Diagram Editor Options	7-8
General Diagram Editor Options	7-9
Editor's Message Log Options.....	7-11
Default Arc Options	7-11
Display Marks Options.....	7-12
Drawing Area Options.....	7-14
Symbol Type Options.....	7-16
Symbol Toolbar Options.....	7-18
Table Editor Options.....	7-19
Object Annotation Editor Options.....	7-20
Annotation Options.....	7-21
Summary of Options	7-23

Chapter 8 Using Diagram Filters

What Are Diagram Filters?.....	8-1
Applying Filters	8-2
Pre-Defined Filters.....	8-3
Using a Pre-Defined Filter	8-4
Redisplaying the Unfiltered Diagram	8-5
Saving the Results of a Filter.....	8-5
Creating and Editing Diagram Filters.....	8-6
Parts of the Define Filter Dialog Box	8-7
Using the Filter Definition Language	8-8
Using the Define Filter Menus.....	8-10
Defining a Filter	8-13
Editing Filter Criteria	8-14
Saving a Filter.....	8-15

Opening a Filter	8-17
Deleting a Filter.....	8-17
Specifying Operations in Filters	8-18
Apply Filter Operations.....	8-18
Assert Operation.....	8-19
Execute Command Operation	8-20
Find Operations	8-21
Get User Input.....	8-23
Include Operations.....	8-24
Load Specific Segments	8-26
Filter Operations.....	8-26
Replace Operations	8-30
Executing and Debugging Filters	8-31
Using the Execution Environment	8-33
Examples	8-35
Show All.....	8-35
Hide Symbols	8-35
Hide Unconnected Comments	8-36
Display Environment of a Symbol.....	8-38

Chapter 9 Using the Repository Browser

What Is the Repository Browser?	9-1
Using the Repository Browser	9-2
Starting the Repository Browser.....	9-2
Parts of the Repository Browser Window.....	9-3
Using the Browser Menus	9-4
Edit Menu	9-5
View Menu.....	9-5
Tools Menu	9-6

Executing Queries	9-6
Using the Execute Query Command	9-6
The Execute Query Dialog Box	9-7
Browsing the Repository for Related Objects	9-8
Manipulating the Query Results	9-11
Removing Query Results	9-12
Hiding/Showing Groups	9-12
Sorting Results	9-14
Navigating to an Object Reference	9-16
Adding Annotations to Objects from the Browser	9-16

Chapter 10 Printing

StP Printing Capabilities	10-1
Printing Commands	10-2
Printing a Diagram or Table to a Printer	10-4
Printing from the Desktop to a Default Printer	10-4
Printing from a Diagram Editor to a Printer	10-5
Printing from a Table Editor to a Printer	10-6
Printing Output to a File for Publishing	10-8
Printing from the Desktop to a File	10-8
Printing from a Diagram Editor to a File	10-9
Printing from a Table Editor to a File	10-10
Using the Browse Output File Dialog Box	10-11
Changing and Reusing Print Options	10-12
Specifying Print Options	10-13
Page Setup Options for Diagram Editors	10-13
Page Setup Options for Table Editors	10-20

Creating a Named Print Setting.....	10-23
Creating a Default Print Setting	10-24
Creating New Named Print Settings	10-25
Using an Existing Named Print Setting	10-25
Deleting a Named Setting	10-26
Printing Large or Multipage Diagrams	10-27
Limiting the Content to be Printed	10-27
Dividing the Print Job into Smaller Files.....	10-28
Using Page Numbers and Cut Lines	10-28
Adjusting and Checking Pagination.....	10-29
Using Supported Publishing Products	10-31
Supported Formats and Products	10-31
Opening a File in a Publishing Product from StP	10-32
Viewing and Printing RTF Documents.....	10-33
Importing MIF Files into Other Documents	10-33
Summary	10-33

Chapter 11 Locking Files

How Locking Works in StP	11-1
Automatic Locks.....	11-2
Permanent Locks	11-2
Specifying Users in Access Lists.....	11-2
Using Locking Commands.....	11-3
Setting Lock Administrators	11-5
Listing Locks.....	11-5
Using Locking on Selected Files	11-7
Opening a Locked File	11-9

Chapter 12 Creating Requirements Tables

Using the Requirements Table Editor	12-1
Starting the RTE	12-2
Parts of the Requirements Table Editor	12-3
Using Standard Table Editor Features	12-6
Using the RTE Menus.....	12-6
File Menu	12-7
Edit Menu	12-7
View Menu.....	12-8
Tools Menu	12-9
Hiding and Showing RTE Sections	12-12
Creating Requirements	12-14
Typing Requirements in the Table.....	12-14
Importing Requirements from an ASCII File	12-14
Refining Requirements.....	12-17
Manipulating Requirements Table Contents	12-19
Changing the Target Object.....	12-19
Toggling Superseded Requirements Display	12-20
Refreshing the Table	12-20
Sorting Requirements.....	12-20
Copying and Pasting Cell Text	12-21
Copying Requirements	12-21
Deleting Requirements	12-22
Allocating Requirements	12-23
Allocating Requirements to Project Phases.....	12-23
Using Drag and Drop to Allocate Requirements	12-24
Using Navigation to Allocate Requirements.....	12-26
Using the OAE to Allocate Requirements.....	12-26
Inheriting Requirements.....	12-27

Deallocating Requirements	12-27
Showing Allocated Requirements.....	12-28
Checking Requirements for Completeness.....	12-29
Listing Objects that Satisfy Requirements	12-29
Showing Unallocated Requirements	12-29
Showing Cycles in Requirements.....	12-30
Showing Superseded Requirement Definitions.....	12-30
Displaying Next Query Match.....	12-30

Index

Preface

Software through Pictures (StP) is a family of multi-user integrated environments that supports the software development process, as well as maintenance and re-engineering of existing systems.

This manual is part of a complete StP documentation set of “Core” manuals, which includes: *Fundamentals of StP*, *Customizing StP*, *Query and Reporting System*, *Object Management System*, *StP Administration*, and *StP Guide to Sybase Repositories*.

Fundamentals of StP presents the fundamentals of using Software through Pictures to create software models.

Intended Audience

The audience for *Fundamentals of StP* includes all users of StP products.

The purpose of this manual is to familiarize you with the StP environment. Before using this manual, you should be familiar with your workstation and windowing system. If you are not, refer to the documentation for your system before continuing.

Typographical Conventions

This manual uses the following typographical conventions:

Table 1: Typographical Conventions

Convention	Meaning
Palatino bold	Identifies commands.
<code>Courier</code>	Indicates system output and programming code.
<code>Courier bold</code>	Indicates information that must be typed exactly as shown, such as command syntax.
<i>italics</i>	Indicates pathnames, filenames, and ToolInfo variable names.
<angle brackets>	Surround variable information whose exact value you must supply.
[square brackets]	Surround optional information.

Contacting Aonix

You can contact Aonix using any of the following methods.

Reader Comments

Aonix welcomes your comments about its documentation. If you have any suggestions for improving *Fundamentals of StP*, you can send email to docs@aonix.com.

Technical Support

If you need to contact Aonix Technical Support, you can do so by using the following email aliases:

Table 2: Technical Support Email Aliases

Country	Email Alias
Canada	support@aonix.com
France	customer@aonix.fr
Germany	stp-support@aonix.de
United Kingdom	stp-support@aonix.co.uk
United States	support@aonix.com

Users in other countries should contact their StP distributor.

Websites

You can visit us at the following websites:

Table 3: Aonix Websites

Country	Website URL
Canada	http://www.aonix.com
France	http://www.aonix.fr
Germany	http://www.aonix.de
United Kingdom	http://www.aonix.co.uk
United States	http://www.aonix.com

Related Reading

Fundamentals of StP is part of a set of Software through Pictures documentation. For more information about StP Core and related subjects, refer to the sources listed in Table 4.

Table 4: Further Reading

For Information About	Refer To
Printing diagrams, tables, and reports	<i>Query and Reporting System</i>
Internal components of StP and how to customize an StP installation	<i>Customizing StP</i>
Using the Script Manager, writing Query and Reporting Language (QRL) scripts	<i>Query and Reporting System</i>
StP Object Management System (OMS)	<i>Object Management System</i>
Installing StP	<i>StP Installation Guide</i>
Managing an StP installation	<i>StP Administration</i>
Interacting directly with the relational database management system you use as the StP storage manager	Documentation provided with your relational database management system, and <i>StP Guide to Sybase Repositories</i> (for Sybase databases only)
Specific StP products information	The documentation provided with your StP product
A summary of changes in the current software release	Release Notes

1 Introduction

This manual presents the fundamentals of using Software through Pictures (StP), including features common to all StP editors. By learning these fundamentals, you can master the tasks and procedures required to use StP effectively. Because this manual describes characteristics that are general and shared by all StP products, it is intended for use with StP product-specific documentation.

Topics covered are as follows:

- “About Software through Pictures” on page 1-1
- “Using StP to Create Models” on page 1-6
- “StP Core Component Summary” on page 1-11

For information about starting StP, see “Starting the Desktop” on page 3-1.

About Software through Pictures

Software through Pictures comprises products that share a common architecture built around a central repository.

These products provide automated development tools that enable you to build a comprehensive model of a system, from which you can generate code, reports, and other information.

Each StP product is comprised of two major parts:

- A common architecture, called the “StP Core”
- Product-specific components (sometimes called the “StP Application”)

Software through Pictures Core

The common architecture, “StP Core,” provides a basic set of features and services, including:

- Foundations for all product user-interface elements, including the StP Desktop, diagram editors, and table editors
- Object Annotation Editor
- Repository Browser
- Requirements Table Editor
- Access to the repository using the Object Management System and Query and Reporting System
- Printing capabilities
- Diagram filters
- Customizable and extensible set of product templates and files

The StP Desktop

The StP Desktop is used for starting all StP product-specific editors and utilities. It also provides access to general StP features, including system administration and repository administration commands. For information about using the StP Desktop, see Chapter 3, “Using the StP Desktop.”

The Object Annotation Editor

StP enables you to enhance your model by adding information to it in the form of annotations. Generally, these are items with specific values or textual descriptions. The Object Annotation Editor (OAE) provides the means for adding annotations. For information about the OAE, see Chapter 6, “Annotating Objects.”

The Repository Browser

The Repository Browser allows you to examine the contents of the repository in terms of the Persistent Data Model (described in “The Repository” on page 1-9). Based on queries you construct, repository data appears in a table editor where you can sort the information, navigate from one object to another, and browse to related objects. For information about using the Repository Browser, see Chapter 9, “Using the Repository Browser.”

Printing and Publishing

StP provides capabilities for:

- Printing diagrams and tables directly to a printer with default or customized print settings
- Creating customized print settings and saving them for later use
- Previewing multipage diagram print jobs online
- Sending formatted output for a diagram or table to a file for viewing, editing, or printing in a supported publishing product
- Generating and publishing reports containing text, diagrams, and/or tables

For more information on printing diagrams and tables directly to a printer or sending formatted output to a file, see Chapter 10, “Printing.”

For more information on using supported publishing products, see “Using Supported Publishing Products” on page 10-31.

For more information on designing and generating reports, see *Query and Reporting System*.

Object Management System

The StP Object Management System provides services for interactions between StP products and the repository.

The OMS comprises:

- The Persistent Data Model—The schema for all objects in the repository
- The Application Programming Interface—A library of functions for manipulating objects in the repository that can be linked with C and C++ programs
- OMS Query Language—A comprehensive language for querying the repository
- Type Extension—Methods for extending the semantics of data stored in the repository

For details about the OMS, see *Object Management System*.

Query and Reporting System

The StP Query and Reporting System (QRS) provides a language that processes data extracted from the repository. You can also use this Query and Reporting Language (QRL) to format output text and graphics. The primary interface to the Query and Reporting System is the Script Manager. For details about the QRS and QRL, including the Script Manager, see *Query and Reporting System*.

Customizing StP

StP enables you to customize most product components, including editors and the environment. For details, see *Customizing StP*.

Diagram Filters

A model can include complex diagrams that show a multitude of information. In some instances, you may want to show only part of the information in a diagram. You can restrict the view of elements in a diagram by using diagram filters. With filters, one diagram can provide the basis for unlimited views of a model. You can create a view without disturbing the integrity of the underlying diagram. StP provides predefined filters; also, you can create custom filters. For information about using StP filters, see Chapter 8, “Using Diagram Filters.”

Requirements Table Editor

The Requirements Table Editor (RTE) can be used to specify requirements for any project. For more information, see Chapter 12, “Creating Requirements Tables.”

Software through Pictures Applications

An StP application comprises product-specific editors and utilities. StP’s applications enable you to create models of your system using the methods and notations supported by your StP product. The information that is generated from the models is stored in the repository to ensure consistency across the entire project.

StP offers a variety of editors for modeling information, systems, and software. There are two main types of editors:

- Diagram Editors—For creating graphical representations of analysis and design models
- Table Editors—For creating tabular data

Each StP product provides a specific set of diagram and table editors. For information about the editors included in your StP product, see the documentation provided with that StP product.

Despite their product-specific differences, all StP diagram editors and all StP table editors have features and behavior in common. This manual describes those common features. Table 1 lists chapters that contain details about specific editor features.

Table 1: Editor References

For Details About	See
StP editor windows	Chapter 2, “Using Basic Features of StP”
Diagram editor features and behavior	Chapter 4, “Drawing Diagrams”

Table 1: Editor References

For Details About	See
Table editor features and behavior	Chapter 5, “Editing Tables”
Setting editor options	Chapter 7, “Changing StP Options”

Using StP to Create Models

As you design a system with StP, you:

- Analyze concepts in the design domain
- Capture these concepts in diagrams, tables, and annotations
- Store information from diagrams, tables, and annotations as objects in a shared repository

Analyzing the Design Domain

Most of the information that you add to a model begins as a concept within the scope of the design problem or domain. For example, if you are modeling a library circulation system, you work with concepts that correspond to *holdings*, *materials*, *catalogs*, *circulation policies* and *procedures*, and *library patrons*.

Capturing Concepts with StP

As you develop a model, you use various editors to draw diagrams and create tables that incorporate the concepts. You represent these concepts as symbols or tabular data. In a diagram, this collection of symbols is the “notation” or “method” for the particular editor.

For example in StP/UML’s Use Case Editor, the notation includes:

- A box representing the system you are designing
- Stick figures representing actors
- Ovals representing use cases

- Arcs representing communication to and from actors, as well as relationships between use cases.

Figure 1 contains an example of a use case diagram representing a library circulation system. In this example, you might use the actor symbol to represent the *Library Patron* and use case symbols to represent the tasks, *Borrows Book* and *Checks Availability*. Arcs connect the user to the tasks, and another type of arc shows the relationship (*extends*) between the two use cases. The entire system is represented by a This System box labelled *Library Circulation*, which excludes the actor who is external to the system.

Figure 1: Use Case Diagram

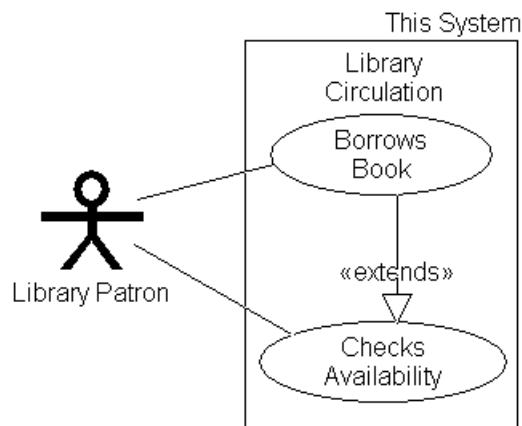


Figure 2 contains an example of the StP/Structured Environment (StP/SE) product's Data Flow Diagram Editor. This editor's notation includes:

- Circles representing processes
- Parallel lines representing data stores
- Arcs representing data flows

In a data flow diagram representing the circulation library, you might represent the concepts *Book* and *Library Patron Record* as data stores, and *Circulate* as a process.

Figure 2: Data Flow Diagram

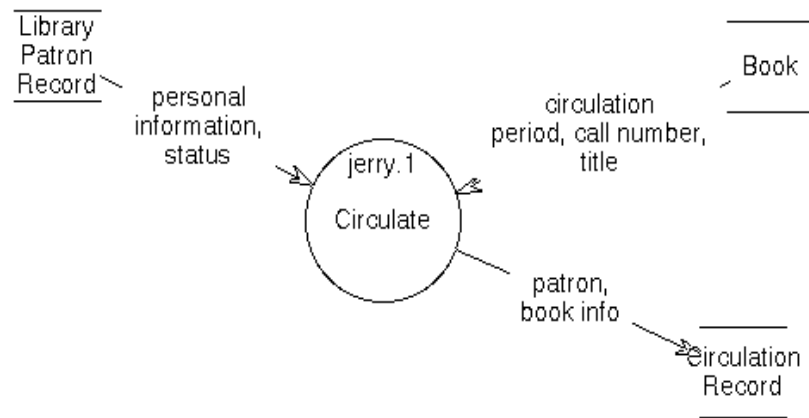
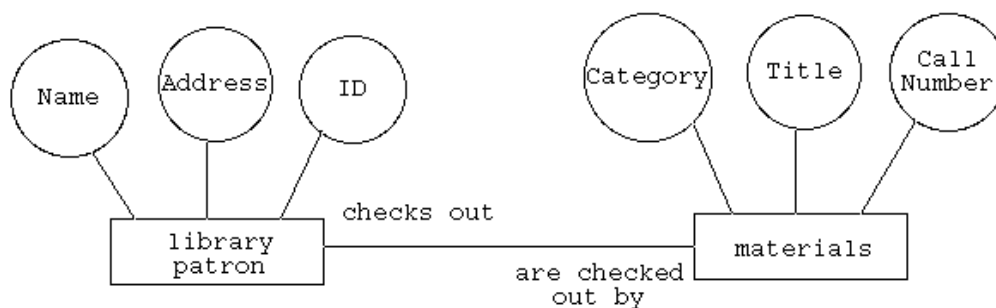


Figure 3 shows an example of an StP/Information Modeling (StP/IM) editor. In this editor, the notation includes:

- Rectangles representing entities
- Circles representing attributes
- Arcs representing relationships

In an entity-relationship diagram representing the circulation library, you might represent the concepts *library patron* and *materials* as entities, and *Name*, *Address*, and *ID* as attributes of the *library patron*.

Figure 3: Entity-Relationship Diagram



Each symbol in a diagram (or data in a table cell) is a “reference” to an object in the repository (see “The Repository” on page 1-9).

StP Application Types

In diagram editors, each symbol has an “application type” with a name and set of attributes specific to that symbol. Similarly, each cell in a table also has an application type. StP uses the application type to distinguish one type of symbol or table cell from another.

Although similar shapes, such as rectangles and circles, may appear in different StP editors, they represent distinct symbols in the repository, identified by their application types. In the library circulation model, for example, a rectangle appears as a symbol in both an StP/UML Use Case diagram (Figure 1) and in an StP/IM entity-relationship diagram (Figure 3). A circle appears as a symbol in an StP/SE data flow diagram (Figure 2) and in an StP/IM entity-relationship diagram (Figure 3). Arcs appear in all three diagrams. Although their shapes are similar, each symbol has a different significance and application type in each of these editors.

The Repository

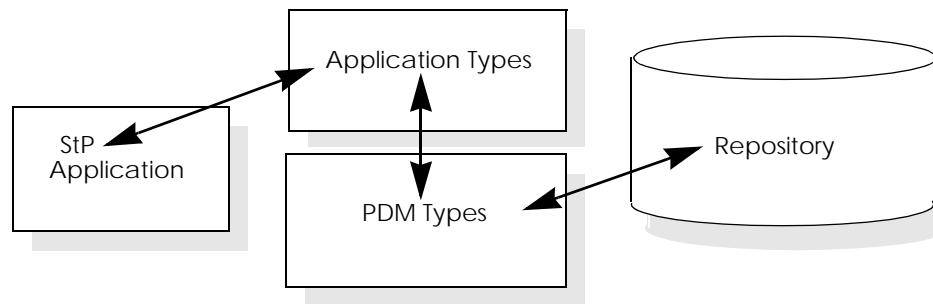
When you save your model, StP writes information (application types) from product editors to the repository, a central pool of data that StP can access in a consistent manner. The repository stores application types as persistent objects. Each object in the repository is unique. An object contains all the information about a construct in the design domain.

Each application type maps to a persistent object type. The scheme that determines the meaning of objects and their inter-relationships is the “Persistent Data Model” (PDM). The PDM does not contain any application-specific information. It is a generalized, static data model that is capable of representing various types of information.

Examples of mappings for StP/UML constructs include UmlActor, UmlUseCase, and UmlSystem application types, which map to the “node” PDM type. Relationships represented by the UmlUseCaseInteraction and UmlUseCaseExtends application types map to the “link” PDM type. The mapping between application types and the

objects in the repository is defined in the *app.types* file. For more about this file and the PDM, see *Object Management System*.

Figure 4: The Application View of the Repository



StP ASCII Files

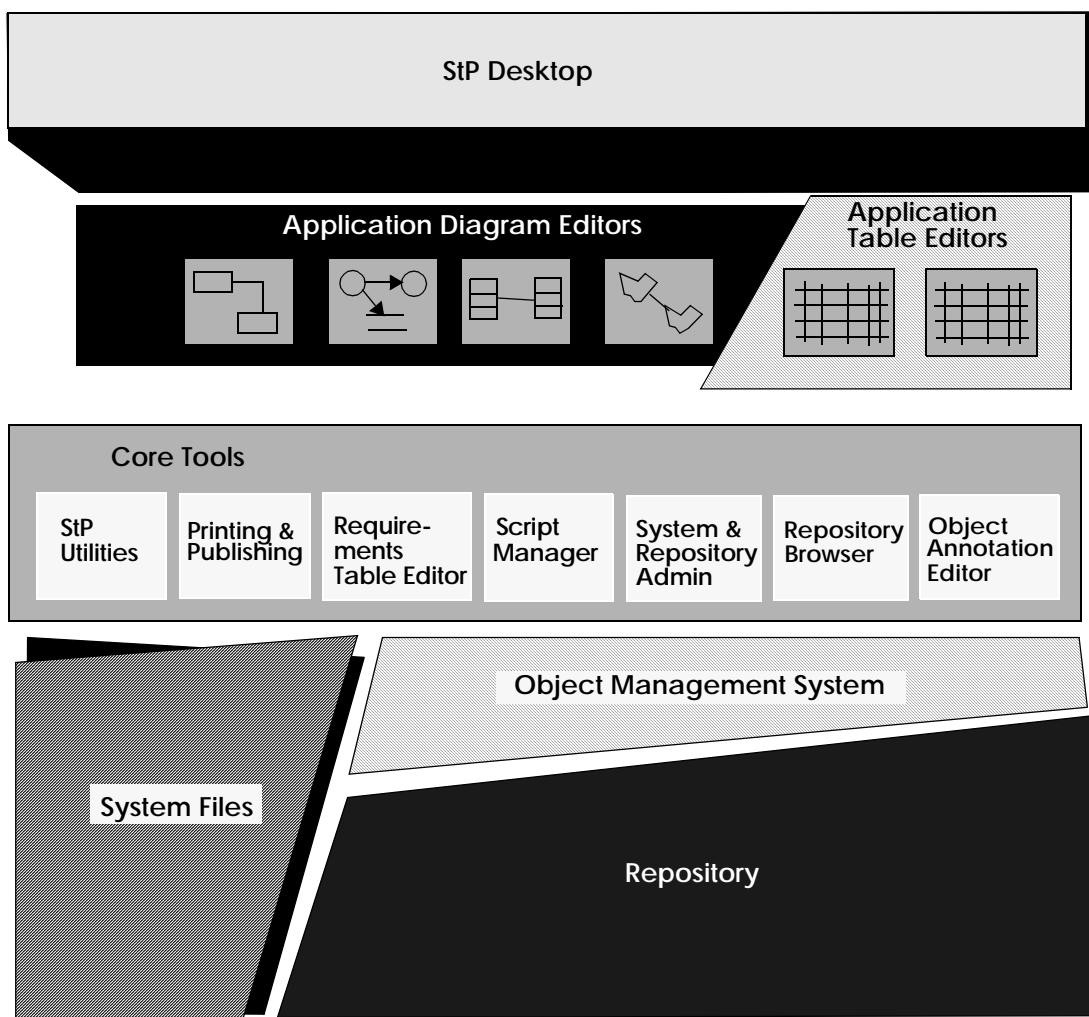
The StP application editors store the information for each diagram, table, or annotation in an intermediate ASCII file format. Each file contains all the information necessary to load that diagram, table, or annotation into the StP editor. When you save a diagram, table, or annotation in a particular editor, the editor creates or writes to this ASCII file, then executes the necessary StP program to load the file into the repository. A diagram or table must be syntactically correct for StP to write the information from the ASCII file to the repository.

You do not need to manipulate the diagram, table, or annotation files directly to use StP. However, you will see informational messages displayed by the editors indicating that these files are being saved or loaded. Also, some system and repository administration procedure descriptions mention these files. For more information about these procedures, see *StP Administration*.

StP Core Component Summary

Figure 5 provides a graphic representation of StP Core components.

Figure 5: StP Core Component Summary



2 Using Basic Features of StP

You use the StP Desktop to access the diagram and table editors and various StP tools, such as the Repository Browser. You use the StP diagram and table editors to create system models containing:

- Diagrams—pictorial representation of the system model
- Tables—matrixes of textual information about the model

The diagram and table editors, as well as some other StP tools, share the common characteristics described in this chapter.

Topics covered are as follows:

- “Starting the Editors” on page 2-2
- “Using the Window” on page 2-2
- “Using the Mouse” on page 2-5
- “Using Toolbars” on page 2-5
- “Using Menus” on page 2-7
- “Invoking Commands” on page 2-10
- “Using Dialog Boxes” on page 2-12
- “Using Autosave” on page 2-14
- “Adding Annotations” on page 2-15
- “Using the Message Area and Log” on page 2-15
- “Exiting an Editor” on page 2-19
- “Summary” on page 2-20

Subsequent chapters in this manual build on the information in this chapter. For information about features and behavior specific to the diagram editors, see Chapter 4, “Drawing Diagrams.” For information about those specific to the table editors, see Chapter 5, “Editing Tables.”

For information about the diagram and table editors available with your StP product, see the documentation provided with that product.

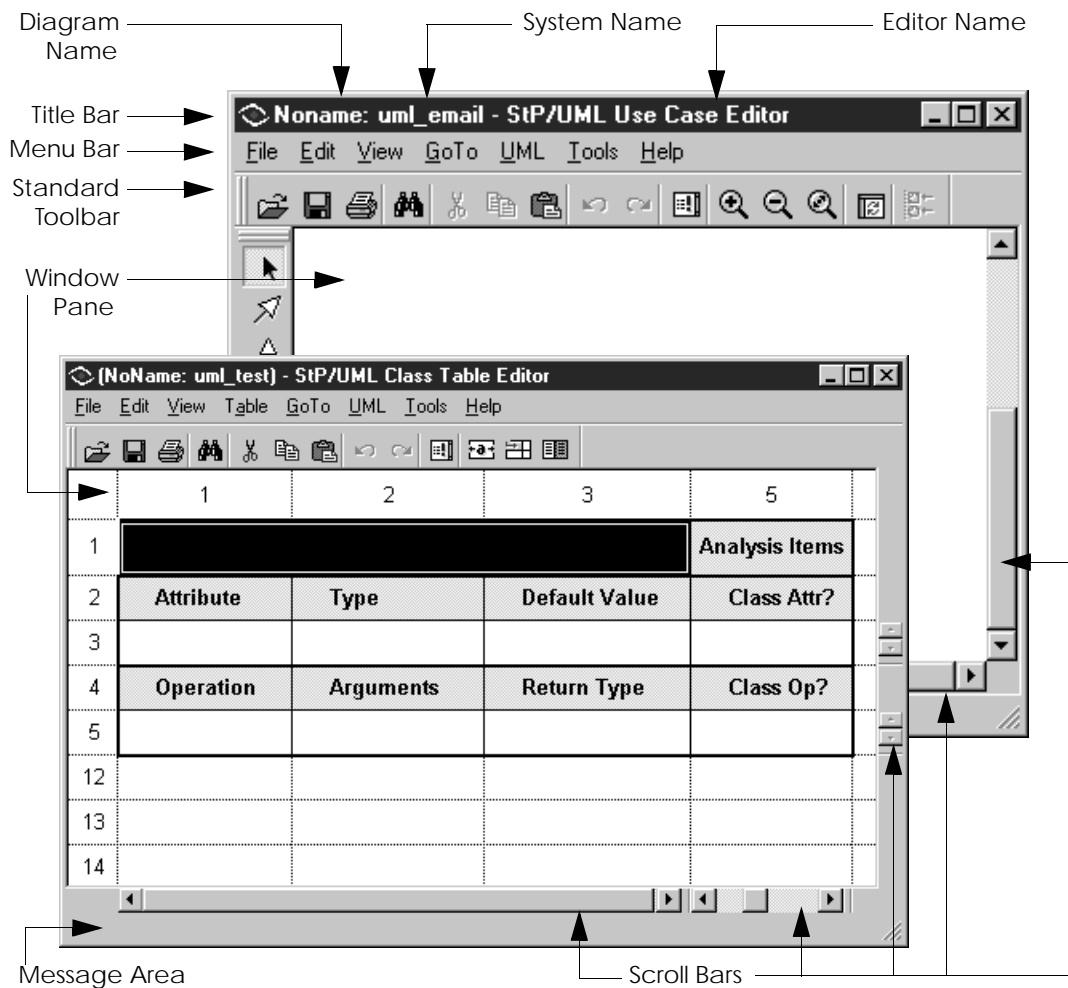
Starting the Editors

All StP editors can be invoked from the StP Desktop. For information about starting editors from the Desktop, see “Starting an Editor” on page 3-23.

Using the Window

In StP, the Desktop and each editor appears in its own separate window. Figure 1 shows the StP/UML Use Case Editor and the StP/UML Class Table Editor as examples of an StP window. All StP diagram editors share the same general appearance and behavior, as do all table editors. Features that StP windows share in common are described in this section. For more information about specific StP tools and editors, refer to the following discussions:

- StP Desktop—“The Desktop Window” on page 3-2
- StP diagram editors—“Using the Diagram Editors” on page 4-2
- StP table editors— “Using the Table Editors” on page 5-2
- StP Object Annotation Editor— “Using the Object Annotation Editor” on page 6-2
- StP Repository Browser—“Using the Repository Browser” on page 9-2
- StP Requirements Table Editor—“Using the Requirements Table Editor” on page 12-1

Figure 1: The Editor Window

Title Bar

The Title Bar displays the name of the diagram or table, followed by the system name and the name of the current editor. If the diagram or table has been modified but not saved, the diagram or table name appears within parentheses.

Menu Bar

The menu bar contains menus specific to the StP Desktop or to the type of editor in which it appears. For information on displaying menus, see “Using Menus” on page 2-7.

Standard Toolbar

The Standard toolbar contains tool buttons for frequently-used commands. Some toolbar buttons are common to all StP editors. Other toolbar buttons are specific to diagram editors, table editors, or another type of StP window. For more information on toolbars, see “Using Toolbars” on page 2-5.

Window Pane

The window pane is the drawing and editing area of the window. In the diagram editor, the window pane is called the “drawing area”; you insert and manipulate symbols in the drawing area. In the table editor, the window pane is called the “table”; you edit rows, columns, and cells in the table.

A diagram or table can extend beyond the displayed area of the window pane. To view anything outside the pane, use the scroll bars or, in the diagram editor, the panner. For more information about the panner, see “Panning the Diagram” on page 4-52.

Scroll Bars

Graphical editors provide horizontal and vertical scroll bars. Table editors provide individual scroll bars for each section of the table. Using the scroll bars, you can change the view of a drawing area or table. To scroll, click the left mouse button on an arrow on the scroll bar or within the scroll bar itself.

Message and Status Area

The message and status area displays confirmation and error messages, as well as process-related messages.

Dialog Boxes and Confirmation Windows

Dialog boxes and confirmation windows appear when you choose a command that requires you to supply information or confirm your intentions. For more details, see “Using Dialog Boxes” on page 2-12.

Using the Mouse

StP supports a two-button mouse for Windows NT.

While the configuration of mouse buttons is customizable, this document assumes that you use these buttons as described here:

- Left button—For all select, choose, and drag operations, other than context-sensitive menu operations
- Right button—To display and choose commands from context-sensitive shortcut menus (see “Using Shortcut Menus” on page 2-9)

If a mouse button is not specified in a procedure, use the left mouse button.

Using Toolbars

StP provides two types of toolbars:

- Standard toolbar—Contains tool buttons for frequently-used commands (Figure 2)
- Symbols toolbar—Contains editor-specific symbol buttons that you use to insert symbols and arcs into a diagram (Figure 3)

Using Basic Features of StP

The Standard toolbar buttons are specific to each StP window. For example, the Standard toolbar on the Desktop differs from the Standard toolbar for diagram editors and from the Standard toolbar for table editors. Some buttons, such as **Show/Hide Message Log**, appear on all StP Standard toolbars.

The Symbols toolbar buttons are specific to each diagram editor, according to that editor's notation.

To display the name of each tool button on a toolbar, position the pointer over the toolbar button. The name appears as a ToolTip.

Figure 2: Standard Diagram Editor Toolbar

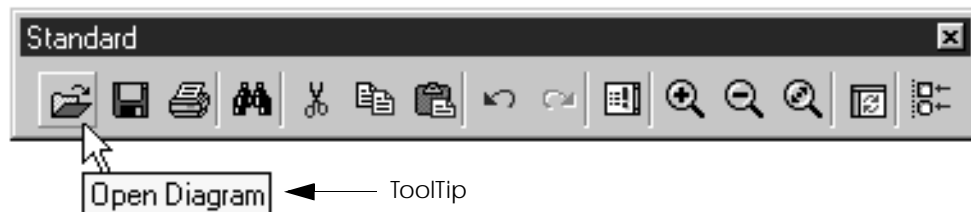
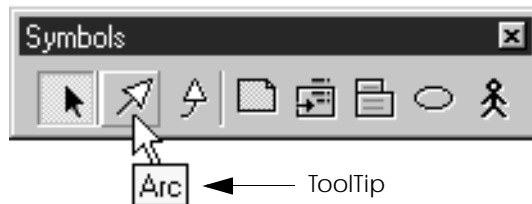


Figure 3: Symbol Toolbar



Toolbars can be:

- Hidden or displayed
- Undocked or docked to one of the editor window's borders
- Resized (after undocking)

To toggle the display of a toolbar on or off, choose the appropriate command from the **View** menu:

- **Hide Standard Toolbar** or **Show Standard Toolbar**
- **Hide Symbol Toolbar** or **Show Symbol Toolbar**

To undock or dock a toolbar:

- **Undock**—Point to the grab bars or any blank area on the toolbar and drag the toolbar to the drawing area
- **Dock**—Point to the toolbar's title bar or any blank area on the toolbar and drag the toolbar to a window border

To resize the toolbar or change its vertical/horizontal orientation:

1. Undock the toolbar.
2. Point to a toolbar border and drag (push or pull) the border to the desired position.

Using Menus

StP provides two types of menus:

- Standard menus, whose names appear in the menu bar for each product's Desktop and editor windows
- Shortcut menus, which are context-sensitive and appear when you right-click on certain objects, diagrams, tables, or table cells

Using Standard Menus

Standard menus on the StP Desktop and in diagram and table editors differ slightly for different products and editors. However, most StP editors contain the menus listed in Table 1. Some editors provide additional menus of commands specific to that StP product and editor (see your product-specific documentation).

Using Basic Features of StP

You can customize any menu to change the commands that appear on it by editing the editor's rules file. For more information see *Customizing StP*.

Table 1: StP Standard Menus

Menu	Displays Commands for
File	Manipulating project/system files
Edit	Editing labels and annotations, and copying, pasting, deleting, and replacing objects in diagrams and tables
View	Changing the appearance of the drawing area or table
Go To	Displaying another symbol or table that is semantically related to the selected object reference
(product-specific menu)	Performing certain operations specific to that StP product and editor
Tools	Checking the current diagram or table, manipulating the contents of diagrams and tables, and changing editor options
Help	Accessing the online manuals and StP release information

For more information about standard editor menus, see “Using the Diagram Editor Menus” on page 4-8 and “Using the Table Editor Menus” on page 5-7.

You open a standard menu by either:

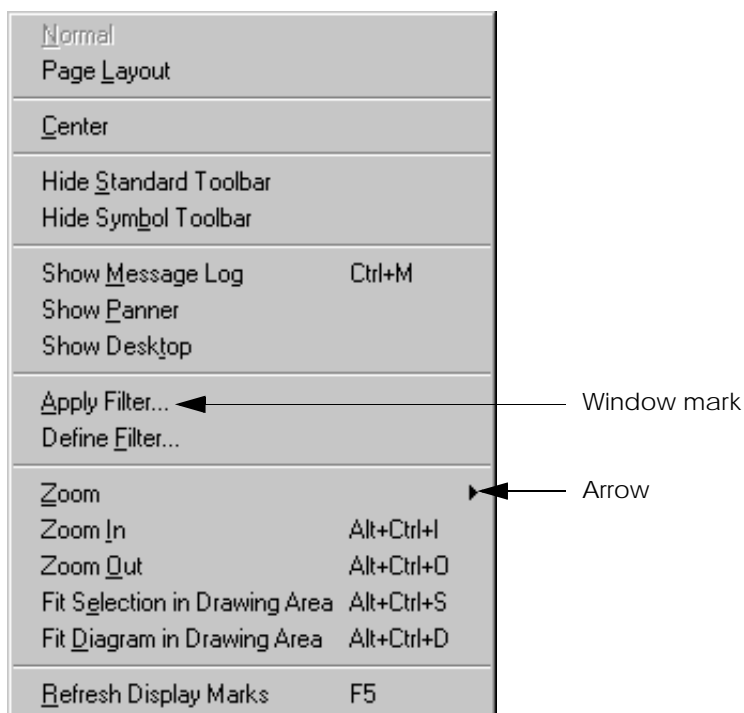
- Clicking the menu title in the menu bar
- Pressing Alt to select the menu bar; then using the underscored menu access key in each menu's name to display the menu (see “Using Access Keys” on page 2-11)

To close a menu, click anywhere outside of the menu or press Esc.

Special marks following a menu item indicate the following:

- Arrow—A submenu of additional commands appears when you point to the menu item
- Window marks (...)—A dialog box appears when the command is activated

Figure 4: A Menu



Using Shortcut Menus

StP provides context-sensitive, shortcut menus for quick access to frequently used commands, from the:

- Desktop panes
- Diagram editor drawing area
- Table editor table cells

Shortcut menus contain a subset of commands from the standard menus. The exact commands that appear are specific to each product, editor, and selected object.

To use a shortcut menu:

1. Click the right mouse button while the desired object, diagram, or table cell is selected.
A menu containing context-specific commands appears in the editor.
2. Use the mouse or underscored access key to choose a command (see “Invoking Commands,” which follows)
3. Click anywhere outside the shortcut menu to close and dismiss it.

For more information about shortcut menus, see:

- “Drawing Area Shortcut Menus” on page 4-14
- “Table Shortcut Menu” on page 5-13
- Editor-specific chapters in your product documentation

Invoking Commands

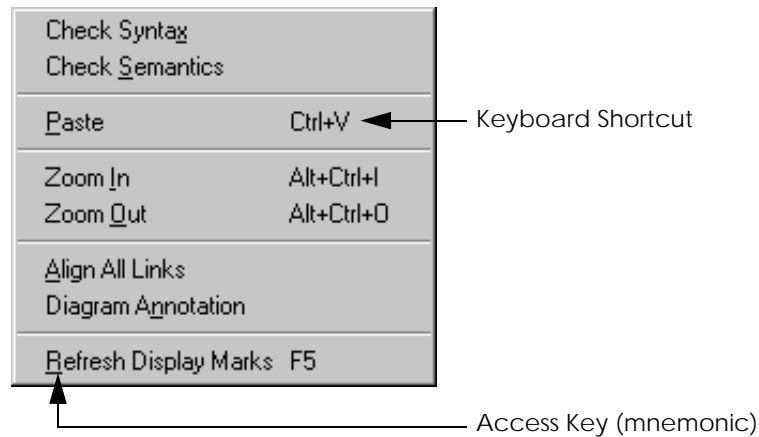
Most actions in StP are initiated using commands, which are available from menus and other parts of the interface. StP provides two methods for invoking commands:

- Using the mouse
- Using keyboard shortcuts
- Using access keys

All methods produce the same results; you should use the method you prefer. In this manual, most procedures use the mouse method (see “Using the Mouse” on page 2-5).

StP provides two shortcuts for invoking menu commands: keyboard shortcuts and access keys (mnemonics).

Figure 5: Keyboard Shortcut and Access Key (Mnemonic)



Using Keyboard Shortcuts

A keyboard shortcut (or shortcut key) is a key combination that enables you to issue a command without displaying a menu. Most keyboard shortcuts are shown on menus as key combinations. For example, in Figure 5 the StP keyboard shortcut for pasting the contents of the buffer is Ctrl+V. Keyboard shortcuts are available whether or not the menu that lists them is currently displayed.

Using Access Keys

An access key is a single, mnemonic key that executes a command, usually after you have opened the menu on which it appears. There are also access keys for displaying menus, such as those in menu bars. An access key appears in the editor's menu bar (Figure 1) and on its menus (Figure 5) as an underlined character. For example, in Figure 5 the access key for refreshing the display marks is r. You can type access keys in either lower or upper case.

To use an access key in a menu bar:

1. Press Alt to activate the menu bar.
2. Press the access key for the menu you want to display.

To use an access key on a menu:

1. Display the menu.
2. Press the access key for the command you want to invoke.

Cancelling a Command Choice

To cancel a command choice, move the pointer to another choice or move it off of the menu entirely before closing the menu.

Using Dialog Boxes

Some commands require specific information before execution. You supply this information in a dialog box, which appears when you choose a command followed by a window mark (...).

Although dialog boxes vary in appearance, they contain common elements such as scrolling lists, text entry fields, and buttons. Using a dialog box, you scroll through lists, make selections, and type and edit entries in text fields. When you are ready, you initiate action by clicking a button in the dialog box.

For example, Figure 6 shows the **Apply Filter** dialog box.

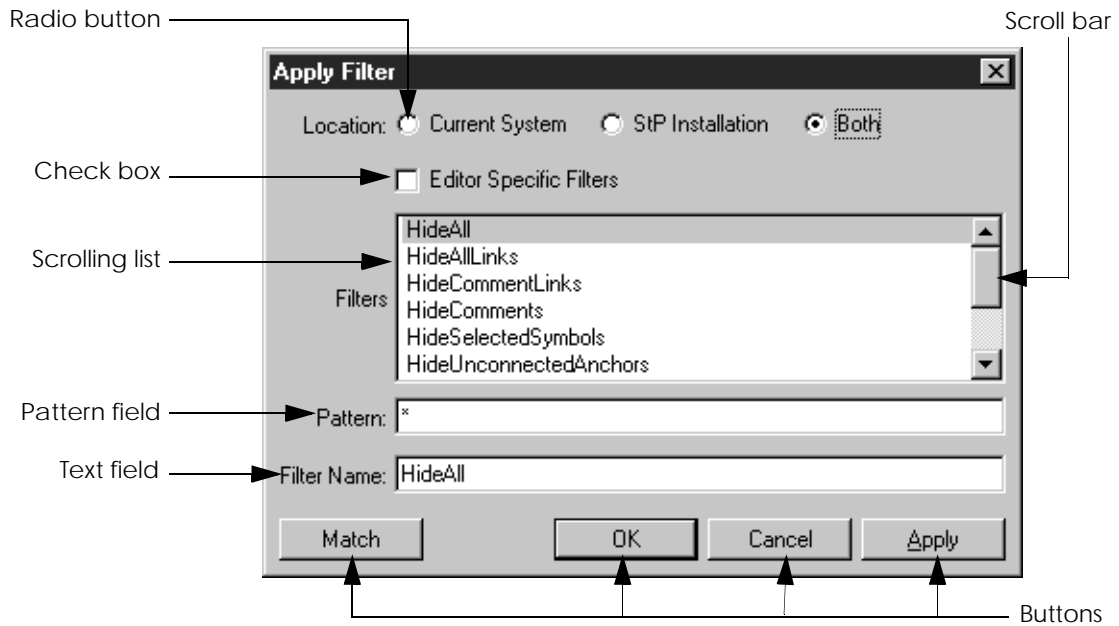
Figure 6: A Dialog Box

Table 2 describes some standard features that may appear in a dialog box. Several of these features are illustrated in Figure 6.

Table 2: Dialog Box Standard Features

Feature	Description
Check box	Indicates a non-exclusive option that can be toggled between active (contains a check mark) and inactive (is empty) independently of other options within the same group.
Radio button	Indicates an exclusive choice within a group of options (only one choice can be active at one time); buttons toggle between off and on.
Scrolling list	Displays available selections; a scroll bar appears, if needed, for displaying more selections.

Table 2: Dialog Box Standard Features (Continued)

Feature	Description
Pattern field	Accepts user input string for filtering the scrolling list; uses wild card characters. In a find dialog, * (asterisk) must be preceded by an alphabetic character.
Text field	Accepts user input string or displays a selection made from the scrolling list.
OK button	Performs an action on the selection, then dismisses the dialog box.
Apply button	Performs an action on the selection, but does not dismiss the dialog box.
Match button	Filters the contents of the scrolling list according to the pattern in the pattern field.
Cancel button	Dismisses the dialog box without performing an action.
Dialog-specific buttons	Performs dialog-specific tasks on that dialog box.

Some command dialogs offer an **Ask for Confirmation** option. If this option is selected, StP prompts for confirmation before overwriting existing information.

Using Autosave

StP diagram and table editors provide an autosave option. This causes StP to save the currently loaded diagram or table to a file at user-specified intervals in minutes. The file is named `<filename>.<ext>.auto`. There is no syntax checking on these files. Autosave is turned on by default, with a ten minute interval.

When you explicitly save a file, StP removes the `.auto` file.

To turn autosave on or off, or to specify minutes intervals, use the **General** tab on the **Options** dialog box, described in “General Diagram Editor Options” on page 7-9. To access the **Options** dialog box, choose **Options** from the **Tools** menu in any editor.

Adding Annotations

Using the Object Annotation Editor (OAE), you can add annotations to objects in your diagrams and tables, as well as to the diagrams and tables themselves. These annotations contain descriptive text and values that provide additional information about the object, diagram, or table.

Each annotation has one or more notes. Each note can have a note description and a set of items and item values. Each type of note has a different set of items. The note types and items available for each object are determined by an annotation template. You can use the default annotation templates or you can customize any template for your StP product. For information about customizing templates, see *Customizing StP*.

For complete information about using annotations, see Chapter 6, “Annotating Objects.”

Using the Message Area and Log

As you use StP, you may receive various messages:

- Errors—problem reports
- Informational messages—status updates and warnings

These messages appear one at a time in the Desktop and editor message areas. The messages also appear in the Message Log.

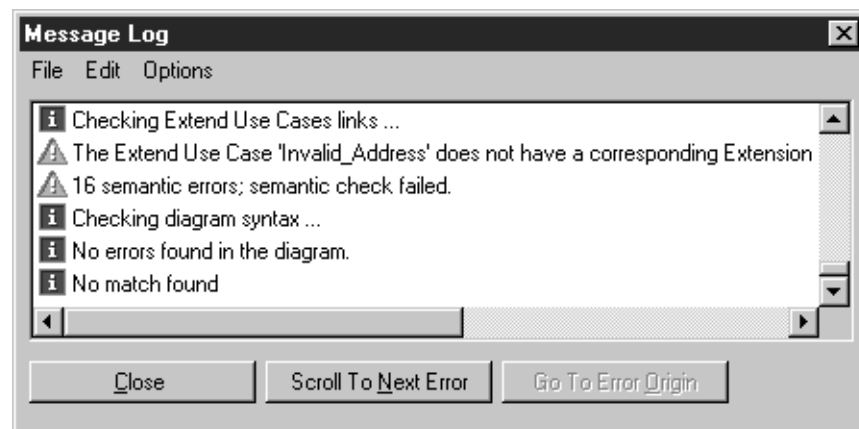
Depending on the Message Log options settings, the Message Log may appear automatically when an error is generated. It appears in a separate window with its own control area and menu buttons. For more information about setting Message Log options, see “Message Log Options” on page 7-6.

You can write the Message Log to a file whether or not you save your diagram or table. You can also edit the Message Log to remove specific messages.

Displaying the Message Log

To display the Message Log, click the **Show/Hide Message Log** toolbar button or choose **Show Message Log** from the **View** menu.

Figure 7: StP Message Log



The scrolling list displays each message in the order in which it occurred. You can edit the scrolling list or change the characteristics of the Message Log using the Message Log menus:

- **File**—For saving the Message Log
- **Edit**—For editing the Message Log
- **Options**—For changing the appearance and behavior of the Message Log

You can select messages in the log using the left mouse button. To select multiple messages, do either of the following after selecting at least one message:

- To select several contiguous messages, hold down the Shift key and select the last message in the contiguous group; StP selects all intervening messages as well.
- To select non-contiguous messages, hold down the Ctrl key and select additional messages.

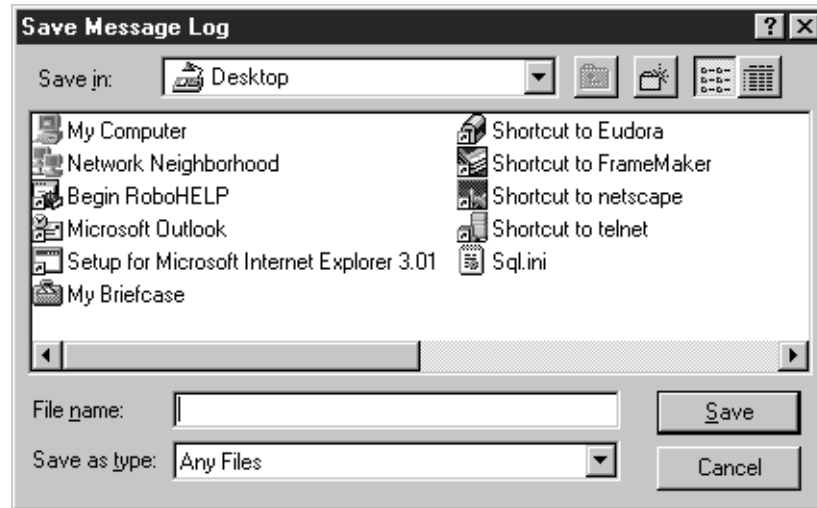
Using the Message Log to Trace Errors

In the editors, you can trace a problem from some error messages to their source by double-clicking on the message in the scrolling list or by clicking the **Go To Error Origin** button in the Message Log. The part of the diagram or table that generated the message is selected.

Saving and Printing the Message Log

You can save the Message Log to a file at any time. Before printing the Message Log, you must save it to a file. You specify the Message Log file and pathname using the **Save Message Log** dialog box.

Figure 8: Save Message Log Dialog Box



To save the Message Log:

1. From the Message Log's **File** menu, choose **Save**.
2. In the **Save Message Log** dialog box, select and/or specify the directory and file names.
3. Click **Save**.

You can print the saved Message Log file using operating system print commands.

Deleting Messages

You can delete messages from the Message Log by choosing a command from the Message Log's **Edit** menu. Commands are:

- **Delete Selected Messages**—Delete one or more messages from the Message Log
- **Delete Informational Messages**—Delete all notification messages from the Message Log; keep all error messages
- **Delete All Messages**—Delete all messages from the Message Log

Changing Message Log Options

You can change the appearance and behavior of the Message Log from the:

- Message Log's **Options** menu—Choose **Set Options**
- Desktop or editor **Tools** menu—Choose **Options** and select the **Message Log** tab on the **Options** dialog box

For more information about this command, see “Message Log Options” on page 7-6.

Exiting an Editor

Before exiting an editor, be sure to save your changes by choosing **Save** or **Save As** from the **File** menu.

To exit an editor, do either of the following:

- Choose **Exit** from the **File** menu.
- Click the close button (**X**) in the upper-right corner of the editor

If there are unsaved changes, a confirmation box appears.

Summary

Table 3 contains a quick summary of the information in this chapter.

Table 3: Using StP Basic Features Summary

To	Use
Start a diagram or table editor	StP Desktop
Exit an editor or other StP window	Close (X) button; Exit (Alt+F4) from the editor File menu
Undock or dock a toolbar	Left mouse button to drag toolbar by its grab bars, title bar, or any blank area
Display a menu on the menu bar	Left mouse button on menu name, or Alt to select the menu bar followed by the menu's access key
Display a shortcut menu	Click right mouse button on an object, diagram, or table
Display a submenu	Point to a command that has an arrow in the right margin of the menu
Choose a command from a displayed menu	Keyboard shortcut, access key, or left mouse button on command in menu
Scroll the window pane	Scroll bars
Select part of a diagram or table	Left mouse button
Display a dialog box	Choose a command that is followed by a window mark (...)
Apply changes and dismiss a dialog box	OK button
Apply changes but do not dismiss a dialog box	Apply button
Dismiss a dialog box without applying changes	Cancel button

Table 3: Using StP Basic Features Summary (Continued)

To	Use
Set autosave options	General tab on the Options dialog box, accessed from the Tools menu
Annotate a diagram or table	Object Annotation Editor
Display the Message Log	Show/Hide Message Log toolbar button; Show Message Log (Ctrl+M) from the View menu
Save the Message Log to a file	Save from the Message Log's File menu
Remove messages from the Message Log	Message Log's Edit menu

3 Using the StP Desktop

The Software through Pictures Desktop provides access to editors, product-specific commands, Core commands and utilities. This chapter describes commonly used features of the Desktop and using the StP Desktop with Core. For specific information about using the Desktop with an StP product, see your product documentation.

Topics covered are as follows:

- “Starting the Desktop” on page 3-1
- “The Desktop Window” on page 3-2
- “Selecting Categories and Objects” on page 3-5
- “Using the Desktop Toolbar” on page 3-6
- “Using the Desktop Menus” on page 3-8
- “Exiting the Desktop and StP” on page 3-16
- “Working with Projects and Systems” on page 3-17
- “Performing Basic Desktop Procedures” on page 3-23

Starting the Desktop

You can open the StP Desktop by:

- Starting StP from Windows NT
 - Reopening the Desktop from one of the StP editors
-

Starting StP from Windows NT

To start the Desktop from Windows NT:

1. Click the **Start** button.
2. Choose **Programs > Aonix Software through Pictures > <StP/product>**, where **<StP/product>** is the name of the StP product you want to start.
The Desktop for the selected product appears.

Reopening the Desktop from an Editor

To reopen the Desktop from an open StP editor, choose the **Show Desktop** command on the editor's **View** menu.

The Desktop Window

The StP Desktop is the main window for StP. An example of the Desktop for StP/UML appears in Figure 1. The exact contents of the Model pane are determined by your StP configuration and the StP product you are using, and may differ slightly from the ones shown here.

Table 1 describes the parts of the StP Desktop.

Figure 1: The StP Desktop

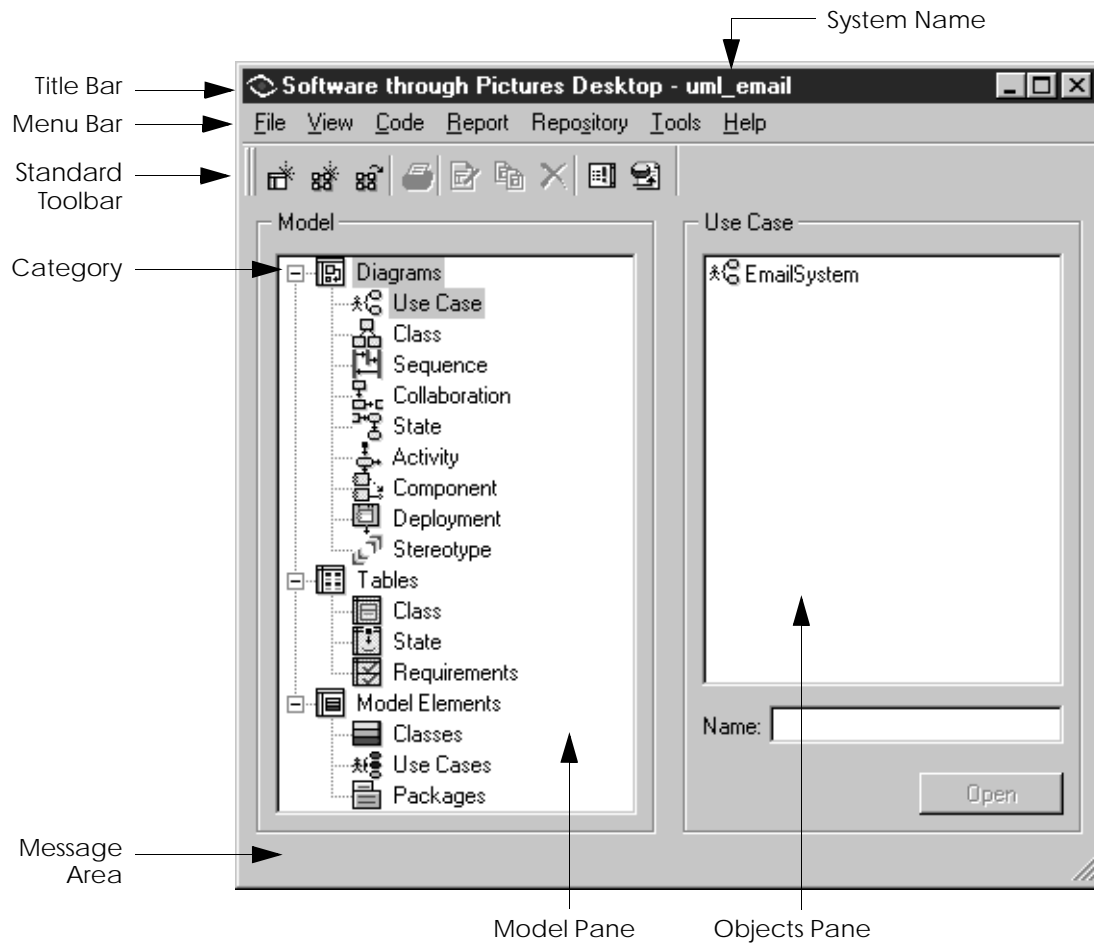


Table 1: Desktop Components

Component	Description	For more information, see
Menu bar	Contains the Desktop menus.	“Using the Desktop Menus” on page 3-8
Standard toolbar	Contains icons for easy access to the most frequently-used Desktop commands.	“Using the Desktop Toolbar” on page 3-6
Model pane	Lists the categories and subcategories of possible model components.	“Selecting Categories and Objects” on page 3-5
Objects pane	Lists the existing objects for the currently selected subcategory.	
Name field	Accepts a string, including the asterick (*) wild card character, to filter the list in the objects pane, or displays the name of the selected diagram, table, or model element.	
Open button	Filters the list in the objects pane according to the entry in the Name field, or performs a default command (usually Open) on the specified object.	
Message area	Displays confirmation and error messages.	“Using the Message Area and Log” on page 2-15

Selecting Categories and Objects

When you start the StP Desktop without a default project and system, the categories and subcategories in the Model pane are dimmed. Before you can select categories and objects, you must set the current StP project and system, using one of the methods described in “Working with Projects and Systems” on page 3-17.

Using the Model Pane

The Model pane contains categories of model components, such as **Diagrams**, **Tables**, and **Model Elements**. Each category contains subcategories of model components. For example, the **Diagrams** category contains subcategories of diagram types; the **Tables** category contains subcategories of table types.

To open or close a category double-click the category name or:

- Click the plus sign (+) icon to open it and display its contents.
- Click the minus sign (-) icon to close it.

Using the Objects Pane

The objects pane displays a context-sensitive list of existing objects for the currently selected subcategory.

To filter the list in the objects pane, type an expression with wild card characters in the **Name** field and click **Open**.

To select an object, do any of the following:

- Type the name of an object in the **Name** field.
- Single click an object in the objects pane; its name appears in the **Name** field.
- To select a contiguous range of objects, select the first object in the range, then hold down the Shift key and select the last object in the range.
- To select multiple non-contiguous objects, select one object, then hold down the Ctrl key and select additional objects.

Invoking a Command on an Object

To invoke a command on a selected object:

1. In the Model pane, open a category to display its subcategories.
2. Select a subcategory.
3. Do one of the following:
 - To open a diagram or table in the appropriate editor, double-click its name in the objects pane, or select it and click **Open**.
 - Select one or more objects in the objects pane and choose an appropriate command from one of the Desktop menus.

Using the Desktop Toolbar










The Standard Desktop toolbar contains icons for easy access to frequently-used Desktop commands.

Figure 2: Standard Desktop Toolbar



Table 2 describes the toolbar buttons on the Standard Desktop toolbar.

Table 2: Standard Desktop Toolbar Buttons

Button	ToolTip	Description	For Details, See
	Start New Editor	Displays a submenu of commands that start various editors.	"Starting an Editor" on page 3-23
	Create New System	Displays a dialog for creating a new project and system.	"Creating Projects and Systems" on page 3-18
	Open System	Opens an existing system.	"Opening an Existing System" on page 3-20
	Print Diagram/Table	Prints one or more selected diagrams or tables to a default printer, using default settings.	"Printing Diagrams and Tables" on page 3-24
	Edit Diagram/Table	Opens a selected diagram or table in the appropriate StP editor.	"Opening an Existing Diagram or Table" on page 3-23
	Copy Diagram/Table	Copies a selected diagram or table.	"Copying Diagrams and Tables" on page 3-25
	Delete Diagram/Table	Deletes a selected diagram or table.	"Deleting Diagrams and Tables" on page 3-26
	Show/Hide Message Log	Toggles the display of the StP Message Log window on or off.	"Using the Message Area and Log" on page 2-15
	Start Script Manager	Starts the StP Script Manager for creating, editing, and printing customized reports.	<i>Query and Reporting System</i>

Using the Desktop Menus

This section describes the standard Desktop menus and commands common to all StP products. For information about using product-specific Desktop menus and commands, see your StP product documentation. For general information about menus, see “Using Menus” on page 2-7.

The following menus appear in the StP Desktop menu bar:

- **File**
- **View**
- **Code**
- **Report**
- **Repository**
- **Tools**
- **Help**

Each menu lists commands and (if available) their corresponding access keys and keyboard shortcuts.

File Menu

The **File** menu provides commands for opening, copying, and deleting systems, diagrams, and tables, as well as renaming and printing diagrams and tables. It also provides commands for exiting the Desktop and StP. These commands are described in Table 3.

Table 3: File Menu Commands

Command	Description	For Details, See
New	Displays a product-specific submenu of commands to create a new system, diagram, or table.	“Creating Projects and Systems” on page 3-18, or “Starting an Editor” on page 3-23
Open Diagram/Table	Opens a selected diagram or table in the appropriate StP editor.	“Opening an Existing Diagram or Table” on page 3-23
Print Diagram/Table	Prints one or more selected diagrams or tables to the printer or to a specified file.	“Printing Diagrams and Tables” on page 3-24
Copy Diagram/Table	Copies a selected diagram or table.	“Copying Diagrams and Tables” on page 3-25
Delete Diagram/Table	Deletes a selected diagram or table.	“Deleting Diagrams and Tables” on page 3-26
Rename Diagram/Table	Renames a selected diagram or table.	“Renaming Diagrams and Tables” on page 3-26
Open System	Opens an existing system.	“Opening an Existing System” on page 3-20
Copy System	Copies an existing system into a specified project directory under a new system name.	“Copying a System” on page 3-21
Destroy System	Destroys the system repository and all system files for the specified system.	“Destroying a System” on page 3-22
Exit StP	Closes all open StP editors and exits StP.	“Exiting StP” on page 3-17
Exit Desktop	Dismisses the Desktop without exiting StP (open StP editors remain open).	“Exiting the Desktop” on page 3-16

View Menu

The **View** menu provides commands that show or hide the Desktop toolbar and message log.

Table 4: View Menu Commands

Command	Description	For Details, See
Hide/Show Standard Toolbar	Toggles the display of the StP Desktop toolbar on or off.	“Using Toolbars” on page 2-5
Hide/Show Message Log	Toggles the display of the StP Message Log window on or off.	“Using the Message Area and Log” on page 2-15

Code Menu

The **Code** menu provides commands for:

- Generating code from an existing StP model
- Reengineering an StP model from existing code

Table 5: Code Menu Commands

Command	Description	For Details, See
(each command corresponds to a supported programming language)	Displays a product-specific submenu of commands for generating code from an StP model or from parts of the model.	<i>Generating and Reengineering Code</i>
Reverse Engineering	Displays a submenu of commands used to create or update an StP model from source code.	

Report Menu

The **Report** menu provides access to the StP Script Manager for creating and editing customized StP reports. It also provides automatic access to supported publishing products for viewing, editing, or printing files containing formatted output for reports, diagrams, or tables.

Table 6: Report Menu Commands

Command	Description	For Details, See
Start Script Manager	Starts the StP Script Manager for creating, editing, and printing customized reports.	<i>Query and Reporting System</i>
Open Report	Opens a specified file in the appropriate available publishing tool.	“Using Supported Publishing Products” on page 10-31

Repository Menu

The **Repository** menu provides commands for managing StP users and system repositories and for performing other StP administration tasks.

Table 7: Repository Menu Commands

Command		Description	For Details, See
Maintain Systems >	Show System Space	Shows the amount of space used and space available for the current system.	“Showing System Space” on page 3-22
	Expand Current System Repository	Increases the size of the StP repository storage space.	<i>StP Administration</i>

Table 7: Repository Menu Commands (Continued)

Command		Description	For Details, See
Maintain Systems >	Check if System Repository Exists	Determines if the current system has an existing repository.	<i>StP Administration</i>
	Destroy System Repository	Destroys a repository without destroying the system files.	<i>StP Administration</i>
	Recover System Repository	Restores a repository by rebuilding it from information in system files.	<i>StP Administration</i>
	Add New Files to Current System Repository	Add files from one system to another.	<i>StP Administration</i>
	Delete Unreferenced Objects in Current System Repository	Deletes from the repository any objects that no longer appear in the current system.	<i>StP Administration</i>
	Dump Current System Repository to Files	Creates a backup of the repository by saving it to dump files.	<i>StP Administration</i>
	Load Current System Repository from Files	Restores a repository from a backup consisting of dump files.	<i>StP Administration</i>
	Delete Repository Data in Current System	Removes data about the current system from the repository, but leaves the repository intact.	<i>StP Administration</i>
	Truncate History for Current System	Cleans up out-of-date history objects from the repository.	<i>StP Administration</i>
	Migrate System	Migrates a system to the current StP release from an earlier StP release.	Migration manual for the current StP release

Table 7: Repository Menu Commands (Continued)

Command		Description	For Details, See
Manage Users >	Grant User(s) Sybase System Creation Privileges		Gives users the ability to create systems. <i>StP Administration</i>
	Revoke User(s) Sybase System Creation Privileges		Revokes a user's system creation privileges. <i>StP Administration</i>
	Repository Manager >	List All Users	Lists users with access to the StP repository manager. <i>StP Administration</i>
		List Current Sybase Users	Lists current users in the repository manager. <i>StP Administration</i>
		Add Sybase User(s)	Gives users access to the StP repository manager. <i>StP Administration</i>
		Delete Sybase User(s)	Revokes users' access to the repository manager. <i>StP Administration</i>
		Change User(s) Sybase Password	Changes a user's StP password. <i>StP Administration</i>
		Current System >	List All Users
	List Current Users		Displays a list of users currently using the system. <i>StP Administration</i>
	Add Sybase User(s)		Gives users read and/or write access to the current system. <i>StP Administration</i>
	Delete Sybase User(s)		Revokes a user's access to the current system. <i>StP Administration</i>
	Change Sybase User(s) Group		Changes a user's read or write permissions. <i>StP Administration</i>
Change Sybase Owner of Current System	Changes the ownership of the current system to another user. <i>StP Administration</i>		
List Repositories		Lists the system repositories under a Sybase or MS Jet repository manager. <i>StP Administration</i>	

Table 7: Repository Menu Commands (Continued)

Command	Description	For Details, See
Show Sybase Server Space	Displays space usage on the Sybase database devices (not used for MS Jet databases).	<i>StP Administration</i>
Perform Manager Maintenance	Updates statistics in Sybase or MS Jet repository manager tables and cleans up the disk space used by StP repositories.	<i>StP Administration</i>

Tools Menu

The **Tools** menu provides a variety of commands used to check models, manage locks, edit model annotations, browse the repository, access StP utilities, and set StP options.

Table 8: Tools Menu Commands

Command		Description	For Details, See
Locks >	Manage Locks	Displays a dialog for setting and managing locks on a selected diagram or table file.	Chapter 11, "Locking Files"
	Set Lock Administrators	Sets lock administrators.	
	List Locks	Displays information on all locks in the current system.	
Check >		Displays a product-specific submenu of commands for checking the semantics of selected diagram(s), table(s), or for an entire model.	"Checking Semantics" on page 3-28

Table 8: Tools Menu Commands (Continued)

Command	Description	For Details, See
List Files with Syntax Errors	Lists files in the current system that contain syntax errors.	“Searching for Files with Syntax Errors” on page 3-27
Edit Annotation	Starts the Object Annotation Editor for the selected object.	Chapter 6, “Annotating Objects”
Browse Repository	Starts the Repository Browser for querying the contents of the current system repository.	Chapter 9, “Using the Repository Browser”
StP Utility	Starts the StP Utility, a command shell utility with a set of commands for querying, modifying, and manipulating a system’s repository and ASCII files.	<i>StP Administration</i>
Synchronize DOORS with StP	Links StP with DOORS, a Quality Systems & Software (QSS) tool for managing system requirements.	<i>StP Administration</i>
Show ToolInfo Variable	Displays the current value of a specified ToolInfo variable.	<i>StP Administration</i>
Options	Displays a dialog with two tabs:	“StP Desktop Options” on page 7-4
	General —Displays the current project and system and specifies when the changes for all Desktop options will be saved.	
	Message Log —Sets the StP Message Log options.	“Message Log Options” on page 7-6

Help Menu

The **Help** menu provides commands for displaying online hypertext documentation that describes StP. Table 9 describes Help commands.

Table 9: Help Commands

Command	Description
Online Manuals	Provides a list of online manuals. Clicking on a manual name displays that online document, including its table of contents and index.
About StP	Displays information about the current StP release, including version number, contents, and copyright information.

Exiting the Desktop and StP

Using commands on the **File** menu, you can:

- Exit the Desktop, without exiting any open StP editors
- Exit StP, including the Desktop and all open editors

Exiting the Desktop

To close the Desktop without exiting StP, do one of the following:

- Click the close button (**X**) in the upper right corner.
- From the **File** menu, choose **Exit Desktop**.

The Desktop window closes, but any open StP editors remain open.

Exiting StP

To exit StP, including the Desktop and all open StP editors, choose **Exit StP** from the **File** menu.

Working with Projects and Systems

Before you can use StP to create or edit a model, you must set the current StP project and system, using one of the following methods:

- Create a new system (see “Creating Projects and Systems” on page 3-18)
- Open an existing system (see “Opening an Existing System” on page 3-20)
- Automatically open a specified system when you start StP (see “The Default Project and System” on page 3-20)

A “project” is a directory that contains subdirectories for one or more StP systems. When creating a system, the user can either create a new project directory or specify an existing one to hold the new system directory.

A “system” is the basic unit of organization for StP activity and has two main components:

- A directory of ASCII files for that system, called the “system directory,” in which each file represents an entire diagram, table, or set of annotations created with a particular product editor (for more information, see “StP ASCII Files” on page 1-10)
- A database storage area called the “repository,” which contains consolidated information about individual objects created by users with the product’s editors

When a user saves the contents of an StP editor as a diagram, table, or annotation, the contents are written both to an ASCII file in the system directory and to the system’s repository. Diagrams and tables must be syntactically correct for StP to store their contents in the repository. Otherwise, the data is stored only in the system’s ASCII files.

Most StP products come with a sample system in the *Examples* project directory.

Creating Projects and Systems

You can create a new system and, if desired, a new project to hold the new system, using commands from the Desktop. To use these commands with a Sybase database, you must have StP Sybase system creation privileges (see *StP Administration* or your StP administrator).

System Names

System names can be up to 30 characters long. They should begin with an alphabetic character, the At sign (@), or an underscore (_). Due to a Sybase restriction, you cannot use a numerical digit as the initial character in an StP system name. StP automatically replaces an initial digit, if used, with an underscore (_), to avoid any potential repository creation problems.

Subsequent characters in the name can be any of the foregoing characters and also numbers. No embedded spaces are allowed.

Examples of legal names are:

- *my_system*
- *_from97*

Examples of illegal names are:

- *my new system*
- **1997_system_design_for_{new}_configuration*
- *Sledger*

Database Type

When you create a new system, you can specify whether you want the repository to be created as a Sybase or Microsoft Jet (MS Jet) database. The two relational database management systems differ in various ways.

Sybase databases can accommodate very large repositories. However, you must specify an initial repository size (the default is 6 MB). If the repository grows too large, you can expand it with the StP Desktop command **Expand Current System Repository** (for more information on this command, see *StP Administration*).

MS Jet databases work well for smaller repositories. You do not need to specify an initial size for your repository, and the database expands automatically as the repository grows.

There are no set guidelines for choosing a database type. However, if the system will be shared by more than five users, or you anticipate a large repository, you may prefer to use Sybase. (Sybase must be installed and running.)

Creating a New System for a New or Existing Project

To create a new system, and optionally, to create a new project to hold it:

1. Do one of these:
 - Click the **Create New System** toolbar button.
 - From the **File** menu, choose **New > System**.
2. In the **Create System** dialog box, do the following:
 - In the **Project Directory** field, type the path to the desired project. The default is offered, specified by the *projdir* ToolInfo variable (see “The Default Project and System” on page 3-20)
 - In the **System** field, specify the new system’s name.
 - In the **Database Type** field, display the options list and select the type of database you are using—either **Sybase** or **MS Jet** (see “Database Type” on page 3-18).
 - For Sybase databases, enter a value in the **Size of Repository (in MB)** field, or accept the default (6 MB or the value specified by the *syscreate_size* ToolInfo variable or *SIZE* environment variable, as described in *StP Administration*).
MS Jet databases do not require repository size specification; the repository expands automatically, as needed.
3. Click **OK** to create the project directory (if it does not exist) and the new system.

The Default Project and System

When you start the StP Desktop, the current project and system are set according to the defaults in your ToolInfo file, if any. You can change the default project and system by changing the value of the *projdir* and *system* ToolInfo variables (see *StP Administration* for details).

Opening an Existing System

You can change the current project and system at any time by using the **Open System** command on the Desktop **File** menu.

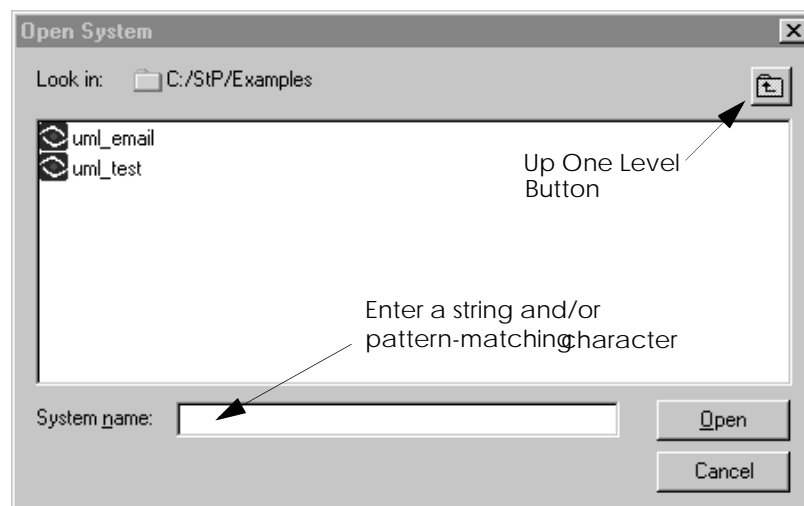
To open an existing system:

1. Do one of these:
 - Click the **Open System** button on the toolbar.
 - From the **File** menu on the StP Desktop, choose **Open System**.

The **Open System** dialog box displays the subdirectories and StP systems for the current directory. Each item is preceded by an icon:

- File folder—Indicates a subdirectory
- Aonix logo—Indicates an StP system

Figure 3: The Open System Dialog Box



2. Locate and display the contents of the project directory in which the system is located, using standard open/save dialog navigational aids.
3. To open a system, do one of the following:
 - Double-click the system name in the directory contents list.
 - Type the system name in the **System Name** field and click **Open**.

Table 10 summarizes the main features of the **Open System** dialog box.

Table 10: Open System Dialog Box Summary

Element	Description
Look In field	Displays the current directory in a read-only text field.
Up One Level button	Displays the contents of the next higher-level directory.
System Name input field	Name of the system to be opened, or a wild card string used to filter the directory contents list.
Open button	Opens the specified system or filters the directory contents list according to a user-specified wild card string in the System Name field.

Copying a System

StP enables you to copy an existing system. You copy the current system and put the copy either in the same project directory as the source system, or in a different project directory.

To copy a system:

1. From the **File** menu on the StP Desktop, choose **Copy System**.
2. In the **Copy System** dialog box, do the following:
 - In the **Old Project Directory** and **Old System Name** fields, type the project directory specification and system name, respectively, for the system you want to copy.
 - In the **New Project Directory** and **New System Name** fields, type the project directory (if different from the default) and system name, respectively, that you want to use for the target system.
3. Click **OK** to copy the specified “old” system to the new project directory under the specified new system name.

Destroying a System

To completely remove a system, including its repository and all of its ASCII files:

1. From the **File** menu on the StP Desktop, choose **Destroy System**.
2. In the **Destroy System** dialog box, specify the project directory and system name of the system you want to destroy.
3. Click **OK** to destroy the system.

Showing System Space

To show the size and available space for the current system’s repository:

1. From the **Repository** menu on the StP Desktop, choose **Maintain Systems > Show System Space**.

A window appears displaying messages about the total data size of the repository for the current system, the space available, and the space used, in megabytes.
2. Click **Close** to dismiss the window.

Performing Basic Desktop Procedures

This section provides brief procedures for some commonly-used Desktop commands. For more information, see your StP product-specific documentation.

Starting an Editor

You can start an StP diagram or table editor from the Desktop to:

- Create a new diagram or table in an empty editor
- Open an existing diagram or table in an editor

To start an empty editor for creating a new diagram or table, do one of the following:

- Open a category, select a diagram or table type, and click the **Start New Editor** toolbar button.
- Open a category, select a diagram or table type, and choose **New** from the Model pane's shortcut menu.
- From the **File** menu, choose **New**; from the **New** submenu, choose a diagram or table type.

Opening an Existing Diagram or Table

To start an editor and simultaneously open a diagram or table in it:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a subcategory of diagram or table types.
A list of diagrams or tables appears in the objects pane.

2. Do one of the following to open the diagram or table:
 - Double-click a diagram or table in the objects pane.
 - Right-click a diagram or table in the objects pane and choose **Open** from the shortcut menu.
 - Select a diagram or table in the objects pane and do any of these:
 - Click the **Open** button
 - Click the **Edit Diagram/Table** toolbar button
 - Choose **Open Diagram** or **OpenTable** from the **File** menu

Printing Diagrams and Tables

From the Desktop, you can print one or more selected diagrams or tables to either:

- The default system printer (diagrams) or Microsoft Word default printer (tables), using default print settings
- A specified file in a specified file format for later editing or printing in a supported publishing product

StP uses the values from a default print setting to control how a diagram or table is printed from the Desktop.

To print diagrams or tables directly to a default printer, use either the:

- **Print Diagram/Table** toolbar button
- **Print Diagram** or **Print Table** command from the **File** menu

To send formatted output for a diagram or table to a specified file in a specified file format, use the **Print Diagram As** or **Print Table As** command on the **File** menu.

You can also incorporate diagrams and tables into reports using the StP Query and Reporting System, and then print them from the Desktop (see *Query and Reporting System*).

For more information on printing diagrams and tables directly to a printer, or sending formatted output to a file, see Chapter 10, “Printing.”

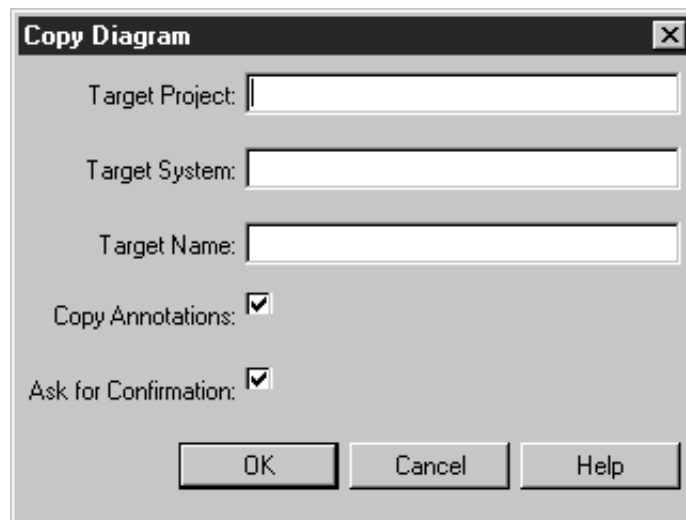
For more information on printing files containing formatted diagram or table output or generated reports, see “Using Supported Publishing Products” on page 10-31.

Copying Diagrams and Tables

To copy a diagram or a table from the Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a diagram or table type.
2. In the objects pane, select the diagram or table you want to copy.
3. Do one of these:
 - Click the **Copy Diagram/Table** toolbar button.
 - From the **File** menu, choose **Copy Diagram** or **Copy Table**.
4. In the **Copy Diagram** dialog box (Figure 4), do the following:
 - Optionally, type entries in the **Target Project** and **Target System** fields.
 - Type a new diagram or table name in the **Target Name** field.
 - Select **Copy Annotations** if you want to copy all of the object annotations in the diagram or table, also.
 - Select **Ask for Confirmation**, if desired (see “Using Dialog Boxes” on page 2-12 for more information).

Figure 4: Copy Diagram Dialog Box



5. Click **OK**.

The diagram or table is copied to the target project, system, and name.

Deleting Diagrams and Tables

You can delete a diagram or table from the Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a diagram or table type.
2. Do one of these:
 - Right-click the diagram or table in the objects pane and choose **Delete** from the shortcut menu.
 - In the objects pane, select the diagram or table you want to delete and do one of the following:
 - Click the **Delete Diagram/Table** toolbar button
 - Choose **Delete Diagram** or **Delete Table** from the **File** menu
3. In the **Delete** dialog box, select **Ask for Confirmation**, if desired (see “Using Dialog Boxes” on page 2-12 for more information).
4. Click **OK**.

Renaming Diagrams and Tables

You can rename a diagram or a table from the Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a diagram or table type.
2. In the objects pane, select the diagram or table you want to rename.
3. From the **File** menu, choose **Rename Diagram** or **Rename Table**.
4. In the **Rename** dialog box, type the new name in the **New Name** field.
5. Click **OK**.

The diagram or table is renamed to the new name.

Searching for Files with Syntax Errors

StP automatically checks for syntax errors when you save diagrams and tables in the StP editors. Diagrams and tables must be syntactically correct for StP to store their contents in the repository. Otherwise, StP stores the data only in the system's ASCII files, along with the syntax errors.

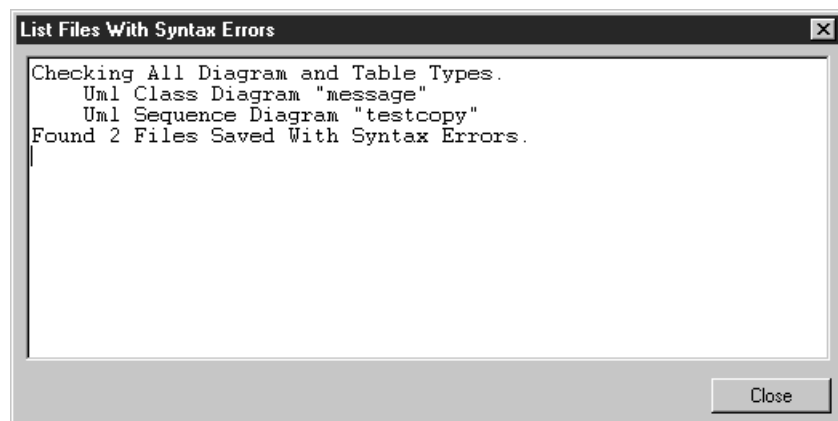
When StP discovers a syntax error, it reports the error in the editor's message area and in the StP Message Log (see "Using the Message Area and Log" on page 2-15).

You can also search for and display a list of all saved files containing syntax errors from the Desktop.

To search for syntax errors in saved files:

1. In the Model pane on the StP Desktop, optionally select a category or subcategory whose files you want to search.
If no category is selected, StP searches all diagram and table files in the current system.
2. From the **Tools** menu, choose **List Files with Syntax Errors**.
A message indicating which files are being searched, as well as the results of the search, appear in a dialog box (Figure 5).

Figure 5: List Files with Syntax Errors Dialog Box



Checking Semantics

A semantic check validates that the contents of diagrams and, where appropriate, their accompanying tables, are meaningful and correct. StP provides the ability to check semantics from both the editors and the Desktop. Semantic checking commands and the types of diagrams and tables for which semantic checking is available depends on the specific StP product (see your product-specific documentation for details).

From the Desktop, you can check the semantics of:

- One or more selected diagrams (or tables, for some products)
- The entire model

Specifying a File and Format for Error Messages

Any error messages generated by the semantic checking process appear in the StP Message Log in the format:

```
<Diagram Editor> | <Diagram Name> | <Message>
```

Additionally, you can direct error messages to appear in a table in one of the following specified formats, as described in the following procedure, “Checking Semantics from the Desktop” on page 3-28:

- MIF (FrameMaker)
- RTF (Microsoft Word)
- HTML

Note: If you do not specify one of these additional formats, you can still save error messages to a file from the Message Log window and print them in an ASCII format.

Checking Semantics from the Desktop

To check semantics from the Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** category (or **Tables** category, if appropriate) and select a subcategory.
2. In the objects pane, select one or more diagrams or tables you want to check.

3. From the **Tools** menu, point to **Check** and choose one of the following:
 - To check the entire model, choose **Semantics for Whole Model**.
 - To check selected diagram(s) or table(s), choose an appropriate semantic checking command, such as **Semantics for Diagram's Objects**.
4. In the **Check Semantics** dialog box, do the following:
 - In the **Output Format** field, specify the format for any generated error messages. The default is **Message Log**.
 - In the **Output File** field, specify the file to contain the error messages, if desired.
5. Click **OK**.

If errors are found, they are reported in the Message Log, as well as in the specified file and format you chose, if any.

4 Drawing Diagrams

This chapter explains how to create and use diagrams using the various diagram editors. Topics covered are as follows:

- “How Diagrams Are Used in StP” on page 4-2
 - “Using the Diagram Editors” on page 4-2
 - “Using the Diagram Editor Menus” on page 4-8
 - “Opening a Diagram” on page 4-16
 - “Undoing, Redoing, and Cancelling Operations” on page 4-19
 - “Inserting Symbols” on page 4-19
 - “Selecting Symbols” on page 4-21
 - “Drawing Arcs and Splines” on page 4-23
 - “Adding Labels to Symbols and Arcs” on page 4-28
 - “Attaching Symbols to Arcs” on page 4-31
 - “Adding Notes or Comments” on page 4-32
 - “Using Display Marks” on page 4-33
 - “Setting Current Symbol Options” on page 4-34
 - “Manipulating Symbols and Arcs” on page 4-40
 - “Aligning Symbols and Arcs” on page 4-45
 - “Searching the Diagram” on page 4-48
 - “Adjusting the Diagram Display” on page 4-50
 - “Filtering Your View of the Diagram” on page 4-54
 - “Inserting a Diagram into Another Diagram” on page 4-55
 - “Saving a Diagram” on page 4-56
 - “Deleting Diagrams” on page 4-57
 - “Validating Diagrams” on page 4-58
-

- “Changing Options” on page 4-59
- “Summary” on page 4-60

How Diagrams Are Used in StP

A diagram is a picture that uses symbols to represent specific concepts. The significance of each symbol depends on the type of diagram being created and the notation being used.

Each type of diagram has different characteristics and is used for a unique purpose. For example, there are diagrams for modeling the interactions between the system and external agents, diagrams for modeling tasks and their relationships, and still other types of diagrams for modeling dynamic states and activity flow within a system. For information about specific types of diagrams, see the documentation provided with your StP product.

Using the Diagram Editors

You create and maintain diagrams using the StP diagram editors. Despite differences among the diagram types, the diagram editors provide consistent features for creating and editing diagrams.

Starting the Diagram Editor

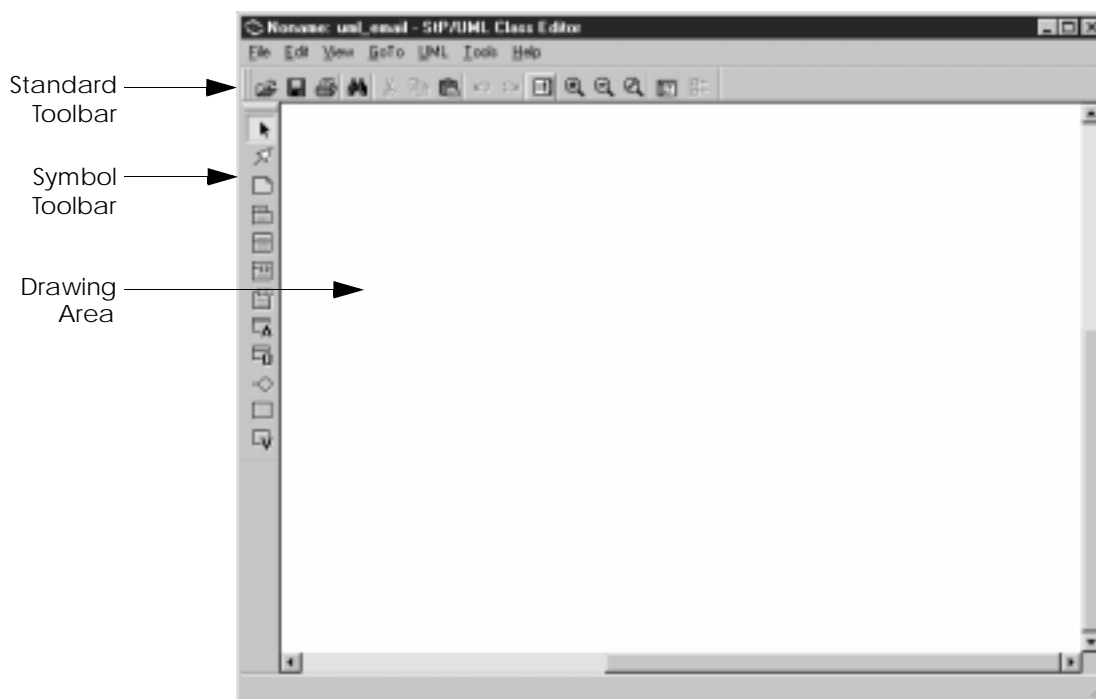
You can start an StP diagram editor from the StP Desktop (as described in Chapter 3, “Using the StP Desktop”).

You can start as many new instances of an empty diagram editor as you like. However, by default, StP opens existing diagrams in the same instance of the editor. To open multiple existing diagrams in different instances of the same editor, see “Opening Multiple Diagrams Concurrently” on page 4-18.

Parts of the Diagram Editor

This section describes the parts of a typical StP diagram editor, as illustrated by the example in Figure 1 (the StP/UML Class Editor). For general information about editor windows, see “Using the Window” on page 2-2.

Figure 1: An StP Diagram Editor



Drawing Area

The drawing area is the “canvas” on which you create a diagram. You insert and manipulate symbols in the drawing area. The drawing area extends beyond the borders of the editor window. Various commands and toolbar buttons allow you to manipulate the drawing area to position the part you want to see in the editor window pane. For more information, see “Adjusting the Diagram Display” on page 4-50.

Standard Diagram Editor Toolbar

The Standard diagram editor toolbar (Figure 2) provides easy access to frequently-used commands. Table 1 describes what each button does. For instructions on using StP toolbars, see “Using Toolbars” on page 2-5.

Figure 2: Standard Diagram Editor Toolbar



Table 1: Standard Diagram Editor Toolbar Buttons
















Button	ToolTip	Description	For details, see
	Open Diagram	Opens a previously saved diagram in the drawing area.	“Opening a Diagram” on page 4-16
	Save Diagram	Saves a previously saved diagram without opening a dialog or activate the Save As dialog to save a new diagram.	“Saving a Diagram” on page 4-56
	Print	Sends an image of the diagram to a printer.	Chapter 10, “Printing”
	Find	Searches the diagram for a specified character string.	“Searching the Diagram” on page 4-48
	Cut	Cuts selections from the diagram and place them on the clipboard.	“Cutting or Copying Elements” on page 4-41
	Copy	Copies selections from the diagram and place them on the clipboard.	

Table 1: Standard Diagram Editor Toolbar Buttons (Continued)

Button	ToolTip	Description	For details, see
	Paste	Pastes the contents of the clipboard.	“Pasting Elements” on page 4-42
	Undo	Undoes the last edit (5 undo levels available).	“Undoing, Redoing, and Cancelling Operations” on page 4-19
	Redo	Redoes the last undo (5 redo levels available).	
	Show/Hide Message Log	Toggles display of the StP Message Log on or off.	“Using the Message Area and Log” on page 2-15
	Zoom In	Scales the diagram larger, to focus on a portion of it.	“Resizing a Diagram” on page 4-50
	Zoom Out	Scales the diagram smaller, to see more of the diagram.	
	Zoom to Fit	Changes scale of diagram to fit and position selected object(s) or entire diagram in center of drawing area.	“Resizing an Entire Diagram to Fit” on page 4-52
	Refresh Display Marks	Refreshes display marks in the diagram.	“Using Display Marks” on page 4-33
	Align	Aligns symbols and arcs in the drawing area.	“Using the Align Dialog Box” on page 4-46

Symbols Toolbar

You use the Symbols toolbar to insert symbols and arcs into the drawing area to create a diagram. Figure 3 shows an example of a Symbols toolbar for the StP/UML Use Case Editor. The Symbols toolbar provides only those symbols that are available for the editor you are currently using. See your product-specific documentation for a description of the symbols available on the Symbols toolbar for each editor.

Figure 3: Symbols Toolbar



You can determine which symbols appear on the Symbols toolbar using the **Symbol Toolbar** tab on the **Options** dialog box. For more information, see “Symbol Toolbar Options” on page 7-18.

Using the Pointer

The pointer is controlled by the mouse. As you move the mouse around the editor window, the pointer changes shape to give you visual cues about its position or the operation you are performing.

Table 2: Diagram Editor Pointer Shapes





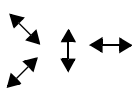


Shape	Description	Position	Activity
	Pointer	Drawing area background	The pointer is on the background of a diagram editor drawing area.
	Pointer with attached symbol shape		You have selected a symbol from the editor's Symbols toolbar and are ready to insert it into the drawing area. The shape attached to the pointer is specific to the selected symbol.
	Pointer with four-pointed cross	Symbol or Arc	The pointer is over a symbol or on an arc in the drawing area.
	Four-pointed cross	Round or circular selection handle, or on a spline point	You are repositioning a selected arc, spline, or symbol by dragging one of its round selection handles to a new position.
	Double-headed arrow	Square selection handle	You are resizing a selected symbol by dragging one of its square selection handles to a new position.
	I-beam	Label text box	You are editing a label or typing characters into a text field in the drawing area.

Table 2: Diagram Editor Pointer Shapes (Continued)

Shape	Description	Position	Activity
	Pointer with transfer symbol attached	Selected object or drawing area background	You have pressed Alt+left mouse button on a selected object to make an exact copy and drag it to a compatible editor.

Using the Diagram Editor Menus

Every StP diagram editor has a set of standard menus displayed in the diagram editor menu bar:

- **File**
- **Edit**
- **View**
- **GoTo**
- **Tools**
- **Help**

Additionally, diagram editors in each StP product have a product-specific menu, such as **UML**, **SE**, or **IM**, which contains commands for product-specific operations.

Each menu lists commands and, if available, their corresponding access keys (mnemonics) and keyboard shortcuts.

Additionally, each diagram editor has two drawing area shortcut menus that are accessed by right-clicking the mouse on a symbol or on the background in the drawing area.

This section describes commands that perform operations on diagrams. For information about the **Help** menu, see “Help Menu” on page 3-16.

File Menu

The **File** menu provides commands for opening, inserting, saving, and printing diagrams, and for exiting the diagram editor, as described in Table 3.

Table 3: File Menu Commands

Command	Description	For Details, See
Open	Opens a previously saved diagram in the drawing area.	“Opening a Diagram” on page 4-16
Insert	Inserts contents of another diagram into the currently open diagram.	“Inserting a Diagram into Another Diagram” on page 4-55
Save	Saves a diagram.	“Saving a Diagram” on page 4-56
Save As	Names and saves a new diagram or renames and saves an existing diagram.	“Using the Save As Dialog Box” on page 4-56
Print	Sends an image of the diagram to a printer.	Chapter 10, “Printing”
Print As	Prints the diagram to a file in a selected format.	
Page Setup	Sets options for printing a diagram.	
(recent file list)	Opens a previously accessed diagram from this list.	“Reopening Diagrams from the Recent Files List” on page 4-18
Exit	Closes an editor window.	“Exiting an Editor” on page 2-19

Edit Menu

The **Edit** menu provides commands for copying, pasting, deleting, and replacing objects in diagrams, and for editing object labels, annotations, and properties, as described in Table 4. The **Tools** menu provides additional commands for manipulating the contents of diagrams (see “Tools Menu” on page 4-13).

Table 4: Edit Menu Commands

Command	Description	For Details, See
Undo	Undoes the last edit (5 undo levels available).	“Undoing, Redoing, and Cancelling Operations” on page 4-19
Redo	Redoes the last undo (5 redo levels available).	
Cut	Cuts selections from the diagram and places them on the clipboard.	“Cutting or Copying Elements” on page 4-41
Copy	Copies selections from the diagram and places them on the clipboard.	
Paste	Pastes the contents of the clipboard.	“Pasting Elements” on page 4-42
Delete	Deletes selections from the diagram.	“Deleting a Symbol, Arc, or Selected Set” on page 4-43
Clear Diagram	Deletes everything from the diagram.	“Clearing the Drawing Area” on page 4-54
Find	Searches the diagram for a specified expression.	“Searching the Diagram” on page 4-48
Replace	Replaces the selection with an appropriate symbol or arc of the user’s choice.	“Replacing a Symbol” on page 4-44

Table 4: Edit Menu Commands (Continued)

Command	Description	For Details, See
List Labels	Provides a scrolling list of object names in the system.	“Selecting a Label from a List” on page 4-30
Rename Object Systemwide	Renames selected object in repository and propagates the change to all references.	StP product-specific documentation
Diagram Annotation	Displays the Object Annotation Editor (OAE) for annotating the diagram.	“Creating Annotations” on page 6-10
Object Annotation	Displays the Object Annotation Editor (OAE) for annotating the selected object.	
Properties	Sets properties for the selected object (not available in some StP editors).	StP product-specific documentation
Current Symbol Options	Sets options for the selected symbol, such as the position of the label, and ViewPoints attached to the symbol.	“Setting Current Symbol Options” on page 4-34

View Menu

The **View** menu provides commands for showing additional editor tools and changing the appearance of the drawing area, as described in Table 5.

Table 5: View Menu Commands

Commands	Description	For Details, See
Normal	Displays the diagram in standard editing mode.	Chapter 10, “Printing”
Page Layout	Displays the diagram within a pagination grid for previewing page breaks.	
Center	Places the diagram in the center of the drawing area.	“Centering the Diagram” on page 4-50
Hide/Show Standard Toolbar	Toggles display of Standard toolbar on or off.	“Using Toolbars” on page 2-5
Hide/Show Symbol Toolbar	Toggles display of StP Symbols toolbar on or off.	
Hide/Show Message Log	Toggles display of the StP Message Log on or off.	“Using the Message Area and Log” on page 2-15
Show Panner	Displays the panner.	“Panning the Diagram” on page 4-52
Show Desktop	Displays the StP Desktop in a separate window.	“Reopening the Desktop from an Editor” on page 3-2
Apply Filter	Applies a pre-defined filter to a diagram.	“Using a Pre-Defined Filter” on page 8-4
Define Filter	Creates or edits a custom filter.	“Defining a Filter” on page 8-13
Zoom	Changes the scale of the diagram view.	“Resizing a Diagram” on page 4-50
Zoom In		
Zoom Out		

Table 5: View Menu Commands (Continued)

Commands	Description	For Details, See
Fit Selection in Drawing Area	Changes scale of selected symbols to fit the drawing area.	“Resizing Part of a Diagram to Fit” on page 4-52
Fit Diagram in Drawing Area	Changes scale of the entire diagram to fit the drawing area.	“Resizing an Entire Diagram to Fit” on page 4-52
Refresh Display Marks	Refreshes display marks in the diagram.	“Using Display Marks” on page 4-33

GoTo Menu

The **GoTo** menu provides commands for displaying (navigating to) another reference to the selected object. These commands use the inherent relationships between repository objects and specific references in diagrams or tables to find and display a related reference to the selected object.

The related reference can be a symbol in the same or a related diagram, or a reference in a table. In some cases, a **GoTo** menu command starts a different editor from a current editor session. The new editor may contain an existing related diagram or table, or the beginning of a new, related diagram or table that needs to be completed. When you navigate to another editor, the current session continues.

The **GoTo** menu provides product and context-sensitive commands for navigation. For details, see your StP product-specific documentation.

Tools Menu

The **Tools** menu provides commands for checking the current diagram, manipulating the contents of diagrams and tables, and changing editor options, as described in Table 6.

Table 6: Tools Menu Commands

Command	Description	For Details, See
Check Syntax	Checks a diagram to validate that the drawing is correct.	“Validating Diagrams” on page 4-58
Check Semantics	Checks the repository to validate that objects are properly defined.	
Align	Aligns symbols and arcs in the drawing area.	“Using the Align Dialog Box” on page 4-46
Delete Spline Points	Deletes coordinates from a curved arc (spline).	“Drawing Splines” on page 4-26
Attach to Arc	Attaches a symbol to an arc.	“Attaching Symbols to Arcs” on page 4-31
Accept/Reject Remote Access	Accepts or rejects remote StP messages to load a different diagram in the current editor window (determines whether StP starts additional instances of an editor, when needed).	“Remote Messages” on page 4-59
Options	Changes the appearance and behavior of various aspects of the editor.	“Changing Options” on page 4-59 and “Diagram Editor Options” on page 7-8

Drawing Area Shortcut Menus

StP provides two drawing area shortcut menus that allow quick access to a subset of frequently-used diagram editor commands:

- Object shortcut menu (right-click on an object)
- Diagram shortcut menu (right-click anywhere else in the drawing area)

Table 7 and Table 8 list the standard set of commands that may appear on these menus and where each is described.

Table 7: Object Shortcut Menu

Commands	Description	For Details, See
Cut	Cuts selection and places it on the clipboard.	“Cutting or Copying Elements” on page 4-41
Copy	Copies selection and places it on the clipboard.	
Paste	Pastes the contents of the clipboard.	“Pasting Elements” on page 4-42
Delete	Deletes selection from the diagram.	“Deleting a Symbol, Arc, or Selected Set” on page 4-43
Replace	Replaces the selection with an appropriate symbol or arc of the user’s choice.	“Replacing a Symbol” on page 4-44
List Labels	Provides a scrolling list of object names in the StP system.	“Selecting a Label from a List” on page 4-30
Object Annotation	Displays the Object Annotation Editor (OAE) for annotating the selected object.	“Creating Annotations” on page 6-10
Properties	Sets properties for the selected object (not available in some editors).	Product-specific documentation
Current Symbol Options	Sets options for the selected symbol, such as label position and ViewPoints.	“Setting Current Symbol Options” on page 4-34
Refresh Display Marks	Refreshes display marks in the diagram.	“Using Display Marks” on page 4-33

Table 8: Diagram Shortcut Menu

Command	Description	For Details, See
Check Syntax	Checks a diagram to validate that the drawing is correct.	“Validating Diagrams” on page 4-58
Check Semantics	Checks the repository to validate that objects are properly defined.	
Paste	Pastes the contents of the clipboard.	“Pasting Elements” on page 4-42
Zoom In	Changes the scale of the diagram view.	“Resizing a Diagram” on page 4-50
Zoom Out		
Align All Links	Adjusts vertical and horizontal alignment of all arcs in diagram.	“Aligning All Links” on page 4-48
Diagram Annotation	Displays the Object Annotation Editor (OAE) for annotating the diagram.	“Creating Annotations” on page 6-10
Refresh Display Marks	Refreshes display marks in the diagram.	“Using Display Marks” on page 4-33

Opening a Diagram

You can start a new diagram or open an existing one from the StP Desktop or from an StP editor, as summarized in Table 9.

Table 9: Opening a New or Existing Diagram

Command or Button	From	Description	For Details, See
Start New Editor button	Desktop Standard toolbar	Starts a diagram editor with a blank drawing area.	“Starting an Editor” on page 3-23
New command	Desktop File menu		
Edit Diagram/ Table button	Desktop Standard toolbar	Opens a selected diagram.	“Opening an Existing Diagram or Table” on page 3-23
Open Diagram command	Desktop File menu		
Open Diagram button	Editor’s Standard toolbar	Displays the Open dialog box for opening a new or existing diagram.	“Using the Editor’s Open Dialog Box” on page 4-17
Open command	Editor’s File menu		
(recent files list)	Editor’s File menu	Opens a previously accessed diagram.	“Reopening Diagrams from the Recent Files List” on page 4-18

Using the Editor’s Open Dialog Box

The diagram editor’s **Open** dialog box contains a list of existing diagram names and a **Selection** field.

To use the **Open** dialog box:

1. Click the **Open Diagram** button on the Standard toolbar, or choose **Open** from the **File** menu.
The **Open** dialog box appears.
2. Optionally, to filter the list of diagram names, type a string including an asterisk (*) wild card in the **Selection** field and press Enter or click **Open**.

3. To open a diagram, do any of the following:
 - Double-click a diagram name in the scrolling list.
 - Select a diagram name from the scrolling list and press Enter or click **Open**.
 - Type a new or existing filename in the **Selection** field and press Enter or click **Open**.

Reopening Diagrams from the Recent Files List

StP maintains a sequential list of the last four diagrams you previously accessed in the current system, whether you modified them or not. The list is preserved between sessions and appears on the editor's **File** menu.

You can reopen any of these diagrams by selecting its name from the **File** menu.

Opening Multiple Diagrams Concurrently

You can start as many instances of an empty diagram editor as you like, using the **New** command on the Desktop **File** menu. However, by default, StP opens existing diagrams of the same type in the same instance of the editor, replacing the current diagram. You can change the default behavior to allow StP to start additional instances of an editor when opening other diagrams. To do so, you must change the editor's response to remote messages that load diagrams from the Desktop or from other editors.

To open two or more existing diagrams of the same type concurrently, in separate instances of the editor:

1. Open the first diagram using any preferred method.
2. From the **Tools** menu, choose **Reject Remote Access**.
3. From the Desktop, open another diagram of the same type.
StP retains the current editor session, and starts another session of the same editor with the additional diagram.

Note: You must open the additional diagrams from outside the editor. Opening a diagram from within the editor is unaffected by the **Reject Remote Access** command.

For more information about setting the editor's response to remote messages, see "Remote Messages" on page 4-59.

Undoing, Redoing, and Cancelling Operations

While working in the editor, you may need to undo an operation, redo an operation, or cancel an operation before completing it.

Five levels of **Undo** and **Redo** are available. To undo or redo an operation, choose one of the following commands from the **Edit** menu:

- **Undo**—Undo the most recent operation(s), one at a time, up to the limit of undo levels
- **Redo**—Re-execute the operation(s) you undid, one at a time, up to the limit of redo levels

You can also cancel the following operations by pressing the Esc key before completing them:

- Editing a label on a symbol or arc
- Resizing a symbol
- Moving an arc
- Selecting a set of symbols and arcs using a bounding box

Inserting Symbols

A symbol is a shape that has a particular meaning in the context of a particular type of diagram. For example, a rectangle represents a "class" in a class diagram (in StP/UML), or an "entity" in an entity-relationship diagram (in StP/IM).

An arc is a special symbol that is drawn as a line linking other symbols. For more information about arcs, see "Drawing Arcs and Splines" on page 4-23.

A collection of symbols forms a notation. For details about the notations used in StP diagrams, see the documentation provided with your StP product.

You insert symbols into the drawing area from the Symbols toolbar. The symbols have default dimensions, which you can set as options on the **Symbol Type** tab of the diagram editor **Options** dialog box (see “Symbol Type Options” on page 7-16).

Inserting a Symbol

To insert a symbol in the drawing area:

1. Click a symbol on the Symbols toolbar to select it.
The pointer shows a representation of the selected symbol.
2. Position the pointer in the drawing area where you want the symbol to appear and click the left mouse button to insert it.

Inserting Multiple Symbols

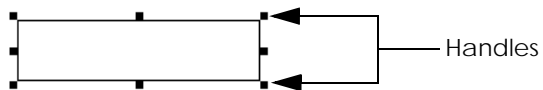
To insert multiple symbols of the same type in the drawing area:

1. Double-click a symbol on the Symbols toolbar.
The hollow white pointer changes to solid black, with a representative symbol shape attached to it.
2. Position the pointer and click the left mouse button in the drawing area as many times as needed to insert multiple symbols of the same type.
3. To terminate multiple symbol entry mode, single-click the **Selection** tool button or any other symbol on the Symbols toolbar.

Selecting Symbols

When a symbol first appears in the drawing area, it displays selection handles.

Figure 4: Symbol with Selection Handles



The handles indicate that the symbol is the currently selected part of the diagram. You can perform any operation on a part of the diagram (such as moving or deleting a symbol) by selecting it first.

Three types of handles appear in the diagram.

Table 10: Handle Shapes

Shape	Description	Indicates
	Square handles	The selected symbol can be moved and scaled.
	Round handles	The selected symbol can be moved, but not scaled.
	Circular handles	The selection is a point, such as a vertex or spline point.

Selecting a Symbol or Arc

To select a symbol or arc:

1. Position the pointer on the symbol or arc.
A four-pointed cross appears, attached to the pointer.
2. Click the left mouse button.
Selection handles appear on the symbol.

Adding to a Selection

To select multiple symbols or arcs simultaneously:

1. After selecting the first object, point to another symbol or arc.
2. Press the Shift key and click the left mouse button.
3. Repeat steps 1 and 2 for each additional symbol you want to select.
Selection handles appear on all the selected object(s), as well as your initial selection.

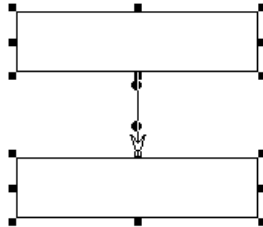
Selecting an Area of the Diagram

To select an area of the diagram, and therefore, all the symbols and arcs within that area:

1. Point to a corner of the area you want to select and press the left mouse button.
2. Drag the pointer diagonally across the area to be selected.
A bounding box appears around the perimeter of the selected area. If you move the pointer out of the drawing area, the drawing area scrolls to display your entire selection.
3. Release the left mouse button.

Selection handles appear on all the symbols and arcs within the selected area. The selected area is called a “selected set.”

Figure 5: A Selected Set



To cancel area selection before completing it, press Esc. StP cancels the bounding box.

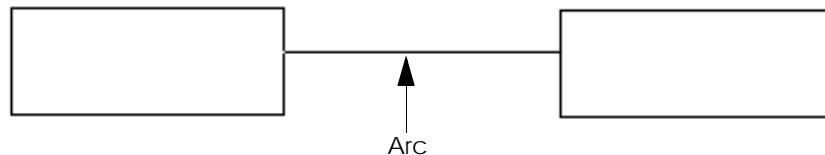
Cancelling a Selection

To cancel a completed selection of one or more symbols or arcs, click the left mouse button anywhere in the drawing area away from the selected area. All of the selection handles disappear.

Drawing Arcs and Splines

An arc is a link, drawn as a line, between symbols in a diagram (Figure 6). A spline is a curved arc. You draw an arc or spline with the Arc or Spline tool on the Symbols toolbar.

Figure 6: An Arc



Arc Types

Each type of arc has a particular meaning in each diagram editor. In an StP/UML class diagram, for example, an arc that connects two classes represents an association (Figure 6). Arcs vary in line style and thickness. Certain types of arcs in some notations have arrowheads at one end.

You draw an arc from a source symbol to a destination symbol. Source and destination symbols are not interchangeable; it is important to draw the arc in the proper direction. Depending on the type of arc drawn, direction may or may not be indicated by an arrowhead. Refer to the documentation provided with your StP product for more information about source and destination symbols.

You can change the default arc type associated with the Arc and Spline toolbar buttons using the **Default Arc** tab on the diagram editor **Options** dialog box (see “Default Arc Options” on page 7-11).

Drawing a Single Arc

To draw one arc at a time:

1. Click the Arc symbol to select it on the Symbols toolbar.
The pointer changes to an arc symbol.
2. Click the source symbol in the drawing area.
An arc appears, with one end attached to the source symbol and the other end attached to the pointer.
3. Click the destination symbol to attach the other end of the arc.

To cancel the drawing operation at any time before completing the arc, press Esc.

Drawing Multiple Arcs

To draw multiple arcs of the same type:

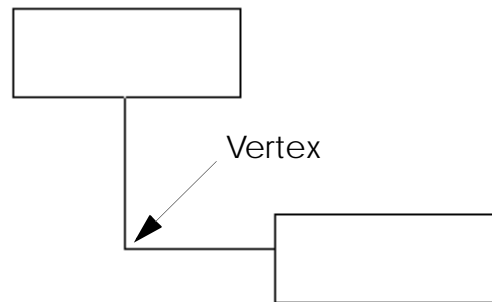
1. Double-click the Arc symbol on the Symbols toolbar.
2. Click a source symbol in the drawing area to start drawing the arc.
3. Click the destination symbol to attach the arc.

4. Repeat steps 2 and 3 to draw other arcs, as needed.
5. To terminate multiple arc-drawing mode, single-click the **Selection** tool button or any other symbol on the Symbols toolbar.

Inserting a Vertex

A vertex is a point where an arc bends. Vertices make it possible for you to draw arcs without intersecting symbols in the diagram.

Figure 7: An Arc with a Vertex



To insert a vertex while drawing an arc:

1. Begin drawing the arc from the source symbol.
2. Before reaching the destination symbol, click the left mouse button in the drawing area where you want the vertex to appear.
3. Connect the arc to the destination symbol.

To cancel the drawing operation at any time before completing the arc, press Esc. StP cancels the drawing operation from the last vertex inserted. Continue pressing Esc to cancel more portions of the arc.

To insert a vertex after the arc is drawn:

1. Point to the place on the arc where you want the vertex to appear.
2. Press the left mouse button and drag the arc to the desired position for the new vertex.

The vertex appears, surrounded by a circular selection handle.

Drawing Orthogonal Arcs

Orthogonal arcs consist of only horizontal and vertical line segments. To maintain orthogonality, a right-angle vertex appears automatically where necessary. Depending on the type and complexity of your diagram, orthogonal arcs can help to reduce clutter. Also, some notations traditionally use only orthogonal arcs.

The ability to draw orthogonal arcs is set using the **Orthogonal Arcs** option on the **Drawing Area** tab of the **Options** dialog box. This option appears dimmed on the dialog box tab if it is not applicable to your StP product. Once you have selected this option, StP draws all new arcs orthogonally. Existing arcs are not affected; however, moving an existing non-orthogonal arc changes it to an orthogonal arc.

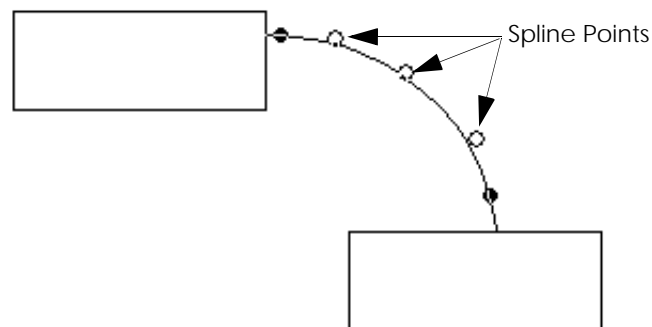
If you want to convert existing non-orthogonal arcs to orthogonal arcs after setting the orthogonal arcs option, detach and reattach or move the arc.

For more information on the orthogonal arcs option, see “Drawing Area Options” on page 7-14.

Drawing Splines

A spline is a curved arc. StP plots the curve of the spline using spline points that you insert in the drawing area.

Figure 8: Spline Points



To draw a spline:

1. Select the Spline symbol on the Symbols toolbar.
2. Begin drawing the spline from the source symbol, as you would an arc.
3. Before reaching the destination symbol, click the left mouse button in the drawing area where you want each spline point to be.
4. Connect the spline to the destination symbol.

To cancel the drawing operation at any time before completing the spline, press Esc. StP cancels the drawing operation from the last spline point inserted. Continue pressing Esc to cancel more portions of the spline.

To reshape the spline, reposition individual spline points by pointing to each one and dragging it to a new location.

To delete all spline points:

1. Select the arc.
2. From the **Tools** menu, choose **Delete Spline Points**.

Redirecting an Arc

You can redirect an arc from one symbol to another:

1. Select the arc.
2. Point to a selection handle, press the left mouse button and drag the arc to the new source symbol or destination symbol.

To insert a vertex while redirecting the arc, release the left mouse button in the drawing area while dragging the arc; then click on the new source or destination symbol to reconnect it.

Adding Labels to Symbols and Arcs

You can type labels on each symbol in the diagram. Some notations allow you to label arcs also. In some editors, arcs can only be labeled using a menu command. Check your StP product documentation for details about labeling arcs.

A label can have up to five 80-character lines of text. Figure 9 illustrates symbol labels.

Figure 9: Symbol Labels



Symbol labels are sometimes used to generate filenames. Since Windows NT filenames are case-insensitive, you should avoid creating labels that differ only in capitalization.

Typing Labels Manually

When you first insert a symbol into the diagram, StP automatically displays a text box for you to enter a label.

To type or edit a label on a symbol (or arc, where permitted):

1. Insert a new symbol, or double-click an existing symbol or arc.
A text box appears on the symbol or arc, and the pointer changes to an I-beam for text editing. If the symbol or arc is already labeled, the label appears highlighted.
2. Type or edit the label, using standard editing keys.
3. To terminate label editing, press Enter or click the left mouse button anywhere outside the symbol or arc.
The pointer returns to its original shape.

StP provides full text-editing support for label entry. Some keys you can use are:

- Arrow keys—Move the pointer within the label
- Ctrl+Enter—Break to a new line (you may need to expand the cell to see the new line)
- End key—Position the pointer at the end of the label
- Home key—Position the pointer at the beginning of the label
- Backspace or Delete key—Delete highlighted characters, or delete one character to the left (Backspace) or right (Delete) of pointer
- Esc to cancel all current edits and terminate label editing

Alternatively, you can use the **Current Symbol Options** dialog box to edit existing symbol labels. For more information, see “Setting Current Symbol Options” on page 4-34.

Completing Partial Labels

StP can complete a partially labeled symbol in a diagram from an existing name in your system. Name completion matches the partial label with those in the system. Alternatively, you can use name selection to label a symbol. For details, see “Selecting a Label from a List” on page 4-30.

To use name completion:

1. Select the symbol's label.
2. Type the first few characters of the name.
3. Press Tab.

If there is a unique match, StP completes the label.

If multiple matches are found, StP completes the label as far as possible, then displays a message, such as “2 matches found...” in the message area.

4. If necessary, type additional characters in the symbol's label and repeat steps 2 and 3 until StP finds a single match and enters it into the symbol's label.

Selecting a Label from a List

StP enables you to label a blank symbol by selecting from a list of names in the system.

To use name selection:

1. Select a symbol's empty label or type a partial label for the symbol.
2. Press Ctrl+Tab, or choose **List Labels** from the **Edit** menu or object shortcut menu.

The **List Labels** dialog box appears with a list of available names from which you can select a label.

If you typed a partial label before invoking this dialog box, the list contains only those names that match the characters you typed. If a unique match is found, StP completes the label.

3. Optionally, to filter the list, type a string including an asterisk (*) wild card in the **Selection** field and click **OK**.
4. To select a name, do any of the following:
 - Double-click a name in the scrolling list.
 - Select a name from the scrolling list and click **OK**.
 - Type the name in the **Selection** field and click **OK**.

Copying Text to Labels from Other Sources

You can label symbols by copying and pasting:

- Labels from other StP symbols
- Text from other applications, such as Microsoft Word

To label a symbol with copied text:

1. Copy the text from another StP label or Windows NT application.
2. Select the target symbol's label in a diagram.
3. Press Ctrl+V or choose the **Paste** command on the **Edit** menu or object shortcut menu to paste the text into the label.

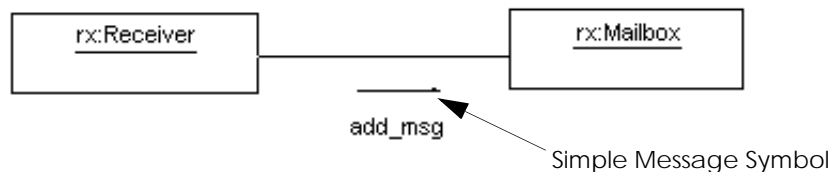
Controlling Label Placement

You can control the placement and alignment of the currently selected symbol's label, using the **Position** and **Alignment** group options on the **Current Symbol Options** dialog box. For more information, see "Setting Current Symbol Options" on page 4-34.

Attaching Symbols to Arcs

In some StP editors, certain symbols must be attached to an arc. Figure 10 shows a section of a collaboration diagram in the StP/UML Collaboration Editor. In this example, a simple message symbol is attached to an arc.

Figure 10: Symbols Attached to Arcs



To attach a symbol to an arc initially:

1. Select an appropriate symbol from the Symbols toolbar.
2. Drop the symbol on or near the arc.

StP attaches the symbol to the nearest arc.

You can reposition the symbol in relation to the arc, once it is attached. If you move the arc, the symbol moves with it.

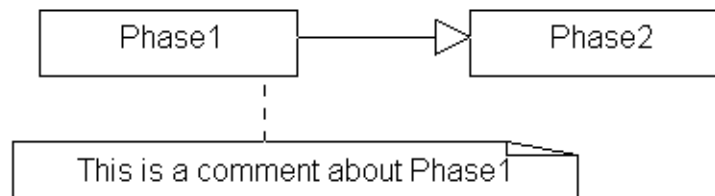
To associate the symbol with a different arc:

1. Drag the symbol from its current arc to the new one.
2. Select both the new arc and the symbol to be attached to it.
3. On the **Tools** menu, choose **Attach to Arc**.

Adding Notes or Comments

A note or comment is a symbol that enables you to enter text about the diagram or about another symbol. You cannot enter a note or comment about a vertex or another note or comment. A note or comment can have up to five 80-character lines of text.

Figure 11: A Comment



Arcs connect notes or comments to a symbol. A note or comment without an arc is implicitly linked to the diagram.

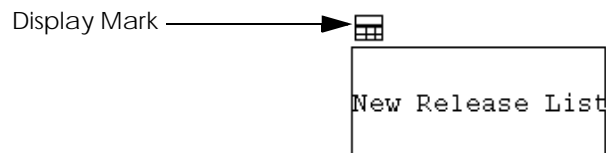
To insert a note or comment:

1. Select the note or comment symbol from the Symbols toolbar and insert it in the drawing area.
A text box appears on the note/comment symbol, and the pointer changes to an I-beam for text editing.
2. Type the comment text.
Optionally, to break to a new line, press Ctrl+Enter.
3. To terminate comment editing, press Enter or click the left mouse button anywhere outside the note/comment symbol.
4. If applicable, draw an arc from the note or comment to the appropriate symbol.

Using Display Marks

A display mark is a read-only symbol or string that appears in a diagram. Usually, display marks indicate annotations associated with a particular object. For example, in several StP diagram editors, there is a display mark that indicates that a related table exists for a symbol (illustrated in Figure 12).

Figure 12: Table Exists Display Mark



Each type of diagram has a particular set of display marks. For more information about display marks for specific editors, see the StP product documentation for the editor.

Display marks are stored in the repository, but do not always appear on the diagram in the editor, depending on how the display mark options are set. Also, as you edit your diagram, display marks that appear on the diagram may become outdated and need to be refreshed.

You can specify which display marks appear and when they are refreshed, using the following options on the **Display Marks** tab of the **Options** dialog box:

- Continuous Refresh
- Refresh On Demand
- Do Not Display

To display the **Options** dialog box, choose **Options** from the **Tools** menu. For details about the **Display Marks** tab, see “Display Marks Options” on page 7-12.

Setting Current Symbol Options

The **Current Symbol Options** dialog box (Figure 13) allows you to set the following options for certain symbols:

- Label position and alignment
- Size, either explicitly or in relation to its label
- Designation as a ViewPoint

The dialog box options are applied to the current (selected) symbol only. Some options are available for only certain types of symbols. If the option is not available for the selected symbol, it either does not appear on the dialog or it appears as a read-only field.

Figure 13: Current Symbol Options Dialog Box

Current Symbol Options

Label

sender known

Position: North

Alignment

Horizontal: Default

Vertical: Default

Size

Symbol Height: 1.500000

Symbol Width: 2.500000

☐ Shrink around label

☒ Expand when label grows

Info

Symbol Type: CompositeState

Symbol ID: 14

View Points

☐ UmlRefinedState

OK Cancel Apply Help

Table 11 summarizes the **Current Symbol Options** dialog box.

Table 11: Current Symbol Options Summary

Element	Description	Settings
Label input field	Displays the label of the current symbol in an editable field.	Any valid symbol label
Alignment group	Controls justification of the label within the confines of the area specified by the Position option.	Horizontal —Default, Left, Center, or Right
		Vertical —Default, Top, Center, or Bottom
Position option	Controls label placement in a designated area of the symbol. This option is available only for symbols specified in your rules file as candidates for alternate label placement. By default, most symbol labels are centered.	NorthWest—upper left corner of symbol
		West—center left side of symbol
		SouthWest—lower left corner of symbol
		North—upper center of symbol
		Center—centered
		South—bottom center of symbol
		NorthEast—upper right corner of symbol
		East—center right side of symbol
		SouthEast—bottom right corner of symbol
Symbol Height field	Displays the scale of the current symbol in inches. These fields are editable when the shrink and expand options are not selected.	Vertical scale
Symbol Width field		Horizontal scale

Table 11: Current Symbol Options Summary (Continued)

Element	Description	Settings
Shrink around label option	Reduces the scale of the selected symbol to accommodate a shorter label, as needed.	Selected—Shrinks the symbol, as needed Not selected—Does not shrink symbol
Expand when label grows option	Increases the scale of the selected symbol to accommodate a longer label, as needed.	Selected—Expands the symbol, as needed Not selected—Does not expand symbol
Symbol Type field	Lists the type of the current symbol.	Read-only
Symbol ID field	Provides the symbol ID of the current symbol.	
ViewPoints group	Designates the current symbol as a ViewPoint. The types of ViewPoints that appear in this dialog box depend on which StP product you are using.	Selected—Current symbol is a designated ViewPoint
		Not selected— Current symbol is not a ViewPoint

Editing Label Placement

The **Position** option on the **Current Symbol Options** dialog box controls label placement in a designated area of the symbol. Choices are based on a geographical map construct (for example, **North**, **NorthWest**, **West**, and so on). The **Alignment** group options control the label's justification within the general area specified by the **Position** option.

To modify a symbol's label position and alignment:

1. Select the symbol.
2. From the **Edit** menu, choose **Current Symbol Options**.

The **Current Symbol Options** dialog box appears.

3. In the **Label** group, do any of the following:
 - In the **Position** field, display the options list and select an option for the area of the symbol in which you want to place its label.
 - In the **Vertical** and **Horizontal** fields of the **Alignment** group, display the options lists and select options to align the label.
4. Click **OK** or **Apply** to apply the changes.

Modifying Symbol Size

Using the **Size** group options, you can scale a selected symbol by either:

- Selecting an option to shrink or expand the symbol, as needed, relative to its label
- Explicitly specifying its height and width in inches

The shrink and expand options take effect immediately on the current symbol, if appropriate. They also operate dynamically, shrinking and/or expanding the symbol, as needed, when its label is edited.

To modify a symbol's size:

1. Select the symbol.
2. From the **Edit** menu, choose **Current Symbol Options**.
The **Current Symbol Options** dialog box appears.
3. In the **Size** group, modify the symbol's size, as desired:
 - Select the **Shrink around label** option to reduce the symbol's size to fit its label.
 - Select **Expand when label grows** to expand the symbol's size to fit its label.
 - With the shrink and expand options unselected, edit the **Height** and/or **Width** fields.
4. Click **OK** or **Apply** to apply the changes.

Designating Symbols as ViewPoints

In StP, one object can have several references (symbols) in one or more diagrams for a system. In a large model it is possible to have several references that show different information about one object, such as its relationships to other objects. StP enables you to centralize some information about certain objects by designating one reference that has the relevant information as a particular ViewPoint for the object.

For example, in StP/UML, you can have several references to a class, and each reference can show a subset of all the class's operations. This decentralization of operations could lead to confusion. To avoid this, you can draw one reference to the class, attach all the class's operations to the reference, and designate it as the *All Members* ViewPoint. This means that even though there are several references to the class that have operations, only the designated ViewPoint shows all the operations.

Each StP product editor provides ViewPoint choices that are specific to the method supported by that editor. ViewPoints are not available for all symbols. For information about specific editor ViewPoints, see your StP product documentation.

Once a ViewPoint exists in a system, StP can navigate to it from various places in the same system. For more information about navigating to Viewpoints, see your StP product documentation.

To designate a ViewPoint:

1. Select a symbol.
2. From the **Edit** menu, choose **Current Symbol Options**.
The **Current Symbol Options** dialog box appears.
3. In the **ViewPoints** group, select an appropriate ViewPoint, if available for this symbol.
4. Click **OK** or **Apply**.

Manipulating Symbols and Arcs

As you create or edit a diagram, you can manipulate its contents by:

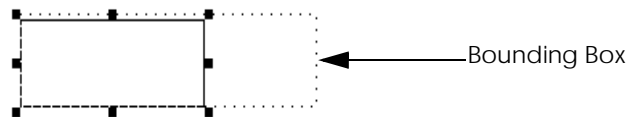
- Scaling symbols
- Moving symbols and arcs
- Cutting, copying, and pasting symbols and arcs
- Deleting symbols and arcs
- Replacing symbols and arcs

Scaling Symbols

You can scale a symbol in the diagram by dragging a square selection handle; the symbol scales accordingly. Symbols with round selection handles cannot be scaled.

As you scale the symbol, a dotted bounding box appears.

Figure 14: Scaling a Symbol



To scale a symbol:

1. Select the symbol and point to a selection handle.
The pointer changes to a double-headed arrow.
2. Press the left mouse button and drag the handle until the bounding box depicts the desired size.
3. Release the left mouse button.

To cancel scaling, press Esc before releasing the mouse button.

You can also activate or deactivate an automatic scaling option for a selected symbol, which expands or contracts the symbol to fit its label, as needed. To set this option, see “Setting Current Symbol Options” on page 4-34.

Moving Symbols and Arcs

You can reposition any symbol by selecting and dragging it to a new location. Arcs move with their associated symbols, but you must move each vertex individually. To move an arc's vertex, select it and drag it to a new location.

You can also move selected sets; in this case, vertices move with the selected set.

To move an arc, you detach and move one end at a time. You cannot move an entire arc at once. For more information, see "Redirecting an Arc" on page 4-27.

Cutting, Copying, and Pasting Elements

You can cut or copy one or more objects, or an area of the diagram, to the clipboard. You can then paste the contents of the clipboard into the same diagram or another diagram of the same or a compatible type. In some editors, you can also copy objects between compatible editors using a drag and drop operation (see "Copying Objects Using Drag and Drop" on page 4-42).

Individual arcs cannot be cut, copied, or pasted.

The text of a label can be cut, copied, or pasted without regard to the type of symbol, arc, or diagram you are working with. You can also paste text from the Windows NT clipboard into the label on any symbol or arc. To cut, copy, or paste text in a label, you must first select the label by double-clicking the object.

Elements remain on the clipboard until you cut or copy again, or until you exit a session.

Cutting or Copying Elements

To cut or copy one or more elements:

1. Select the elements to be cut or copied.
2. From the **Edit** menu or object shortcut menu, choose **Cut** or **Copy**.

Pasting Elements

To paste the clipboard contents into a diagram or label:

1. Place the pointer on the diagram or select the label where you want to paste the clipboard contents.
2. From the **Edit** menu or object shortcut menu, choose **Paste**.
The pasted element appears in the diagram with selection handles showing.

Copying Objects Using Drag and Drop

In some editors, you can use a drag and drop operation to copy an object or group of objects:

- Within an editor
- Between compatible editors

The drag and drop operation copies certain semantics of the selected object and pastes the results in the target location, while preserving the original object in the source diagram.

The semantics that are copied depend on the editors involved. Using drag and drop between editors is product-specific. See your product documentation for more information.

To copy one or more objects within one editor:

1. Select the object(s) you want to copy.
2. Hold down the Ctrl key and with the left mouse button begin dragging the pointer away from the selected object.
A copy of the object appears attached to the pointer.
3. Continue dragging the copy of the object(s) to the target diagram or location.
4. Release the mouse button to drop the copy in the drawing area; then release the Ctrl key.

To copy objects between compatible editors:

1. Select the object(s) you want to copy.
2. Hold down the Alt key and with the left mouse button begin dragging the object(s).
The pointer changes shape to indicate a copy and transfer operation.
3. Release the Alt key.
4. Position the pointer in the second editor's drawing area and release the mouse button.

Deleting and Replacing Symbols and Arcs

You can delete any selection in the diagram; you can also replace a selection:

- **Delete** removes the selection from the diagram without saving it to the clipboard.
- **Replace** exchanges the selected symbol or arc with another appropriate symbol or arc type.

Delete and **Replace** are available from the **Edit** menu and the object shortcut menu.

To delete the entire contents of a diagram, use the **Clear Diagram** command on the **Edit** menu (see "Clearing the Drawing Area" on page 4-54 for more information).

Deleting a Symbol, Arc, or Selected Set

When you delete a symbol with attached arcs, the arcs are also deleted. When you delete an arc, only the arc and its vertices are deleted.

To delete a symbol, arc, or selected set:

1. Select the symbol, arc, or set to be deleted.
2. From the **Edit** menu or object shortcut menu, choose **Delete**.

Replacing a Symbol

In some cases, a symbol on your diagram can be replaced by a symbol of another type, using the **Replace** command. If the selected symbol cannot be replaced, this command is dimmed.

To replace a symbol:

1. Select the symbol to be replaced.
2. Select an appropriate replacement from the Symbols toolbar.
3. From the **Edit** menu, choose **Replace**.
StP makes the replacement. The new symbol retains the label and arc connections of the original symbol.

Replacing an Arc

To replace an arc, you select a different link type from a dialog box:

1. Select the arc to be replaced.
2. From the **Edit** menu or object shortcut menu, choose **Replace**.
If only one other arc type is appropriate, StP makes the replacement, and you are done.
Otherwise, the **Replace Arc Type** dialog box appears with a list of appropriate arc types.
3. From the **Replace Arc Type** dialog box, select an arc type and click **OK** or **Apply**.
StP makes the replacement. The arc retains its original label and symbol connections.

Aligning Symbols and Arcs

As you develop a diagram, you may encounter common problems of appearance, such as misaligned symbols or general clutter. To improve the placement of symbols and arcs, you can:

- Display a grid and adjust the grid “snap points” in the drawing area
- Specify how StP should align selected symbols in relation to the grid lines
- Align links so that they are parallel to a vertical or horizontal axis, if possible

Using the Grid

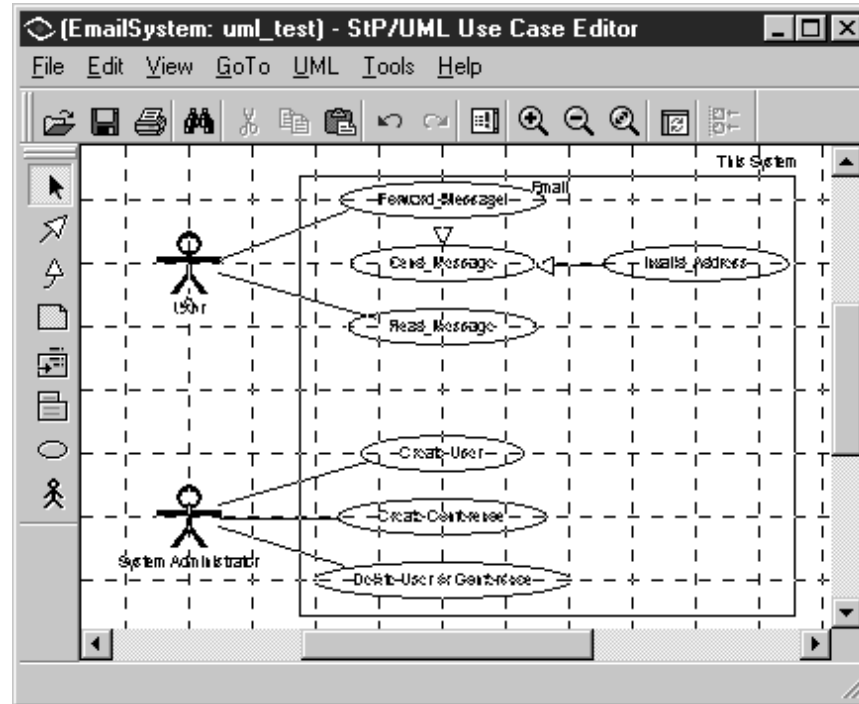
When you insert a symbol in the drawing area, StP centers the symbol on the closest intersection of lines in an underlying grid in the drawing area. Using the **Drawing Area** tab on the **Options** dialog, you can:

- Set the width of the space separating the grid lines
- Display or hide the grid

To adjust the grid lines, you specify the number of pixels that separate them. The smaller settings provide you with more control over symbol placement. Grid line spacing changes according to scale when you use a **Zoom** or **Fit** command (see “Adjusting the Diagram Display” on page 4-50).

Figure 15 shows an example of a displayed grid. The ability to display the grid is determined by the current zoom level and the granularity of the requested grid. You cannot display the grid at very small grid space settings and low zoom levels, as this would create a nearly solid black screen. In order to display the grid, the grid setting must be at least 16 pixels, with the zoom setting at 100 percent.

Figure 15: The Grid



To access the grid options, choose the **Options** command on the **Tools** menu and select the **Drawing Area** tab on the **Options** dialog box. For more information, see “Drawing Area Options” on page 7-14.

Using the Align Dialog Box

You can specify the placement of selected symbols in the drawing area, using the **Align** dialog box (Figure 16) to:

- Evenly distribute symbols horizontally or vertically
- Align the symbols in a specific way, relative to the lines in the drawing area grid (centered, left, right, top, bottom)

Table 12 describes the **Align** dialog box options.

Figure 16: The Align Dialog Box

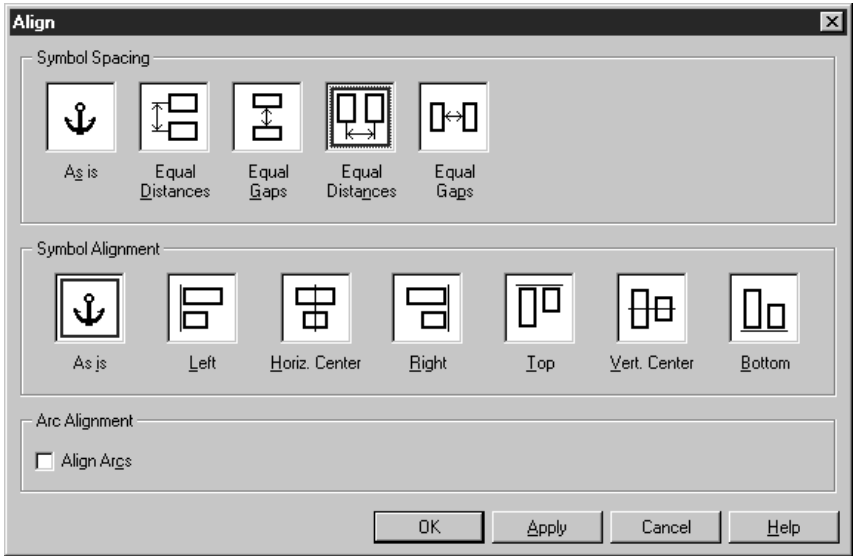


Table 12: Align Dialog Box Summary

Element	Description
Symbol Spacing options	Evenly distributes the selected symbols horizontally or vertically, as indicated by selected exclusive option.
Symbol Alignment options	Aligns the selected symbols horizontally or vertically, as indicated by selected exclusive option.
Arc Alignment group—Align Arcs option	Attempts to align the selected arc so that it is parallel to a vertical or horizontal axis.

To align or distribute symbols on your diagram:

1. Select the symbol(s) and arc(s) to be aligned.
2. Do one of the following:
 - Click the **Align** button on the standard toolbar.
 - From the **Tools** menu, choose **Align**.
3. In the **Align** dialog box:
 - Select the desired **Symbol Spacing** option
 - Select the desired **Symbol Alignment** option
 - Select **Align Arcs**, if desired.
4. Click **OK** (or **Apply**, if you want to do more alignment operations).

Aligning All Links

You can use the **Align All Links** command on the diagram shortcut menu to adjust the vertical and horizontal alignment of arcs for the entire diagram. This command attempts to align arcs parallel to a vertical or horizontal axis, if possible.

Searching the Diagram

When you create a large diagram, some parts of it may not be visible within the diagram editor window.

To find a specific symbol or type of symbol easily:

1. From the **Edit** menu, choose **Find**.
2. In the **Find** dialog box (Figure 17), type the name (or part of the name) or Symbol ID of the target symbol in the **Regular Expression to Match** text field.
3. Select the search criteria and options, as described in Table 13.
4. Click **Find**.

StP selects the first match it finds and blinks three times.

The total number of matches appears in the editor's message area. To display additional matches, continue clicking **Find**.

If no symbol matches the search criteria, “No match found” appears in the editor’s message area.

Figure 17: The Find Dialog Box

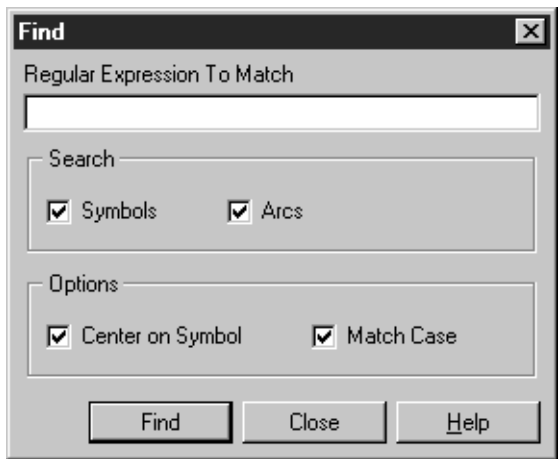


Table 13: Find Dialog Box Summary

Element	Description
Regular Expression to Match field	Specify a string for matching a symbol name on the diagram, or a number for matching a Symbol ID.
Search group	Select the types of symbols to include in the search: Symbols and/or Arcs
Options group	Select desired options: Center on Symbol —Center the symbol that matches the search criteria in the center of the drawing area Match Case —Find occurrences that have upper and lower case letters as specified in the Find text field

Adjusting the Diagram Display

When you open a diagram, it appears in the same position within the window as it was saved. You can adjust this display in the following ways.

- Center the diagram
- Resize part or all of a diagram
- Pan the diagram to locate and display a particular area
- Clear the drawing area

Centering the Diagram

To center a diagram within an editor window, choose **Center** from the **View** menu.

StP centers the diagram in the drawing area, without changing the diagram's scale.

Resizing a Diagram

Using StP's zoom capabilities, you can:

- Resize a diagram by a selected percentage factor
- Automatically resize a diagram to fit the drawing area
- Automatically resize part of a diagram to fit the drawing area

You can reduce the displayed size of a diagram by a percentage of its current size, or enlarge it up to its full size (100 percent). StP retains the proportionate size of symbols and labels when resizing diagrams. The zoom level at which the diagram is saved is retained until the next time the diagram is loaded.

StP provides zooming capabilities from the standard toolbar, **View** menu, and diagram shortcut menu, as described in Table 14.

Table 14: Zoom Commands, Keys, and Toolbar Buttons

Command, Keyboard Shortcut, or Toolbar Button	Available from	Description
Zoom (command)	View menu	Displays a submenu and reduces or enlarges the diagram by the selected percentage.
Zoom In (button)	Toolbar	Zooms in on a portion of the diagram by enlarging the diagram one size larger than its current size.
Zoom In (command)	View menu	
Alt+Ctrl+I (keys)	Diagram shortcut menu	
Zoom Out (button)	Toolbar	Zooms out to view more of the diagram by reducing the diagram one size smaller than its current size.
Zoom Out (command)	View menu	
Alt+Ctrl+O (keys)	Diagram shortcut menu	
Zoom to Fit (button)	Toolbar	Automatically resizes all or part of a diagram to fit drawing area.
Fit Selection in Drawing Area (command)	View menu	Automatically resizes part of a diagram to fit drawing area.
Alt+Ctrl+S (keys)		
Fit Diagram in Drawing Area (command)		Automatically resizes entire diagram to fit drawing area.
Alt+Ctrl+D (keys)		

Resizing an Entire Diagram to Fit

To resize an entire diagram so that all of its contents fit into the drawing area, do one of the following:

- With no objects selected, click the **Zoom to Fit** button on the standard toolbar.
- Press Alt+Ctrl+D
- From the **View** menu, choose **Fit Diagram in Drawing Area**.

Resizing Part of a Diagram to Fit

To resize only a portion of a diagram so that it enlarges or shrinks appropriately to fill the drawing area:

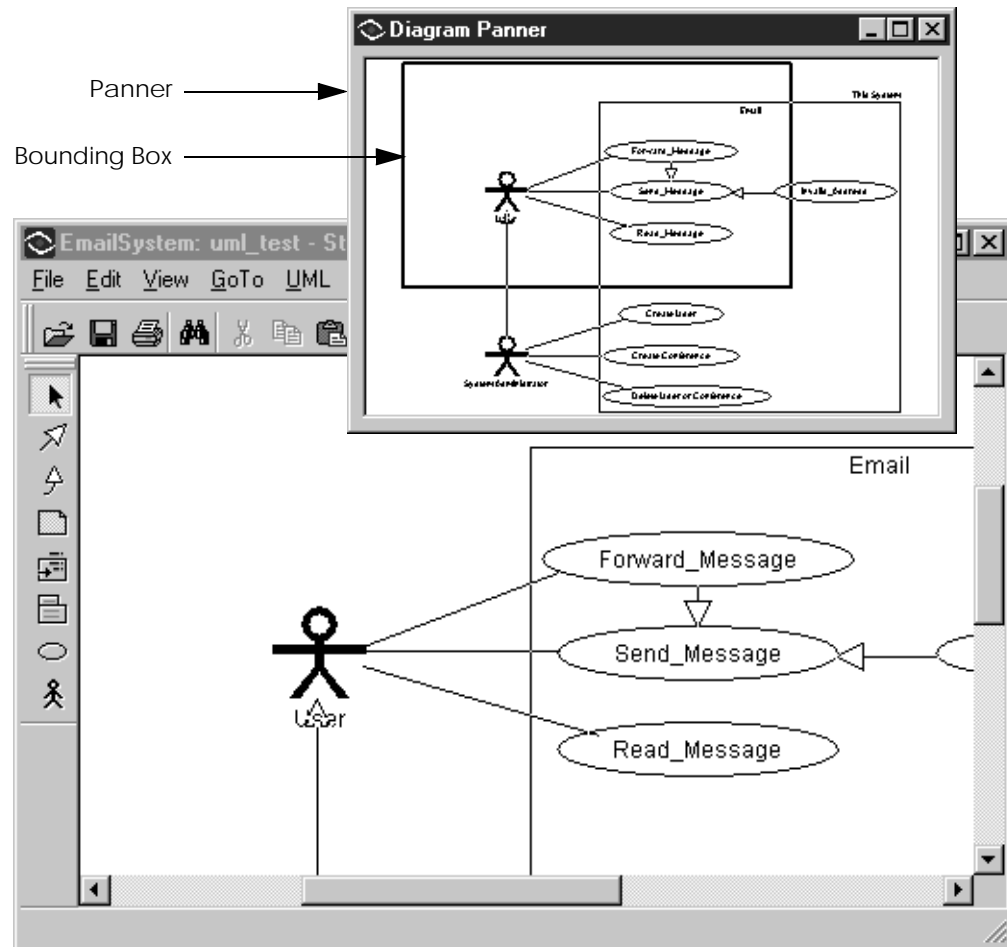
1. Select multiple objects or use a bounding box to select part of the diagram (see “Selecting an Area of the Diagram” on page 4-22).
2. Do one of the following:
 - Click the **Zoom to Fit** button on the standard toolbar.
 - Press Alt+Ctrl+S
 - From the **View** menu, choose **Fit Selection in Drawing Area**.

The selection is centered and enlarges (up to 100% of full size) to fill, or shrinks to fit into, the drawing area of the editor window.

Panning the Diagram

You use the Panner to move the diagram around the drawing area, as needed, to focus on different parts of the diagram. The Panner is a small window that presents a smaller, but complete view of the entire diagram. A solid-bordered bounding box in the Panner represents the borders of the editor’s drawing area. As you move the bounding box around the view of the diagram in the Panner, the diagram in the editor’s drawing area moves accordingly.

Figure 18: The Panner



To reposition the diagram using the Panner:

1. From the **View** menu, choose **Show Panner**.
2. Move the pointer into the Panner.
3. Pressing the left mouse button in the Panner, drag the bounding box around the Panner to an area of the diagram you want to focus on.
The diagram in the editor's drawing area moves accordingly.

Clearing the Drawing Area

The **Clear Diagram** command clears the drawing area by deleting the entire contents of the diagram currently displayed in the editor. The original diagram remains open in the editor, minus its contents.

Note: If you want to start a *new* diagram in the cleared drawing area, be sure you immediately use **Save As** to save the blank diagram under a new name.

Generally, it is preferable to use:

- **Clear Diagram** on the **Edit** menu to erase all of the work that has been done on the current diagram so you can recreate it from scratch
- **Open** on the **File** menu to begin a new diagram with a new name (see “Using the Editor’s Open Dialog Box” on page 4-17)

To clear a diagram’s contents from the drawing area:

1. From the **Edit** menu, choose **Clear Diagram**.
If the diagram has unsaved edits, a confirmation dialog box appears, asking if you want to save the diagram before clearing.
2. If prompted to save before clearing, click:
 - **Yes** to save the diagram and clear its contents from the drawing area, leaving the diagram open in the editor with no content
 - **No** to discard the unsaved edits and clear the drawing area, leaving the diagram open in the editor with no content
 - **Cancel** to retain the diagram in the editor as is

Filtering Your View of the Diagram

Any diagram can be viewed from a variety of perspectives; the same drawing can have elements that have varying, or even exclusive, interest for different people. For example, certain parts of a diagram showing an MIS system might interest an engineer while other parts might interest a customer representative.

You can present different views of the same diagram using filters. By applying a filter, you can create a “view” without disturbing the integrity of the underlying diagram.

The commands on the **View** menu enable you to:

- Apply an existing filter to a diagram
- Create a custom filter

For details about filters, see Chapter 8, “Using Diagram Filters.”

Inserting a Diagram into Another Diagram

StP enables you to insert the contents of another diagram into the currently open diagram. Both diagrams must be the same type. StP copies the inserted diagram to a selected location in the open diagram.

To insert a diagram:

1. From the **File** menu, choose **Insert**.
The **Insert** dialog box appears, with a list of existing diagram names.
2. In the dialog box, do any of the following:
 - To filter the list, type a string including wild cards in the **Selection** field and click **Insert**.
 - Double-click the diagram name in the scrolling list.
 - Select a diagram name from the scrolling list and click **Insert**.
 - Type the filename in the **Selection** field and click **Insert**.
3. Point to the target location in the diagram and click the left mouse button.

Saving a Diagram

Saving a diagram writes the diagram to a file and, if syntactically correct, stores the information in the repository.

Once a diagram is saved, you can exit the diagram editor and recall the diagram during a subsequent editing session. If you exit a diagram editor without saving the diagram, any changes you made since the last **Save** are lost.

Two commands are available from the **File** menu for saving diagrams:

- **Save**—Saves an existing diagram under its current name and updates the repository, or if the diagram is new, opens the **Save As** dialog box
- **Save As**—Allows you to specify a name for the diagram in the **Save As** dialog box, saves the diagram, and updates the repository

Using the Save As Dialog Box

Use the **Save As** dialog box to:

- Save and name a new diagram
- Save a copy of an existing diagram under a new name

The **Save As** dialog box contains a list of existing diagram names and a **Selection** field.

To use the **Save As** dialog box:

1. From the **File** menu, choose **Save** (for new diagrams) or **Save As**.
2. In the **Save As** dialog box, do any of the following:
 - To filter the list of diagram names, type a string including an asterisk (*) wild card in the **Selection** field and click **Save**.
 - To save the diagram under an existing name, double-click a name in the list, or select the name and click **Save**.
 - To save the diagram under a new name, type a new name in the **Selection** field and click **Save**.

Diagram Naming Conventions

Follow these conventions for naming diagrams:

- Do not begin a diagram name with a hyphen (-).
- Do not use any of these characters in a diagram name:
: , ; < > | ~ * . [] ^ \$!

If the name you specify contains a slash (/) or another non-alphanumeric character (@, %, and so on), StP replaces the character with an underscore.

For example, if you name a diagram *gromet/revision#1*, StP replaces that string with *gromet_revision_1*.

Do not use case as a means for distinguishing diagram names, because Windows NT filenames are case-insensitive.

If Errors Are Reported While Saving

If there are syntax errors in the diagram, StP displays a confirmation dialog box asking if you want to save it anyway. If you choose to save it, the errors are saved to the ASCII file along with the diagram, but the repository is not updated. You can correct the errors when you open the diagram again for editing. The **Save** and **Save As** commands only update the repository if the diagram has no syntax errors.

If the editor cannot save the file for any other reason, check that:

- There is adequate disk space
- Your file access permissions are valid

Deleting Diagrams

To delete a diagram, use the StP Desktop. For information about this, see “Deleting Diagrams and Tables” on page 3-26.

Validating Diagrams

StP provides two options for checking the correctness and consistency of a model from a diagram editor:

- Checking the current diagram syntax
- Checking the semantics of a diagram's objects in the repository

When you check your model, the Message Log lists the errors. For information about using the Message Log, see “Using the Message Area and Log” on page 2-15.

You can also check a model from the StP Desktop (described in “Checking Semantics” on page 3-28).

For more about diagram validation, see your StP product documentation.

Checking Diagram Syntax

StP automatically checks diagram syntax when you save a diagram. You can also check a diagram at any time using the **Check Syntax** command to validate that the drawing is correct. Checking diagram syntax does not check the contents of the repository.

Checks of a diagram include:

- Are there any naming conflicts between symbols of different types?
- Do all symbols that require labels have labels?
- Are links between symbols correctly drawn?

To check a diagram, choose **Check Syntax** from the **Tools** menu or the diagram shortcut menu.

Checking Semantics

From the diagram editor, you can check the current diagram's objects in the repository to validate that they are properly defined. Checks of the repository are specific to the method supported by the particular StP product. See your product-specific documentation for details.

To check the repository, choose **Check Semantics** from the **Tools** menu. A message indicating whether the semantic check succeeded or failed appears in the editor's message area. Complete results appear in the StP Message Log.

You can also check semantics for one or more diagrams, or for the entire model, from the Desktop. The Desktop procedure allows you to save results to a file in a selected format. For details, see "Checking Semantics" on page 3-28.

Changing Options

The diagram editor has various characteristics, or "options," that affect its appearance and behavior. You can change the following options, using the corresponding tabs on the **Options** dialog box:

- General (autosave options)
- Message Log
- Default Arc
- Display Marks
- Drawing Area
- Symbol Type
- Symbol Toolbar

For more details, see "Diagram Editor Options" on page 7-8.

Remote Messages

Remote StP Execution Manager (stpem) messages control the loading of diagrams into an editor from the Desktop or through navigation from another editor.

Remote messages come from several places:

- Desktop requests to open diagrams
- Navigation requests (**GoTo** menu commands) from other editors
- Third-party integrations
- Customizations

When a diagram editor receives (accepts) a remote message to load another diagram, it closes the current diagram, if any, and opens the new diagram in the current editor window. If the diagram editor is set to reject remote messages, it cannot respond to these requests; instead, StP starts an additional instance of the diagram editor to hold the newly requested diagram.

For any instance of a diagram editor, you can choose to ignore or accept remote stpem messages directed to that editor. StP editors are set by default to accept these messages.

To change the current editor session's response to remote StP messages, use one of the following toggle commands on the **Tools** menu:

- **Accept Remote Access**—Accepts remote messages that load new diagrams into the current editor window from the Desktop or from another editor
- **Reject Remote Access**—Rejects remote messages, which causes StP to start an additional instance of the current editor when asked to do so from the Desktop or from another editor

Summary

This table is a quick reference guide to diagram editor tasks. The “To” column lists the task; the “Use” column lists the editor feature you use to accomplish the task. For more details about each of the tasks, refer to the appropriate section in this chapter.

Table 15: Using the Diagram Editors Summary

To	Use
Start a diagram editor	StP Desktop
Exit a diagram editor	Close (X) button; Exit from the File menu
Hide or show the Standard toolbar	Hide/Show Standard Toolbar from the View menu
Hide or show the Symbols toolbar	Hide/Show Symbol Toolbar from the View menu
Determine which symbols appear on the Symbols toolbar	Symbol Toolbar tab on the Options dialog box (choose Options from the Tools menu)
Hide or show the Message Log	Show/Hide Message Log button on Standard toolbar; Show/Hide Message Log (Ctrl+M) from View menu
Redisplay the Desktop	Show Desktop from View menu
Display the diagram shortcut menu	Right-click mouse in the drawing area
Display the object shortcut menu	Right-click mouse on an object in the diagram
Open a saved diagram	Open Diagram button on Standard toolbar; Open (Ctrl+O) from the File menu; Recent file list on the File menu
Name a diagram	Save As from the File menu
Save a diagram and update the repository	Save button on Standard toolbar; Save (Ctrl+S) or Save As from the File menu

Table 15: Using the Diagram Editors Summary (Continued)

To	Use
Print a diagram	Print button on Standard toolbar; Print (Ctrl+P) or Print As (Ctrl+Shift+P) from the File menu
Set up printing options	Page Setup from the File menu
View page breaks for a multipage diagram	Page Layout from the View menu
Check a diagram for syntax errors	Check Syntax from the Tools menu or diagram shortcut menu
Check a diagram's contents in the repository	Check Semantics from the Tools menu or diagram shortcut menu
Navigate to another diagram or table	Goto menu or Goto command on the object or diagram shortcut menus
Cancel an operation before completing it	Esc key (not available for all operations)
Undo the last edit	Undo button on Standard toolbar; Undo (Ctrl+Z) from the Edit menu
Redo the last edit	Redo button on Standard toolbar; Redo (Ctrl+Y) from the Edit menu
Insert a symbol	Symbols toolbar to select a symbol; click in the drawing area to insert it
Draw an arc or spline	Arc or Spline symbol on Symbols toolbar
Draw an orthogonal arc	Drawing Area tab on Options dialog box (choose Options from Tools menu)
Terminate current selection on Symbols toolbar	Selection button on Symbols toolbar or select a different symbol
Change default size of symbols to be inserted	Symbol Type tab on the Options dialog box (choose Options from Tools menu)
Change the default arc type	Default Arc tab on Options dialog box (choose Options from Tools menu)

Table 15: Using the Diagram Editors Summary (Continued)

To	Use
Remove spline points	Delete Spline Points from Tools menu
Attach a symbol to an arc	Symbols toolbar to select a symbol; then click on an arc to attach the symbol to it
Reattach a symbol to a different arc	Attach to Arc from Tools menu, after moving the symbol to the new arc and selecting both
Select part of the diagram	Left mouse button to select an object or draw a bounding box around objects
Select additional objects	Shift key while selecting additional objects with left mouse button
Cancel a selection	Left mouse button click in drawing area
Label a symbol	Standard editing keys to edit a selected label (double-click object to select its label)
Label an arc	
Automatically complete a label	Tab to complete partially-specified label; List Labels (Ctrl+Tab) from Edit menu or object shortcut menu to select a label from a list
Set object properties	Properties on the Edit menu or object shortcut menu
Add or edit a diagram annotation	Diagram Annotation from the Edit menu or diagram shortcut menu
Add or edit an object annotation	Object Annotation from the Edit menu or object shortcut menu
Show/Hide display marks	Display Marks tab on the Options dialog box (choose Options from Tools menu)
Refresh display marks	Refresh Display Marks button on Standard toolbar; Refresh Display Marks from diagram or object shortcut menu

Table 15: Using the Diagram Editors Summary (Continued)

To	Use
Move an object or part of the diagram	Left mouse button to drag selected object(s)
Replace one type of symbol or arc with another	Replace (Ctrl+R) from the Edit menu or object shortcut menu
Scale a selected symbol	Left mouse button to drag an object's selection handle (square handles only)
Change label options or size of a selected symbol	Current Symbol Options from Edit menu or object shortcut menu
Designate an object reference as a ViewPoint for all information about the object	
Cut and paste selected parts of a diagram	Cut and Paste buttons on Standard toolbar; Cut (Ctrl+X) and Paste (Ctrl+V) from the Edit menu or object shortcut menu; Paste from the diagram shortcut menu
Copy and paste selected parts of a diagram	Copy and Paste buttons on Standard toolbar; Copy (Ctrl+C) and Paste (Ctrl+V) from the Edit menu or object shortcut menu; Paste from the diagram shortcut menu
Delete selected parts of a diagram	Delete (Del key) from the Edit menu or object shortcut menu
Clear the drawing area completely	Clear Diagram from the Edit menu
Insert a diagram into another diagram	Insert (Ctrl+I) from the File menu
Search a diagram for a specified string or symbol type	Find button on Standard toolbar; Find (Ctrl+F) from the Edit menu
Navigate to a related object reference in another diagram, table, or source code	Goto menu

Table 15: Using the Diagram Editors Summary (Continued)

To	Use
Adjust the diagram within the window	Zoom to Fit button on Standard toolbar; Fit Selection in Window (Alt+Ctrl+S), Fit Diagram in Window (Alt+Ctrl+D), or Center from the View menu
Change the scale of the diagram	Zoom In , Zoom Out , Zoom to Fit buttons on Standard toolbar; Zoom from the View menu; Zoom In (Alt+Ctrl+I), or Zoom Out (Alt+Ctrl+O) from the View menu or diagram shortcut menu
Pan the diagram	Show Panner from the View menu
Align symbols and/or arcs in the drawing area	Align button on Standard toolbar; Align from the Tools menu; Align All Links from the diagram shortcut menu
Show/Hide the alignment grid in the drawing area	Drawing Area tab on the Options dialog box (choose Options from Tools menu)
Apply a filter to the diagram	Apply Filter from the View menu
Create a filter	Define Filter from the View menu
Determine whether StP starts additional instances of an editor	Accept/Reject Remote Access from Tools menu
Change options	Options from Tools menu

5 **Editing Tables**

This chapter explains how to create and use tables. Topics covered are as follows:

- “How Tables Are Used in StP” on page 5-1
- “Using the Table Editors” on page 5-2
- “Using the Table Editor Menus” on page 5-7
- “Opening Tables” on page 5-15
- “Displaying and Hiding Parts of the Table” on page 5-17
- “Selecting Parts of the Table” on page 5-21
- “Undoing, Redoing, and Cancelling Operations” on page 5-23
- “Editing Table Cell Content” on page 5-24
- “Manipulating Parts of the Table” on page 5-29
- “Saving a Table” on page 5-39
- “Deleting Tables” on page 5-41
- “Validating Tables” on page 5-41
- “Changing Options” on page 5-42
- “Summary” on page 5-43

How Tables Are Used in StP

All StP products include tables as well as diagrams. Tables provide a concise and ordered format for capturing certain types of information. Each table type has different characteristics and is used for a unique purpose. Table types vary according to the type of model being created.

For information about specific types of tables, see the documentation provided with your StP product.

Using the Table Editors

You create and maintain tables using the table editors. Despite differences among the table types, the table editors provide consistent features for creating and editing the tables.

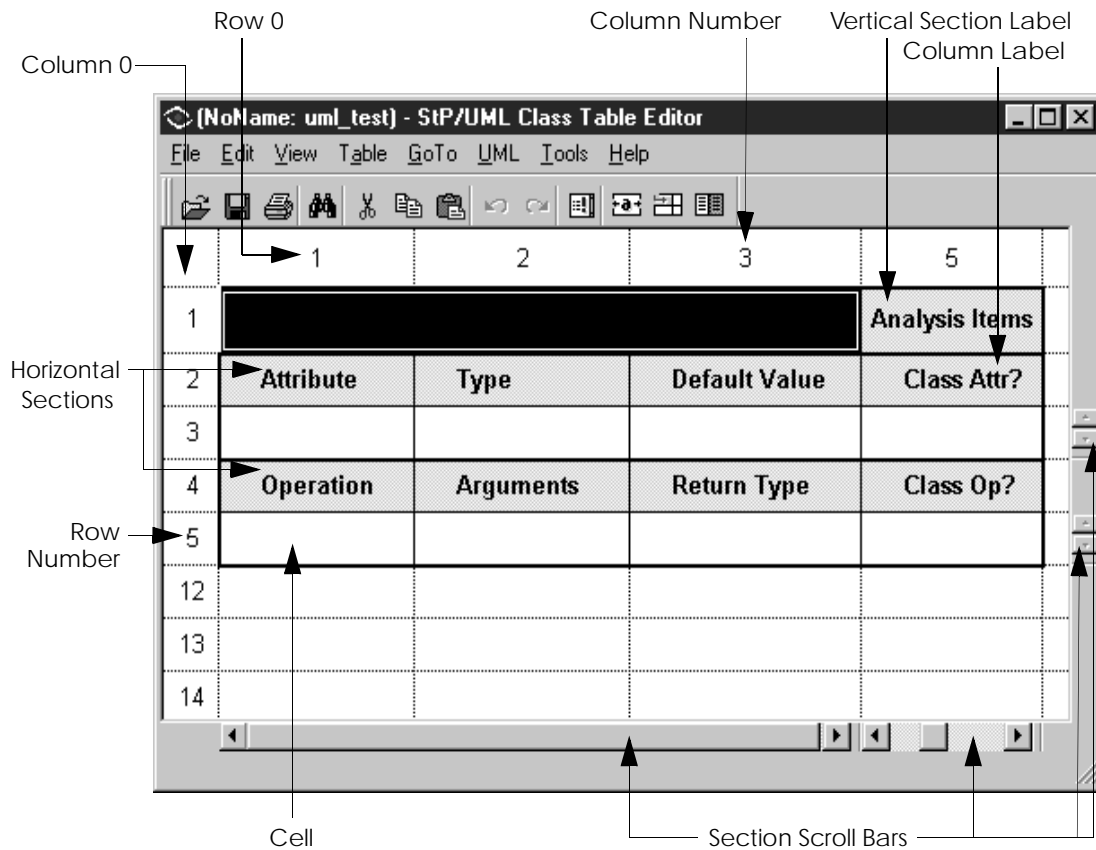
Starting the Table Editor

You can start an StP table editor from the StP Desktop (as described in Chapter 3, “Using the StP Desktop”).

You can start as many new instances of an empty table editor as you like. However, by default, StP opens existing tables in the same instance of the editor. To open multiple existing tables in different instances of the same table editor, see “Opening Multiple Tables Concurrently” on page 5-16.

Parts of a Table

This section describes the parts of a typical StP table, as illustrated by the example in Figure 1 (the StP/UML Class Table Editor). For general information about editor windows, see “Using the Window” on page 2-2.

Figure 1: An StP Table Editor

Cells

A cell is the smallest discrete unit in a table. By default, a cell occupies a space one row deep by one column wide. However, you can edit cells so that they span more multiple rows and/or columns. Cells contain cell values.

Rows and Columns

A table row is a horizontal series of cells; a table column is a vertical series of cells. Rows and columns can be scaled.

Row and Column Numbers

Rows and columns are numbered starting from number 1. You can uniquely identify any cell in the table using the row and column numbers as cell coordinates (row #, column #).

Row 0 and Column 0

In all tables, Row 0 contains the table's column numbers and Column 0 contains the table's row numbers. Row 0 and Column 0 are used for scaling rows and columns, selecting rows or columns, or selecting the whole table.

Row and Column Labels

Some table rows and columns have labels that identify the type of information contained in them. You cannot edit these labels or scroll them out of view.

Sections

A section is a collection of table cells. Divisions between sections are indicated by thick lines or the presence of scroll bars.

In the sample Class Table Editor in Figure 1, two vertical sections and two horizontal sections are visible, as indicated by the four scroll bars:

- Class Member Definitions vertical section (Columns 1 - 3; the section header is blank until you enter a class)
- Analysis Items vertical section (Columns 4 - 7; some columns are not visible in this example)
- Attributes horizontal section (Rows 2 - 3)
- Operations horizontal section (Rows 4 - 5)

Some sections of a table may not be immediately visible. You can choose to show or hide sections (see "Hiding/Showing Table Sections" on page 5-20).

Some columns in some sections may not be immediately visible. In the Figure 1 example, Columns 4, 6, and 7 are visible only by scrolling. You can make these columns visible by expanding the section horizontally to accommodate them (see “Scaling Sections” on page 5-31).

Using the Standard Toolbar

The Standard table editor toolbar (Figure 2) provides easy access to frequently-used commands. Table 1 describes what each button does.

Figure 2: Standard Table Editor Toolbar



Table 1: Standard Table Editor Toolbar Buttons














Button	Tool	Description	For details, see
	Open Table	Opens a previously saved table in the drawing area.	“Opening Tables” on page 5-15
	Save Table	Activates the Save As dialog to save a new table or save a previously saved table without opening a dialog.	“Using the Save As Dialog Box” on page 5-40
	Print	Sends an image of the table to a printer.	Chapter 10, “Printing”
	Find	Searches the table for a specified character string.	“Searching for a Character String” on page 5-18
	Cut	Cuts selections from the table and places them on the clipboard.	“Cutting Cell Content” on page 5-28





Table 1: Standard Table Editor Toolbar Buttons (Continued)

Button	Tool	Description	For details, see
	Copy	Copies selections from the table and places them on the clipboard.	"Copying Cell Content" on page 5-28
	Paste	Pastes the contents of the clipboard.	"Pasting Cell Content" on page 5-28
	Undo	Undoes the last edit (5 undo levels available).	"Undoing, Redoing, and Cancelling Operations" on page 5-23
	Redo	Redoes the last undo (5 redo levels available).	
	Show/Hide Message Log	Toggles display of the StP Message Log on or off.	"Using the Message Area and Log" on page 2-15
	Fit Cell to Label	Enlarges a table column to accommodate the longest label in the column.	"Scaling a Column to Fit Long Labels" on page 5-30
	Cell Content	Displays the cell contents in a dialog box for editing.	"Using the Cell Content Dialog Box" on page 5-25
	Hide/Show	Hides or shows sections of a table.	"Hiding/Showing Table Sections" on page 5-20

Using the Pointer

The pointer is controlled by the mouse. As you move the mouse around the table editor window, the pointer changes shape to give you visual cues about its position or the operation you are performing.

Table 2: Table Editor Pointer Shapes

Shape	Position	Description
	Table or Background	The pointer is on the table or the background, ready to be used.
	Row / Column border	The pointer is on the border between two rows in column 0, or two columns in row 0.
	Cell corner	The pointer is on a cell corner.
	Selected Cell	You are typing a cell label. The cursor appears as an I-beam in reverse video.

Using the Table Editor Menus

Every StP table editor has a set of standard menus:

- **File**
- **Edit**
- **View**
- **Table**
- **GoTo**
- **Tools**
- **Help**

Additionally, table editors in each StP product have a product-specific menu, such as **UML**, **SE**, or **IM**, which contains commands for product-specific operations.

Each menu lists commands and (if available) their corresponding access keys (mnemonics) and keyboard shortcuts.

Additionally, each table editor has a table shortcut menu that is accessed by right-clicking the mouse in a table cell.

This section describes commands that perform operations on tables. For information about the **Help** menu, see “Help Menu” on page 3-16.

File Menu

The **File** menu provides commands for opening, saving and printing tables, and exiting the table editor, as described in Table 3.

Table 3: File Menu Commands

Command	Description	For Details, See
Open	Opens a previously saved table in the editor.	“Using the Editor’s Open Dialog Box” on page 5-16
Save	Saves a previously saved table.	
Save As	Names and saves a new table or rename and save an existing table.	Chapter 10, “Printing”
Print	Prints a table.	
Print As	Sends formatted print output to a specified file instead of to the printer.	
Page Setup	Sets options for printing a table.	

Table 3: File Menu Commands (Continued)

Command	Description	For Details, See
(recent files list)	Opens a previously accessed table from this list.	“Reopening Tables from the Recent List” on page 5-16
Exit	Exits an editor window.	“Exiting an Editor” on page 2-19

Edit Menu

The **Edit** menu provides commands for editing cell content and annotations, as described in Table 4.

Table 4: Edit Menu Commands

Command	Description	For Details, See
Undo	Undoes the last edit (5 undo levels available).	“Undoing, Redoing, and Cancelling Operations” on page 5-23
Redo	Redoes the last undo (5 redo levels available).	
Cut	Cuts selections from the table and places them on the clipboard.	“Cutting Cell Content” on page 5-28
Copy	Copies selections from the table and places them on the clipboard.	“Copying Cell Content” on page 5-28
Paste	Pastes the contents of the clipboard.	“Pasting Cell Content” on page 5-28
Delete	Deletes label(s) from a cell or section of the table.	“Deleting Cell Content” on page 5-29
Find	Searches the table for a specified expression.	“Searching for a Character String” on page 5-18

Table 4: Edit Menu Commands (Continued)

Command	Description	For Details, See
List Labels	Displays a selection list of object names in the system.	“Selecting a Label from a List” on page 5-26
Set Label	Displays a selection list of valid values for the cell.	“Selecting Valid Values for Cell Labels” on page 5-27
Rename Object Systemwide	Renames object in repository and propagates the change to all references.	StP product-specific documentation
Table Annotation	Activates the Object Annotation Editor for creating or editing an annotation for the table.	“Creating Annotations” on page 6-10
Cell Annotation	Activates the Object Annotation Editor for creating or editing an annotation for the selection.	
Cell Content	Displays the cell contents in a dialog box for editing.	“Using the Cell Content Dialog Box” on page 5-25
Format Current Selection	Displays a dialog for setting the visual characteristics of the current selection.	“Modifying the Visual Characteristics of Cells” on page 5-36

View Menu

The **View** menu provides commands for changing the appearance of the table editor, as described in Table 5.

Table 5: View Menu Commands

Command	Description	For Details, See
Go To Cell	Displays a specific cell.	“Specifying a Location” on page 5-17
Hide/Show	Hides or shows sections of a table.	“Hiding/Showing Table Sections” on page 5-20
Hide/Show Standard Toolbar	Toggles the display of the Standard toolbar on or off.	“Using Toolbars” on page 2-5
Hide/Show Message Log	Toggles the display of the StP Message Log on or off.	“Using the Message Area and Log” on page 2-15
Show Desktop	Displays the StP Desktop in a separate window.	“Reopening the Desktop from an Editor” on page 3-2

Table Menu

The **Table** menu provides commands for inserting or deleting cells, or manipulating the size of table cells.

Table 6: Table Menu Commands

Command	Description	For Details, See
Insert Rows Before	Adds a new row or rows to a table before the selected row.	“Inserting New Rows” on page 5-34
Insert Rows After	Adds a new row or rows to a table after the selected row.	

Table 6: Table Menu Commands (Continued)

Command	Description	For Details, See
Insert Columns Before	Adds a new column or columns to a table before the selected column.	“Inserting New Columns” on page 5-34
Insert Columns After	Adds a new column or columns to a table after the selected column.	
Insert Cells	Adds a new cell (row or column) to a table.	“Inserting New Cells” on page 5-34
Delete Cells	Deletes selected cells from the table.	“Deleting Cells, Rows, and Columns” on page 5-35
Span	Straddles rows or columns in a table.	“Spanning Cells” on page 5-33
Unspan	Unstraddles rows or columns.	
Adjust Scale To Fit Label	Enlarges a table column to accommodate the longest label in the column.	“Scaling a Column to Fit Long Labels” on page 5-30
Default Scale	Resizes column to its default scale.	

GoTo Menu

The **GoTo** menu provides commands for displaying (navigating to) another reference to the selected object. These commands use the inherent relationships between repository objects and specific references in diagrams or tables to find and display a related reference to the selected object. The related reference can be to another table or diagram in a different editor, or in some cases, to source code. When you navigate to another editor, the current session continues.

The **GoTo** menu provides product and context-sensitive commands for navigation. For details, see StP product-specific documentation.

Tools Menu

The **Tools** menu provides commands for checking the current table syntax and semantics and changing editor options, as described in Table 7.

Table 7: Tools Menu Commands

Command	Description	For Details, See
Check Syntax	Checks a table to validate that the information is syntactically correct.	“Validating Tables” on page 5-41
Check Table Semantics	Checks the repository to validate that the table conforms to specific modeling rules for the editor type.	
Accept/Reject Remote Access	Ignores or accepts remote commands to load a different table in the editor.	“Remote Messages” on page 5-43
Options	Changes the appearance and behavior of various aspects of the editor	“Table Editor Options” on page 7-19

Table Shortcut Menu

The table shortcut menu provides quick access to a subset of frequently-used table editor commands. To display the table shortcut menu, click the right mouse button anywhere in the table.

Table 8 lists the standard set of commands that may appear on this menu and where each is described.

Table 8: Table Shortcut Menu

Command	Description	For Details, See
Undo	Undoes the last edit (5 undo levels available).	“Undoing, Redoing, and Cancelling Operations” on page 5-23
Redo	Redoes the last undo (5 redo levels available).	
Cut	Cuts selections from the table and places them on the clipboard.	“Cutting Cell Content” on page 5-28
Copy	Copies selections from the table and places them on the clipboard.	“Copying Cell Content” on page 5-28
Paste	Pastes the contents of the clipboard.	“Pasting Cell Content” on page 5-28
Delete	Deletes a label from a cell or deletes labels from a section of the table.	“Deleting Cell Content” on page 5-29
List Labels	Displays a scrolling list of object names in the system.	“Selecting a Label from a List” on page 5-26
Set Label	Displays a selection list of valid values for the cell.	“Selecting Valid Values for Cell Labels” on page 5-27
Cell Annotation or Table Annotation (depending on current selection)	Activates the Object Annotation Editor for creating or editing an annotation for the selection.	“Creating Annotations” on page 6-10
Adjust Scale To Fit Label	Enlarges a table column to accommodate the longest label in the column.	“Scaling a Column to Fit Long Labels” on page 5-30
Default Scale	Resizes column to its default scale.	

Opening Tables

You can start a new table or open an existing one from the StP Desktop or from an StP editor, as summarized in Table 9.

Table 9: Opening a New or Existing Table

Command or Button	From	Description	For Details, See
Start New Editor button	Desktop Standard toolbar	Starts a table editor with a blank drawing area.	“Starting an Editor” on page 3-23
New command	Desktop File menu		
Edit Diagram/ Table button	Desktop Standard toolbar	Opens a selected table.	“Opening an Existing Diagram or Table” on page 3-23
Open Table command	Desktop File menu		
Open Table button	Editor’s Standard toolbar	Displays the Open dialog box for opening a new or existing table.	“Using the Editor’s Open Dialog Box” on page 5-16
Open command	Editor’s File menu		
(recent file list)	Editor’s File menu	Opens a previously accessed table.	“Reopening Tables from the Recent List” on page 5-16

Using the Editor's Open Dialog Box

The table editor's **Open** dialog box contains a list of existing table names and a **Selection** field.

To use the **Open** dialog:

1. From the table editor, click the **Open Table** button on the Standard toolbar, or choose **Open** from the **File** menu.
The **Open** dialog box appears.
2. Optionally, to filter the list of table names, type a string including an asterisk (*) wild card in the **Selection** field and click **Open**.
3. To open a table, do any of the following:
 - Double-click the table name in the scrolling list.
 - Select a table name from the scrolling list and click **Open**.
 - Type a new or existing filename in the **Selection** field and click **Open**.

Reopening Tables from the Recent List

StP maintains a sequential list of the last four tables you previously accessed in the current system, whether you modified them or not. The list is preserved between sessions and appears on the editor's **File** menu.

You can reopen any of these tables by selecting its name from the **File** menu.

Opening Multiple Tables Concurrently

You can start as many instances of an empty table editor as you like, using the **New** command on the Desktop **File** menu. However, by default, StP opens existing tables of the same type in the same instance of the editor, replacing the current table. You can change the default behavior to allow StP to start additional instances of an editor when opening other tables. To do so, you must change the editor's response to remote messages that load tables from the Desktop or from other editors.

To open two or more tables of the same type concurrently, in different instances of the editor:

1. Open the first table using any preferred method.
2. From the **Tools** menu, choose **Reject Remote Access**.
3. From the Desktop, open another table of the same type.
StP retains the current editor session, and starts another session of the same editor with the additional table.

Note: You must open the additional tables from outside the editor. Opening a table from within the editor is unaffected by the **Reject Remote Access** command.

For more information about setting the editor's response to remote messages, see "Remote Messages" on page 5-43.

Displaying and Hiding Parts of the Table

You can display a particular part of the table by:

- Specifying a location by row and column number
- Searching the table for a character string
- Scrolling, as described in "Scroll Bars" on page 2-4
- Scaling, as described in "Scaling Sections" on page 5-31
- Using the **Hide/Show** command

Some of these actions may also explicitly hide parts of the table.

Specifying a Location

You can display a particular part of the table using the **Go To Cell** dialog box. If you specify a row or column that is hidden, it appears after the dialog box is activated.

Figure 3: Go To Cell Dialog Box

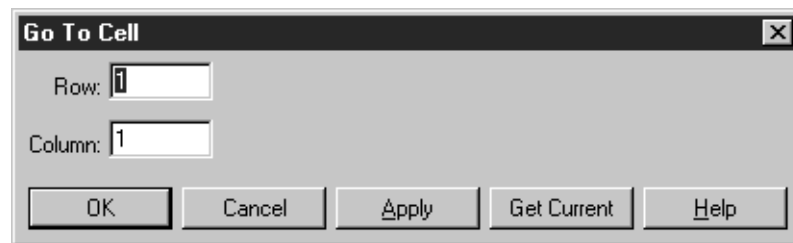


Table 10 describes the **Go To Cell** dialog box options.

Table 10: Go To Cell Dialog Box Summary

Element	Description
Row field	Accepts a valid row number.
Column field	Accepts a valid column number.
Get Current button	Resets row and column number to last numbers applied.

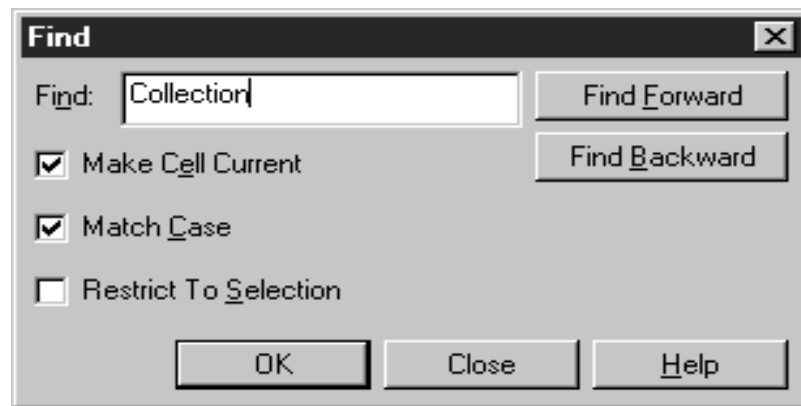
To go to a specific cell on the table:

1. From the **View** menu, choose **Go To Cell**.
2. In the **Go To Cell** dialog box, specify the row and column numbers of the desired cell.
3. Click **OK** or **Apply**.

Searching for a Character String

You can search cells in a table for a specific character string. You use the **Find** dialog box to specify search conditions and start the search.

Figure 4: The Find Dialog Box



The message area shows the row and column numbers of cells meeting the search criteria in the current table. Table 11 describes other parts of the dialog box.

Table 11: Find Dialog Box Summary

Element	Description
Find field	Accepts a regular expression for the character string to be found.
Make Cell Current option	Displays the cell that matches the search criteria and makes it the currently selected cell.
Match Case option	Finds occurrences that have upper and lower case letters, as specified in the Find input field.
Restrict to Selection option	Searches only within the currently selected area.
Find Forward button	Searches for matches in subsequent parts of the table.
Find Backward button	Searches for matches in preceding parts of the table.

To search a table:

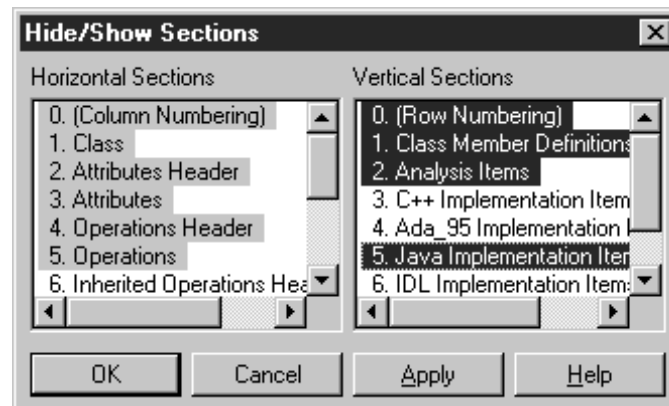
1. From the **Edit** menu, choose **Find**.
2. In the **Find** dialog box, type the label (or part of the label) of the target cell in the **Find** input field.
3. Select the desired search options.
4. Click **Find Forward** or **Find Backward**.

The results of the search appear in the message area.

Hiding/Showing Table Sections

Using the **Hide/Show** dialog box (Figure 5), you specify which table sections you want to appear. Existing selections are shaded. Your current selections, for one scrolling list at a time, are indicated by reverse video. The **Hide/Show** command operates on both the existing and current selections, as indicated by the shading and reverse video in the dialog box. For example, in Figure 5, this command will display the current selections in the Horizontal Sections list, as well as the existing selections in the Vertical Sections list.

Figure 5: The Hide/Show Sections Dialog Box



To hide or show table sections:

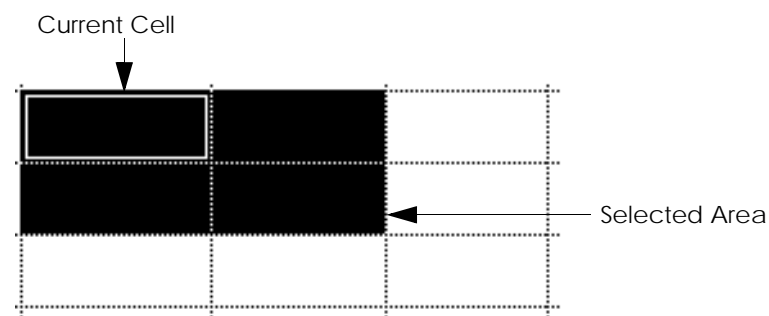
1. From the **View** menu, choose **Hide/Show**.
2. In either the **Horizontal** or **Vertical** group of the **Hide/Show Sections** dialog, initially select one section.
Other sections in that group now appear unhighlighted.
3. Optionally use one of these methods to add to your initial selection:
 - Select a contiguous range of sections—Hold down the Shift key and select the last section in the desired range with the left mouse button; all the sections in the defined range are highlighted.
 - Select non-contiguous sections—Hold down the Ctrl key and select each section with the left mouse button.
4. Optionally, repeat steps 2 and 3 for the other section.
5. Click **OK** or **Apply**.

The selected sections in the **Hide/Show Sections** dialog appear in the table. Unhighlighted sections are hidden.

Selecting Parts of the Table

When you select part of a table, your selection is highlighted.

Figure 6: Highlighted Cells Indicating Selected Area



The highlighting indicates that the part of the table you have selected is active. You begin editing a table by selecting a cell, row, column, or area. Once you have selected part of the table, you can perform various operations on it, such as editing a label.

You can select a single cell or an area (a combination of adjoining cells). An outline surrounding a single cell in a selected area indicates that it is the current cell within the selected area. Some operations, such as labeling a cell, work only on the current cell; other operations, such as cutting and pasting, can be performed on a selected area.

Selecting a Cell

To select a single cell, click the left mouse button in the cell.

Selecting a Table Area

There are two ways you can select an area of a table:

- Dragging the pointer across several cells of the table
- Selecting an area by its upper left corner

To select an area by dragging the pointer, press the left mouse button and drag the pointer across the cells you want to select.

To select an area defined by its upper left corner:

1. Place the pointer in the upper left corner of the upper left cell of the area you want to select.

The pointer changes to a corner shape.

2. Click the left mouse button.

All cells to the right and below the corner are highlighted.

Selecting a Cell within a Selected Area

You can select a cell within a selected area using the arrow keys. The current cell within a selected area is indicated by an outline, as in Figure 6. Only the current cell can be labeled.

Selecting a Row or Column

To select a row or column, click the left mouse button on the row or column number. The corresponding row or column is highlighted.

Cancelling a Selection

To cancel a selection, click the left mouse button anywhere on the table away from the selection. Notice that some part of the table is always selected.

Undoing, Redoing, and Cancelling Operations

While working in the editor, you may need to undo an operation, redo an operation, or cancel an operation before completing it.

Five levels of **Undo** and **Redo** are available. To undo or redo an operation, choose one of the following commands from the **Edit** menu:

- **Undo**—Undo the most recent operation(s), one at a time, up to the limit of undo levels
- **Redo**—Re-execute the operation(s) you undid, one at a time, up to the limit of redo levels

You can also cancel cell label editing by pressing the Esc key.

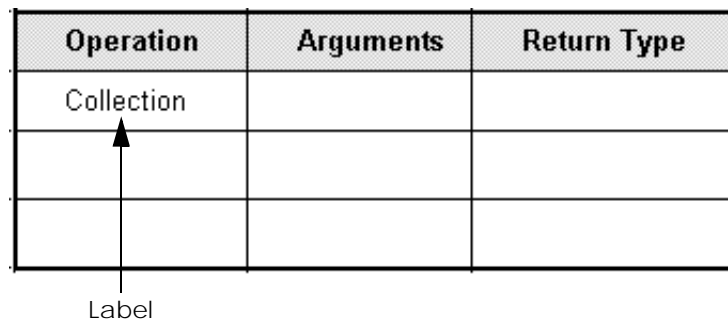
Editing Table Cell Content

You create a table by entering content, in the form of labels, into table cells and saving the table. There is no limit to the length of a cell label.

Figure 7: Cell Label

Operation	Arguments	Return Type
Collection		

Label



Some cells accept free-form text, while others accept only valid entries. Valid table cell labels are determined by the type of table you are editing. For information about valid table cell labels, see the documentation provided with your StP product.

You can enter or edit cell labels by:

- Typing a label manually
- Using the **Cell Content** dialog box
- Completing a partial label automatically
- Selecting a label from a list of names in the system
- Selecting a label from a list of valid values for that cell
- Cutting, copying, and pasting cell content
- Deleting cell content

Typing a Cell Label

To manually type or edit a label:

1. Select an empty cell, or double-click a labeled cell to select its label.
The pointer changes to an I-beam for text editing. If the cell is already labeled, the label appears highlighted.
2. Type the new label or edit the existing one, using standard editing keys.
3. To terminate label editing, click the left mouse button anywhere outside the cell.
The pointer returns to its original shape.

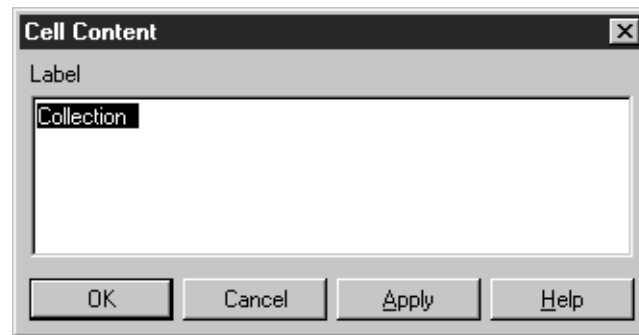
StP provides full text-editing support for label entry. Some keys you can use are:

- Arrow keys—Move the pointer within the label
- Ctrl+Enter—Break to a new line (you may need to expand the cell to see the new line)
- Home key—Position the pointer at the start of the label
- End key—Position the pointer at the end of the label
- Backspace or Delete key—Delete all highlighted characters, or delete one character to the left (Backspace) or right (Delete) of pointer
- Esc to cancel all current edits and terminate label editing

Using the Cell Content Dialog Box

If you prefer, you can display the cell's label in the **Cell Content** dialog box for editing (Figure 8). This is especially helpful for editing long cell labels that extend beyond the visible cell boundaries in the table. To access this dialog box, use the **Cell Content** toolbar button or choose **Cell Content** from the **Edit** menu.

Figure 8: Cell Content Dialog Box



Completing Partial Labels

StP can complete a partially labeled cell in a table from an existing label in your system. Name completion matches the partial label with those in the system. Alternatively, you can use name selection to label a symbol. For details, see “Selecting a Label from a List” on page 5-26.

To use name completion:

1. Select the cell's label.
2. Type the first few characters of the name.
3. Press Tab.

If a unique match is found, StP completes the label.

If multiple matches are found, StP completes the label as far as possible, then displays a message, such as “2 matches found...” in the message area.

4. If necessary, type additional characters in the cell's label and repeat steps 2 and 3 until StP finds a single match and enters it into the cell.

Selecting a Label from a List

StP enables you to label a blank cell by selecting from a list of names in the system.

To use name selection:

1. Select an empty cell or type a partial label in a cell.
2. Press Ctrl+Tab, or choose **List Labels** from the **Edit** menu or table shortcut menu.

The **List Labels** dialog box appears with a list of available names from which you can select a label.

If you typed a partial label before invoking this dialog box, the list contains only those names that match the characters you typed. If only one match is found, StP completes the label.

3. Optionally, to filter the list, type a string including an asterisk (*) wild card in the **Selection** field and click **OK**.
4. To select a name, do any of the following:
 - Double-click a name in the scrolling list.
 - Select a name from the scrolling list and click **OK**.
 - Type the name in the **Selection** field and click **OK**.

Selecting Valid Values for Cell Labels

The table editor provides lists of valid values in certain cells of a table. You can select a value from the list.

To display a list of valid values:

1. Select an appropriate cell.
2. From the **Edit** menu or table shortcut menu, choose **Set Label** to display a submenu of choices.
3. Choose a value from the **Set Label** submenu.

The value appears in the selected cell.

Cutting, Copying, and Pasting Cell Content

You can cut or copy the content of any selected set of cells and place it on the clipboard. You can then paste the contents of the clipboard into the same table or another table. The information remains on the clipboard until you replace it with different information or exit a session.

You can also paste text from another application, such as Microsoft Word, into a cell, using the clipboard.

A cut operation removes cell content only, leaving empty cells in the table. To remove cells completely and reposition existing cells accordingly, see “Deleting Cells, Rows, and Columns” on page 5-35.

A paste operation replaces the contents of selected cells with the contents of the clipboard. To insert additional cells into a table, see “Inserting New Rows, Columns, and Cells” on page 5-34.

Cutting Cell Content

To cut the content from a set of cells and place it on the clipboard:

1. Select the cell(s), row(s), or column(s) whose content you want to cut.
2. From the **Edit** menu or table shortcut menu, choose **Cut**.

Copying Cell Content

To copy the content of a set of cells and place it on the clipboard:

1. Select the cell(s), row(s), or column(s) whose content you want to copy.
2. From the **Edit** menu or table shortcut menu, choose **Copy**.

Pasting Cell Content

The area in the table where you paste the contents of the clipboard must be the same shape and size as the table area represented by the clipboard contents.

To paste the contents of the clipboard into a set of cells:

1. Select the cell(s), rows, or columns into which you want to paste the contents of the clipboard.
2. From the **Edit** menu or table shortcut menu, choose **Paste**.

Pasting Text into Cells from Other Sources

To label a cell with text from an external source, such as Microsoft Word:

1. From the source application, cut or copy the text to the clipboard.
2. In the StP table editor, double-click the target cell to select its label.
3. Press Ctrl+V or choose the **Paste** command on the **Edit** menu or object shortcut menu to paste text from the clipboard into the label.

Deleting Cell Content

You can delete the content (cell labels) from a selected cell or area of the table using the **Delete** command from the **Edit** menu.

To delete cell content:

1. Select the cell(s), row(s), or column(s) whose content you want to delete.
2. From the **Edit** menu, choose **Delete**.

Manipulating Parts of the Table

You can manipulate cells, rows, columns, and sections in various ways while creating or editing a table:

- Scale cells, rows, columns, and sections
- Span cells
- Insert new cells, rows, and columns
- Delete cells, rows, and columns
- Modify the visual characteristics of cells

Scaling

You can make columns, rows, and sections in your table wider or narrower by scaling them.

Scaling a Column to Fit Long Labels

You can enlarge a table column to accommodate the lengthiest label in the column, using the **Adjust Scale to Fit Label** command.

To adjust column width to display a long label:

1. Select the cell containing the long label.
2. From the **Table** menu, choose **Adjust Scale to Fit Label**.
The column containing the label is enlarged.

To return to the original cell scale:

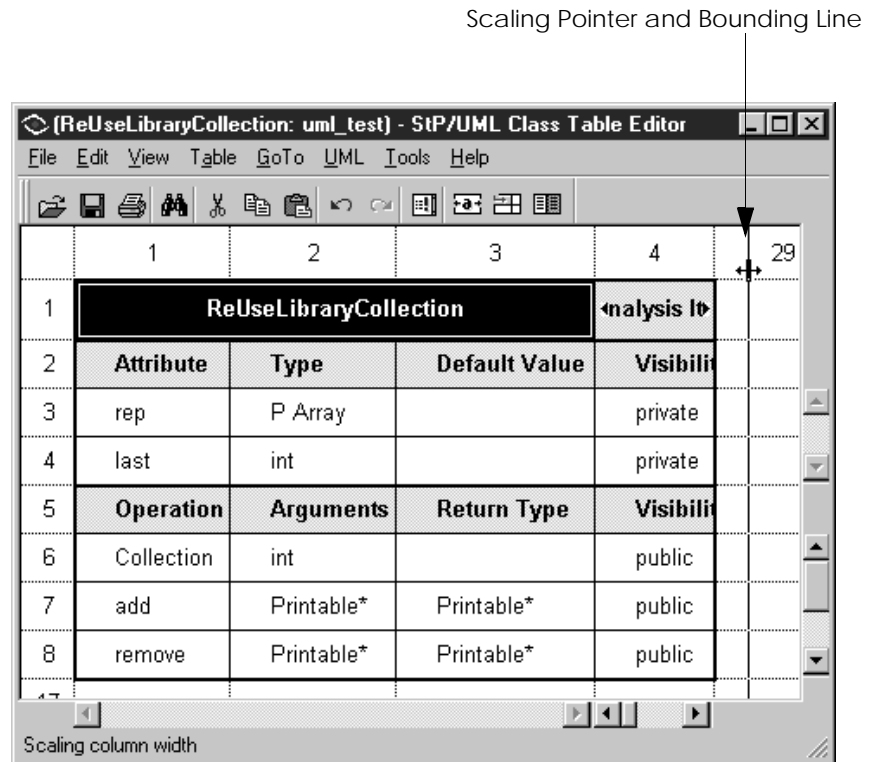
1. Select the adjusted cell.
2. From the **Table** menu, choose **Default Scale**.

Scaling Rows or Columns

To scale a row or column:

1. Move the pointer into Column 0 or Row 0 and position it over the divider between the row or column being scaled and the next row or column.
The pointer changes to a scaling pointer.
2. Press the left mouse button and drag the divider to scale the row or column.
As you drag the divider, a bounding line appears.
3. Release the left mouse button.

Figure 9: Scaling a Column



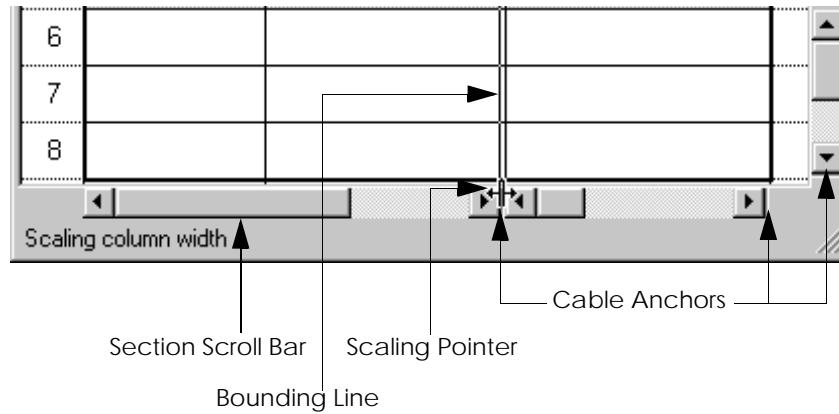
Scaling Sections

In certain types of tables, sections containing several columns or rows may initially display only one or two of its columns or rows. You can view other columns or rows in the section by:

- Scrolling with the section scroll bars
- Scaling the section larger to display more columns at the same time

Sections are scaled using the cable anchors of the section scroll bars (see Figure 10).

Figure 10: Section Scroll Bars



To scale a section:

1. Point to the cable anchor at the right edge (vertical sections) or lower edge (horizontal sections) of the scroll bar in the section to be scaled.
The pointer changes to a scaling pointer.
2. Press the left mouse button on the cable anchor.
A bounding line appears.
3. Drag the cable anchor to scale the section larger or smaller.
The bounding line automatically “snaps” to the nearest column or row divider as you drag the pointer.
4. Continue dragging the pointer to additional “snap” points to scale the section larger or smaller.
5. Release the mouse button when done.

Note: You must drag the cable anchor all the way to a snap point to scale the section as expected.

Columns within the scaled section can be scaled individually. See “Scaling Rows or Columns” on page 5-30 for more information.

Spanning Cells

You can edit a cell so that it spans several cells in a row or column. A spanned region must be entirely contained within one horizontal and one vertical section of the table. You can also “unspan” spanned cells to separate them.

To span or unspan cells:

1. Select the cells to be spanned or a previously spanned cell you want to unspan.
2. From the **Table** menu, choose **Span** or **Unspan**.

Figure 11: Spanned Cells

	1	2	4
1	ReUseLibraryCollection		Analysis Items
2	Attribute	Type	Visibility
3	rep	P Array	private
4	last	int	private
5	Operation	Arguments	Visibility
6	Collection	int	public
7	add	Printable*	public

Spanned Cells

Inserting New Rows, Columns, and Cells

You can insert new rows, columns, or cells in your table as necessary. Some tables place restrictions on inserting certain elements into certain positions in the table. For more information, check the documentation provided with your StP product.

Inserting New Rows

To insert new rows:

1. Select a cell or row in the table.
2. From the **Table** menu, choose **Insert Rows Before** or **Insert Rows After**.
3. From the submenu that appears, choose the desired number of rows. The rows appear above (before) or below (after) the selected cell or row.

Inserting New Columns

To insert new columns:

1. Select a cell or column in the table.
2. From the **Table** menu, choose **Insert Columns Before** or **Insert Columns After**.
3. From the **Insert Columns** submenu, choose the desired number of columns. The columns appear to the left (before) or right (after) of the selected cell or column.

Inserting New Cells

When you insert new cells, you actually insert a row or column. You specify which in the **Insert** dialog box.

To insert cells:

1. Select a cell in the table.
2. From the **Table** menu, choose **Insert Cells**.

3. In the **Insert Cells** dialog box, select one of these options:
 - **Shift Cells Right**—Insert a column
 - **Shift Cells Down**—Insert a row

Deleting Cells, Rows, and Columns

You can use the **Delete Cells** command to delete:

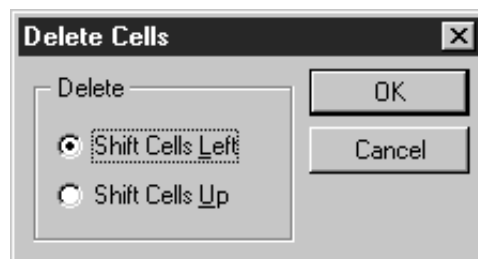
- A single cell or multiple cells
- An entire column
- An entire row
- An entire table

When you delete cells from the table, StP adjusts the remaining cells either left or up, depending on your choice.

To delete cells from a table:

1. Select the cell(s), row, or column you want to delete.
2. From the **Table** menu or table shortcut menu, choose **Delete Cells**.
The **Delete Cells** dialog box appears.

Figure 12: Delete Cells Dialog Box



3. Select an option to adjust the position of the remaining cells in the table:
 - **Shift Cells Left**—Move the column or columns to the left
 - **Shift Cells Up**—Move the row or rows up
4. Click **OK**.

Modifying the Visual Characteristics of Cells

The **Format Current Selection** dialog box (Figure 13) allows you to modify visual characteristics, such as shading, text alignment, font weight, and cell borders, of the currently selected table cell(s). Table 12 describes these options.

To use the **Format Current Selection** dialog box:

1. Select the table cell(s), row(s), or column(s) whose visual characteristics you want to modify.
2. From the **Edit** menu, choose **Format Current Selection**.
3. In the **Format Current Selection** dialog box, select desired options.
To reset the options to the current saved defaults for the selected cell(s), click **Get Current**.
4. Click **OK** or **Apply** to format the selected table cell(s) and save the option settings as the current defaults for the selected cell(s).

Figure 13: Format Current Selection Dialog Box

Format Current Selection

☒ Row Height: 28

☒ Column Width: 160

☒ Shading: None

☒ Text Alignment: Left

☒ Font Weight: Normal

☒ Top Border: * ☒ Visible Solid Thin Single

☒ Bottom Border: ☒ Visible Solid Thin Single

☒ Left Border: * ☒ Visible Solid Thin Single

☒ Right Border: ☒ Visible Solid Thin Single

☒ Interior Row Border: ☒ Visible Solid Thin Double

☒ Interior Column Border: ☒ Visible Solid Thin Double

Get Current OK Cancel Apply

Table 12: Format Current Selection Summary

Element	Description	Settings
Row Height	Determines the height of the selected row in pixels.	0 - 300
Column Width	Determines the width of the selected column in pixels.	0- 300
Shading	Determines the shading of the selected cells.	None
		Shade1
		Shade2
		Shade3

Table 12: Format Current Selection Summary (Continued)

Element	Description	Settings
Text Alignment	Determines the alignment of labels in the selected cells.	Center
		Left
		Right
Font Weight	Determines the weight of fonts in the selected cells.	Normal
		Bold
Top Border	Determines the appearance of the top border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double
Bottom Border	Determines the appearance of the bottom border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double
Left Border	Determines the appearance of the left border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double
Right Border	Determines the appearance of the right border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double

Table 12: Format Current Selection Summary (Continued)

Element	Description	Settings
Interior Row Border	Determines the appearance of the interior row border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double
Interior Column Border	Determines the appearance of the interior column border of the selected cells.	Visible, Invisible
		Dotted, Faint, Dashed, Solid
		Thin, Medium, Thick
		Single, Double
Get Current button	Resets the options to the current saved defaults for the selected cell(s).	

Saving a Table

Saving a table writes the table to a file and, if syntactically correct, stores the information in the repository.

Once a table is saved, you can exit a table editor and recall the table during a subsequent editing session. If you exit a table editor without saving the table, any changes you made since the last **Save** are lost.

Two commands are available from the **File** menu for saving tables:

- **Save**—Saves an existing table under its current name and updates the repository, or if the table is new, opens the **Save As** dialog box
- **Save As**—Allows you to specify a name for the table in the **Save As** dialog box, saves the table, and updates the repository

Using the Save As Dialog Box

Use the **Save As** dialog box to:

- Save and name a new table
- Save a copy of an existing table under a new name

The **Save As** dialog box contains a list of existing table names and a **Selection** field.

To use the **Save As** dialog box:

1. From the **File** menu, choose **Save** (for new tables) or **Save As**.
2. In the **Save As** dialog box, do any of the following:
 - To filter the list of table names, type a string including an asterisk (*) wild card in the **Selection** field and click **Save**.
 - To save the table under an existing name, double-click a name in the list, or select the name and click **Save**.
 - To save the table under a new name, type a new name in the **Selection** field and click **Save**.

Table Naming Conventions

Follow these guidelines for naming a table:

- Do not begin a table name with a hyphen (-).
- Do not use any of these characters in a table name:
: , ; < > | ~ * . [] ^ \$!

If the name you specify contains a slash (/) or another non-alphanumeric character (@, %, and so on), StP replaces the character with an underscore.

For example, if you name a table *foo/revision#1*, StP replaces that string with *foo_revision_1*.

Do not use case as a means for distinguishing table names, because Windows NT filenames are case-insensitive.

If Errors Are Reported While Saving

If there are syntax errors in the table, StP displays a confirmation dialog box asking if you want to save it anyway. If you choose to save it, the errors are saved to the system ASCII file along with the table, but the repository is not updated. You can correct the errors when you open the table again for editing. The **Save** and **Save As** commands only update the repository if the table has no syntax errors.

If the editor cannot save the file for any other reason, check that your pathnames and permissions are valid.

Deleting Tables

To delete a table, use the StP Desktop. For instructions, see “Deleting Diagrams and Tables” on page 3-26.

Validating Tables

StP provides two options for checking the correctness and consistency of a model from a table editor:

- Checking the current table syntax
- Checking the repository for the current system

When you check your model, the Message Log appears listing the errors. For information about using the Message Log, see “Using the Message Area and Log” on page 2-15.

You can also check a model from the StP Desktop (described in “Checking Semantics” on page 3-28).

For more about diagram validation, see your StP product documentation.

Checking Table Syntax

StP automatically checks table syntax when you save a table. You can also check a table at any time using the **Check Syntax** command to validate the correctness and consistency of the current table's contents. Checking table syntax does not check the contents of the repository.

Syntax checks include checking for:

- Checking for duplicate names
- Checking that cell values can be validated

To check a table, choose **Check Syntax** from the **Tools** menu.

Checking Semantics

From the table editor, you can check the repository to validate that the objects this table references are properly defined. Checks of the repository are specific to the method supported by the particular StP product. See your product-specific documentation for details.

To check the repository, choose **Check Semantics** from the **Tools** menu. Results appear in the StP Message Log.

You can also check semantics for one or more tables, or for the entire model, from the Desktop. The Desktop procedure allows you to save results to a file in a selected format. For details, see “Checking Semantics” on page 3-28.

Changing Options

The table editor has characteristics, or “options,” that affect its appearance and behavior. You can change the following options, using the corresponding tabs on the **Options** dialog box:

- General (autosave options)
- Message Log

For more details, see “Table Editor Options” on page 7-19.

Remote Messages

Remote StP Execution Manager (stpem) messages control the loading of tables into an editor from the Desktop or through navigation from another editor.

Remote messages come from several places:

- Desktop requests to open tables
- Navigation requests (**GoTo** menu commands) from other editors
- Third-party integrations
- Customizations

When a table editor receives (accepts) a remote message to load another table, it closes the current table, if any, and opens the new table in the current editor window. If the table editor is set to reject remote messages, it cannot respond to these requests; instead, StP starts an additional instance of the table editor to hold the newly requested table.

For any instance of a table editor, you can choose to ignore or accept remote stpem messages directed to that editor. StP editors are set by default to accept these messages.

To change the current editor session's response to remote StP messages, use one of the following toggle commands on the **Tools** menu:

- **Accept Remote Access**—Accepts remote messages that load new tables into the current editor window from the Desktop or from another editor
- **Reject Remote Access**—Rejects remote messages, which causes StP to start an additional instance of the current editor when asked to do so from the Desktop or from another editor

Summary

This table is a quick reference guide to table editor tasks. The “To” column lists the task; the “Use” column lists the editor feature you use to accomplish the task. For more details about each of the tasks, refer to the appropriate section in this chapter.

Table 13: Using the Table Editors Summary

To	Use
Start a table editor	Desktop
Exit a table editor	Close (X) button; Exit from the File menu
Hide or show the Standard toolbar	Hide/Show Standard Toolbar from the View menu
Hide or show the Message Log	Show/Hide Message Log button on Standard toolbar; Show/Hide Message Log (Ctrl+M) from View menu
Redisplay the Desktop	Show Desktop from View menu
Display the table shortcut menu	Right-click mouse in the table
Open a saved table	Open Table button on Standard toolbar; Open (Ctrl+O) from the File menu; Recent files list on the File menu
Name a table	Save As from the File menu
Save a table and update the repository	Save button on Standard toolbar; Save (Ctrl+S) or Save As from the File menu
Print a table	Print button on Standard toolbar; Print (Ctrl+P) or Print As (Ctrl+Shift+P) from the File menu
Set up printing options	Page Setup from the File menu
Check a table for syntax errors	Check Syntax (F7) from the Tools menu
Check a table's contents in the repository	Check Table Semantics (Shift+F7) from the Tools menu
Cancel an operation before completing it	Esc key (not available for all operations)

Table 13: Using the Table Editors Summary (Continued)

To	Use
Undo the last edit	Undo button on Standard toolbar; Undo (Ctrl+Z) from the Edit menu
Redo the last edit	Redo button on Standard toolbar; Redo (Ctrl+Y) from the Edit menu
Select a column or row	Left mouse button in column number cell or row number cell
Select a range of cells	Drag operation with left mouse button
Select all cells to the right and below the pointer	Left mouse button in upper left corner of a cell
Label a cell directly	Standard editing keys to type a label in an empty cell (double-click a cell to select an existing label for editing)
Type or edit a cell label in a dialog box	Cell Content button on Standard toolbar; Cell Content command on Edit menu
Automatically complete a label	Tab in a partially-specified label to automatically complete it
Select from a list of names in the system	List Labels (Ctrl+Tab) from Edit menu or table shortcut menu (optionally enter a few characters first to limit the list)
Select from a list of valid values for a cell label	Set Label from the Edit menu or table shortcut menu (not available for all cells)
Add or edit a table annotation	Table Annotation from the Edit menu
Add or edit a cell, column, or row annotation	Cell Annotation , Column Annotation , or Row Annotation from the Edit menu or table shortcut menu
Cut and paste cells	Cut and Paste buttons on Standard toolbar; Cut (Ctrl+X) and Paste (Ctrl+V) from the Edit menu or table shortcut menu

Table 13: Using the Table Editors Summary (Continued)

To	Use
Copy and paste cells	Copy and Paste buttons on Standard toolbar; Copy (Ctrl+C) and Paste (Ctrl+V) from the Edit menu or table shortcut menu
Delete cell contents	Delete from the Edit menu or table shortcut menu
Insert rows	Insert Rows Before/After from the Table menu
Insert columns	Insert Columns Before/After from the Table menu
Insert cells	Insert Cells from the Table menu
Remove cells from the table	Delete Cells from the Table menu
Go to a specific table location	Go To Cell (Ctrl+G) from the View menu
Search a table for a cell label	Find button on Standard toolbar; Find (Ctrl+F) from the Edit menu
Navigate to a related object reference in another table, diagram, or source code	Goto menu
Scale a row or column	Left mouse button on a column divider in row 0 or on a row divider in column 0 to drag the divider to a new position
Adjust the scale of a table column to fit existing labels	Fit Cell to Label button on Standard toolbar; Adjust Scale to Fit Label from the Table menu or table shortcut menu
Adjust the scale of a table column to its default size	Default Scale from the Table menu or table shortcut menu
Span table cells	Span from the Table menu
Hide/Show table sections	Hide/Show button on Standard toolbar; Hide/Show from the View menu

Table 13: Using the Table Editors Summary (Continued)

To	Use
Determine whether StP starts additional instances of an editor	Accept/Reject Remote Access from Tools menu
Change options	Options from Tools menu

6 **Annotating Objects**

This chapter explains how you can supplement the objects represented in diagrams and tables with annotations, which can contain a variety of information, including the object's history, its traceability requirements, and its code generation information.

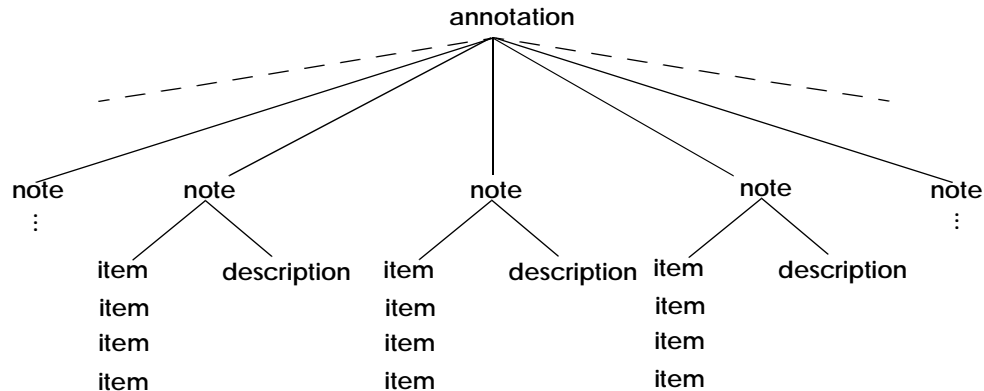
Topics covered are as follows:

- “About Annotations” on page 6-1
- “Using the Object Annotation Editor” on page 6-2
- “Using the OAE Menus” on page 6-7
- “Creating Annotations” on page 6-10
- “Saving and Closing Annotation Files” on page 6-18
- “Printing an Annotation” on page 6-19
- “Exiting the Object Annotation Editor” on page 6-19
- “Summary” on page 6-20

About Annotations

An annotation consists of values and, optionally, descriptive text that is associated with some of the objects in the repository. Most objects in a system can have annotations with specific types of notes, based on the object's application type (described in “StP Application Types” on page 1-9). Each type of note can have multiple items. Figure 1 illustrates the structure of an annotation.

Figure 1: Annotation Structure



Notes that can occur more than once in an annotation must have a key value to distinguish one note of that type from another. The key value is the value assigned to one of the items available for that note type.

The note types and items available for each type of object are determined by an annotation template specific to the application type. You can use the default annotation templates or you can customize any template for your application. See *Customizing StP* for more information on customizing annotation templates.

You create an annotation by selecting the part of a diagram or table that represents an object, entering information using the Object Annotation Editor (OAE), and storing the annotation in the repository.

Using the Object Annotation Editor

You can use the OAE to annotate an entire diagram, a table, or a selected object or table cell.

Starting the Object Annotation Editor

You can start the OAE from:

- An StP diagram editor, to annotate a diagram or an object in a diagram
- An StP table editor, to annotate a table or a table cell
- The StP Desktop, to annotate an object from one of the Model Element subcategories

To start the OAE:

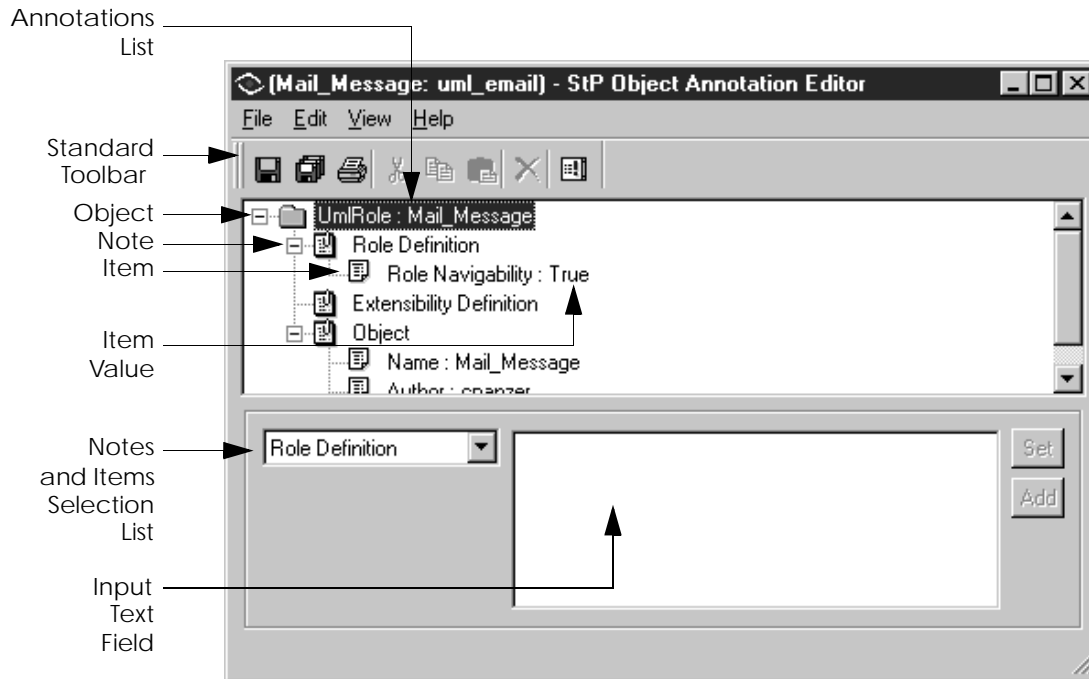
1. Select the diagram, object, table, or table cell you want to annotate.
2. Choose one of these commands from the Desktop **Tools** menu, the editor's **Edit** menu, or an appropriate shortcut menu:
 - **Diagram Annotation**
 - **Object Annotation**
 - **Table Annotation**
 - **Cell Annotation**

The OAE appears with the appropriate object displayed in the annotations list.

Parts of the Object Annotation Editor

This section briefly describes the parts of the OAE, as illustrated by the example in Figure 2 (an annotation for an StP/UML association in a class diagram). For general information about editor windows, see “Using the Window” on page 2-2.

Figure 2: Object Annotation Editor



Annotations List

The annotations list displays the existing notes and items for a selected object. When the OAE first appears, the objects scrolling list contains only a folder for the object you selected for annotation.

To see the existing annotation notes and items for this object:

1. Click the object's Plus Sign (+) to open its annotation folder.
A list of notes for this object appears in the list.
2. Click the Plus Sign (+), if any, for a note to display any existing items.
A colon (:) separates each item name from its assigned value.

As you add additional notes and items to an object, they appear in the annotations list. Scroll bars appear, if needed, to scroll the list.

Notes and Items Selection List

The contents of the notes and items selection list depend on what is selected in the annotations list. The notes and items selection list displays:

- All available annotation notes for a selected object
- All available annotation items for a selected note or sibling item

To display a drop-down list of available notes or items, click the arrow button in the notes and items selection field. Depending on the constraints set in the annotation template, some notes and items can be represented in an annotation only once; others can have multiple representations. The **Add** button is active if the selected note or item can be added.

Input Text Box

You use the input text box to enter or edit a note description, or to add or edit the value for a selected item. Many values are entered as free-form text. For example, you can edit the value of the Author item to supply a different author name. For other values, you have to select from a range of choices in an options list, which appears in place of the input text field.

Set and Add Buttons









You use the **Set** and **Add** buttons in conjunction with the notes and items options list and the input text box:

- **Set** button—Records any new entries or changes made in the input text box; for example, new note description entries or item value edits
- **Add** button—Adds a selected note or item to an annotation

Using the Standard Toolbar

The Standard toolbar contains tool buttons for frequently-used Object Annotation Editor commands. For general information on toolbars, see “Using Toolbars” on page 2-5.

Table 1: Standard OAE Toolbar Buttons

Button	Tool	Description	For details, see
	Save Annotation	Saves the currently selected annotation in the OAE's annotation list.	"Saving and Closing Annotation Files" on page 6-18
	Save All Annotations	Saves all annotations in the OAE's annotation list.	
	Print	Sends an image of the annotation to the default Microsoft Word printer.	"Printing an Annotation" on page 6-19
	Cut	Cuts a selected note or item and places the information on the clipboard.	"Cutting, Copying, and Pasting a Note or Item" on page 6-17
	Copy	Copies a selected note or item and places the information on the clipboard.	
	Paste	Pastes the contents of the clipboard.	
	Delete	Deletes a selected note or item from the annotation.	"Deleting a Note or Item" on page 6-18
	Show/Hide Message Log	Toggles display of the StP Message Log on or off.	"Using the Message Area and Log" on page 2-15

Using the OAE Menus

The Object Annotation Editor provides these menus:

- **File**
- **Edit**
- **View**
- **Help**

File Menu

The **File** menu provides commands for manipulating the annotation file, as described in Table 2.

Table 2: File Menu Commands

Command	Description	For Details, See
Save	Saves the annotation file for the current object in the OAE's annotation list.	"Saving Annotation Information" on page 6-18
Save All	Saves all annotation files in the OAE's annotation list.	
Close	Closes the annotation file for the current object in the OAE.	"Closing an Annotation File" on page 6-19
Print	Sends an image of the annotation to the default Microsoft Word printer.	"Printing an Annotation" on page 6-19
Exit	Exits the OAE.	"Exiting the Object Annotation Editor" on page 6-19

Edit Menu

The **Edit** menu provides commands for manipulating notes, items, and descriptions, as described in Table 3.

Table 3: Edit Menu Commands

Command	Description	For Details, See
Add Note	Adds an annotation note to an object.	“Adding a Note” on page 6-10
Add Item	Adds an annotation item to a note.	“Adding Items to Notes” on page 6-13
Cut	Cuts an annotation note or item from an object and places it on the clipboard.	“Cutting, Copying, and Pasting a Note or Item” on page 6-17
Copy	Copies an annotation note or item and places it on the clipboard.	
Paste	Pastes an annotation note or item from the clipboard.	
Delete	Deletes an annotation note or item from an object.	“Deleting a Note or Item” on page 6-18
Note Description	Launches an external text editor for creating or editing a textual note description.	“Adding a Note Description” on page 6-12
Options	Changes the appearance and behavior of various aspects of the OAE.	“Object Annotation Editor Options” on page 7-20

View Menu

The **View** menu provides commands for displaying or hiding the Standard toolbar and Message Log, as well as for recalling the StP Desktop, as described in Table 4.

Table 4: View Menu Commands

Command	Description	For Details, See
Hide/Show Standard Toolbar	Toggles display of the Standard toolbar on or off.	“Using Toolbars” on page 2-5
Show/Hide Message Log	Displays the Message Log.	“Using the Message Area and Log” on page 2-15
Show Desktop	Displays the StP Desktop in a separate window.	“Reopening the Desktop from an Editor” on page 3-2

Help Menu

In addition to the standard **Help** menu commands (described in “Help Menu” on page 3-16), the OAE **Help** menu provides the **On Selection** command, which displays a description of the selected note or item.

To show annotation help:

1. Select a note or item in the annotations list.
2. From the **Help** menu, choose **On Selection**.

A description of the selected note or item appears in a **Help** dialog box.

Creating Annotations

You create an annotation by:

- Adding notes
- Typing a note description (optional)
- Adding items to notes
- Adding or editing values for items
- Saving the annotation

Adding a Note

By default, StP automatically assigns certain notes and their associated items and values to an object, based on information you provided in the diagram or table editor. For example, StP automatically adds to every object an Object note with the Name item set to the value of the object's label.

You can add other annotation notes to an object using either the:

- **Add Note** command on the **Edit** menu
- Notes and items selection list (see Figure 3)

An object can have only a single instance of certain types of notes, such as the Object note. It can have multiple instances of other notes, such as the Requirement note. Notes that can occur more than once for an object appear in the objects scrolling list along with their key values, if any, once you have added those values.

You can add only one note at a time.

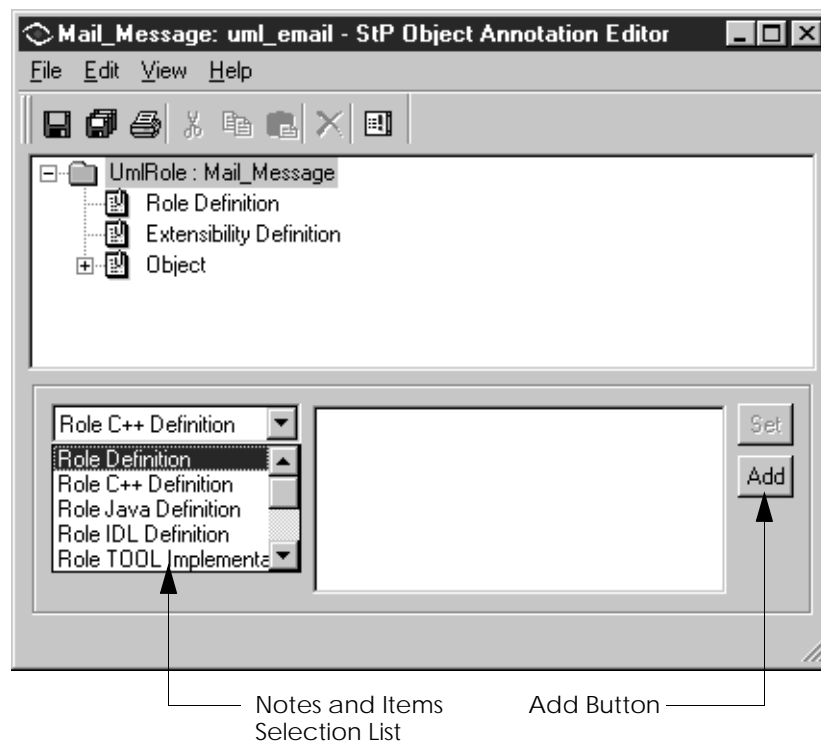
Adding Notes Using the Notes and Items Selection List

To add a note from the notes and items selection list:

1. Select the object in the annotations list.
2. Click the arrow button in the notes and items selection field to display a drop-down list of available notes for that object.

3. Select an available note from the list.
The **Add** button is active if the note is available; it appears dimmed if the annotation template does not allow any more instances of this note for this object.
4. Click **Add**.
StP adds the note to the object.

Figure 3: Adding a Note from the Notes and Items Selection List



Adding Notes Using the Edit Menu

To add a note using the **Edit** menu:

1. Select the object in the annotations list.
2. From the **Edit** menu, choose **Add Note** to display a submenu of available notes for that object.

Notes appear dimmed if the annotation template does not allow any more instances of this note for this object.

3. From the **Add Note** submenu, choose an available note.
StP adds the note to the object.

Viewing and Editing Added Notes

To see the new note in the annotation list, you may need to open the object's annotation folder.

After adding a note:

- Add an optional note description, as described in the following section, "Adding a Note Description."
- Add any items you want to associate with the note, and supply values for the items, as described in "Adding Items to Notes" on page 6-13 and "Editing Values" on page 6-15.
- Save the annotation, as described in "Saving and Closing Annotation Files" on page 6-18.

Adding a Note Description

You can add or change a textual description for each note in an annotation. There is no limit to the length of a note description. You can add or edit a note description in either of these ways:

- Type a description in the OAE's input text box
- Launch and enter a description in an external text editor

Typing a Description in the Input Text Box

To add or edit a note description in the input text box:

1. In the annotations list, select the note for which you want to write a note description.
2. Click in the input text box and type the note description.
3. Click **Set**.

The note's description now appears in this field for viewing or editing whenever you select the note.

Entering a Description in a Specified Text Editor

If you prefer, you can create or edit a note description in an external text editor, such as Notepad, which you invoke from within the OAE. To use an external editor for note descriptions, you must have designated it as the default OAE note description editor on the **Annotations** tab of the Options dialog box (see “Object Annotation Editor Options” on page 7-20).

To enter or edit a note description in an external text editor:

1. From the OAE **Edit** menu, choose **Note Description**.
StP launches the designated external text editor and displays the existing note description, if any, in the editor window.
2. Enter or edit the note description in the text editor’s window.
3. Save the file.
4. Exit the text editor.
StP assigns the note description to the note; if the note is selected in the OAE, the new or edited note description appears in the OAE’s input text box.

Adding Items to Notes

Each note has a corresponding set of items that specify information about the object. Some notes have default items that StP assigns automatically when you add the note.

You can add other annotation items to a note using either the:

- Notes and items selection list (see Figure 3)
- **Add Item** command on the **Edit** menu

Some items have default values, which StP enters automatically when you add the item to a note. You can edit these values later, as described in “Editing Values” on page 6-15.

Adding Items Using the Notes and Items Selection List

To add an item to a note from the notes and items selection list:

1. Select the note, or a sibling item for the note, in the annotation list.
2. Click the arrow button in the notes and items selection field to display a drop-down list of available items for that note.
3. Select an available item from the list.
The **Add** button is active if the item can be added; it appears dimmed if the annotation template does not allow any more instances of this item for this note.
4. Click **Add**.
StP adds the item, as well as any default value for it, to the note in the annotations list.

Adding Items Using the Edit Menu

To add an item to a note, using the **Edit** menu:

1. Select the note or sibling item in the annotations list.
2. From the **Edit** menu, choose **Add Item** to display a submenu of available items for that note:
An item appears dimmed if the annotation template does not allow any more instances of this item for this note.
3. From the **Add Item** submenu, choose an available item.
StP adds the item, as well as any default value, to the note in the annotations list.

Viewing and Editing the Added Items

To see the new item in the annotation list, you may need to open the note to which you just added the item.

After adding an item:

- Edit the value for the item, if necessary, as described in “Editing Values,” which follows.
- Save the annotation, as described in “Saving and Closing Annotation Files” on page 6-18.

Editing Values

Each item in the annotations list is followed by its value, if any, separated from the item name by a colon. Many items have default values; other items do not have a value until you add one.

You can add or change the value of an item, unless it is read-only. For example, you can edit the value of an Author item, but not the Name item for an Object note, which is based on the object's label and is read-only. For some items, rather than entering text explicitly, you select a value from a menu or options list that displays all possible choices for that item.

Typing a Value

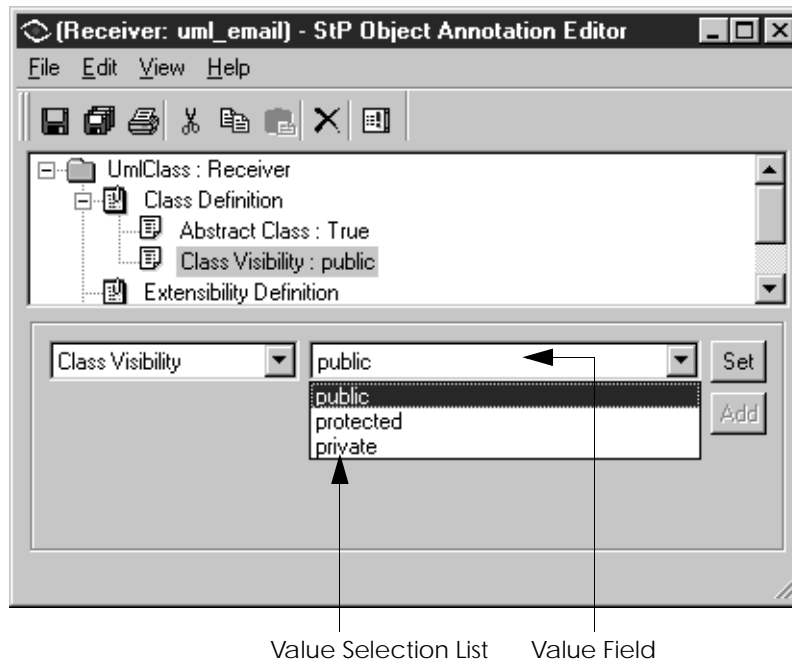
To manually type a value:

1. In the annotations list, select the item.
Any existing value appears following a colon (:) after the item name in the annotations list, as well as in the input text box.
If the current item does not accept a value, the **Set** button is inactive and appears dimmed.
2. Click the left mouse button in the input text box.
3. Type or edit the value.
4. Click **Set**.
The new value appears following a colon (:) after the item in the annotations list.

Selecting Values from a List

Some items have a limited range of possible values, such as True or False or a list of data types. When you select an item of this type in the annotations list, a list of possible values appears in the value field (which temporarily replaces the input text box), as shown in Figure 4.

Figure 4: OAE Item Value Selection List



To specify or change an item's value using a selection list:

1. In the annotations list, select the item.
Any existing value appears following a colon (:) after the item name in the annotations list, as well as in the value field.
If the current item does not take a value, the **Set** button is inactive and appears dimmed.
2. Click the arrow button in the value field to display a selection list of possible values for this item.
3. Select a value from the list.
4. Click **Set**.
The new value appears following a colon (:) after the item in the annotations list.

Adding Annotations for Multiple Objects

You can add annotations for more than one object without restarting the OAE each time. To do this:

1. Save the annotations for the current object.
2. Select the new object in the editor.
3. From the editor's **Edit** menu or appropriate shortcut menu, choose **Object Annotation** (for a diagram object) or **Cell Annotation** (for a table cell).

The OAE displays the information for the new object, as well as the information for the previous one.

Cutting, Copying, and Pasting a Note or Item

You can cut, copy, and paste notes and items within one object annotation, or between object annotations.

Use a cut and paste operation to:

- Change the order of notes or items in an object annotation
- Move a note or item from one object to another

Use a copy and paste operation to:

- Create a duplicate of a note or item for an object, if the OAE allows duplicates of that particular note or item
- Copy a note or item from one object's annotation and paste it into another object's annotation, as appropriate

To cut or copy and then paste a note or item:

1. In the annotations list, select the note or item you want to copy.
2. Do one of the following:
 - Select the **Cut** button on the toolbar or choose **Cut** from the **Edit** menu.
 - Select the **Copy** button on the toolbar or choose **Copy** from the **Edit** menu.
3. Select the object or note into which you want to paste the note or item, respectively.

4. Select the **Paste** button on the toolbar or choose **Paste** from the **Edit** menu.
StP pastes the cut or copied note or item at the end of the list of existing notes or items.

Deleting a Note or Item

You can delete only optional notes and items. The **Delete** command and toolbar button are inactive when you select a note or item that is mandatory for an object.

To delete an optional note or item:

1. In the annotations list, select the note or item you want to delete.
2. Select the **Delete** button on the toolbar or choose **Delete** from the **Edit** menu.

Saving and Closing Annotation Files

You can save either the current annotation file or all annotation files in the OAE. You can also close annotation files, with or without saving them.

Saving Annotation Information

When you save an annotation file, StP:

- Saves the annotation information in the system's ASCII files
- Updates the object information in the repository

To save annotation information for one or more objects in the OAE, choose one of the following commands from the **File** menu:

- **Save** to save the current object's annotation file only
- **Save All** to save the annotation files for all objects in the OAE

Upon closing or exiting the OAE, StP prompts you to save any unsaved annotations for each object listed in the OAE.

Closing an Annotation File

The **Close** command on the OAE **File** menu closes the annotation file for the current object in the OAE and clears that object's annotation information from the display. You close object annotation files one at a time, leaving any other annotation files open in the OAE. If you have not saved your current edits, StP prompts you to save the annotation before closing the file.

Printing an Annotation

When you print an annotation from the Object Annotation Editor, StP formats the contents of the annotation for Microsoft Word output and sends the output to the Microsoft Word default printer.

To print the contents of an annotation:

1. From the annotations list, select the object annotation you want to print.
2. From the OAE **File** menu, choose **Print**.

StP prints the annotation to the Microsoft Word default printer.

Exiting the Object Annotation Editor

To exit the OAE, choose **Exit** from the **File** menu. If any annotation contains unsaved changes, a confirmation dialog box offers you an opportunity to save them before exiting.

Summary

Table 5 is a quick reference guide to editing tasks. The “To” column lists the task; the “Use” column lists the editor feature you use to accomplish the task. For more information about each of the tasks, refer to the appropriate section in this chapter.

Table 5: Using the Object Annotation Editor Summary

To	Use
Start the OAE	An appropriate Annotation command from the editor’s Edit menu or Desktop Tools menu, for the selected object, diagram, or table
Open an annotation or note to display its contents	Left mouse click the Plus sign (+) in front of the annotation or note in the annotations list
Save selected annotation	Save Annotation toolbar button; Save (Ctrl+S) from the File menu
Save all annotations	Save All Annotations toolbar button; Save All (Ctrl+L) from the File menu
Add a note	Arrow button in the notes and items selection field, or Add Note from the Edit menu, to display a list of available notes for the selected object
Enter or edit a note description	OAE’s input text field to enter or edit the text, then click Set to assign the description to the selected note; Note Description from the Edit menu to enter or edit the selected note’s description in an external text editor
Specify an external text editor for note description editing	Options on the Edit menu, then enter the text editor’s executable filename on the Annotations tab of the Options dialog box

Table 5: Using the Object Annotation Editor Summary (Continued)

To	Use
Add an item	Arrow button in the notes and items selection field, or Add Item from the Edit menu, to display a list from which to choose an item for the selected note (or for the selected sibling's note); then click Add
Enter or edit a user-specified value for an item	OAE's input text field to enter or edit a value, then click Set
Change a selected or default value for an item	Arrow button in the value field to display a list of values from which to select; then click Set
Cut a note or item	Cut toolbar button; Cut (Ctrl+X) from the Edit menu
Copy a note or item	Copy toolbar button; Copy (Ctrl+C) from the Edit menu
Paste a note or item	Paste toolbar button; Paste (Ctrl+V) from the Edit menu
Delete a note or item	Delete toolbar button; Delete (Del) from the Edit menu
Print an annotation	Print toolbar button; Print (Ctrl+P) from the File menu
Exit the OAE	Exit (Alt+F4) from the File menu

7

Changing StP Options

This chapter explains how you change the appearance and behavior of various StP components, such as the StP Message Log and StP editors.

Topics covered in this chapter are as follows:

- “How StP Options Are Determined” on page 7-1
- “Changing Options” on page 7-2
- “StP Desktop Options” on page 7-4
- “Diagram Editor Options” on page 7-8
- “Table Editor Options” on page 7-19
- “Object Annotation Editor Options” on page 7-20
- “Summary of Options” on page 7-23

How StP Options Are Determined

Each option has a default setting. Default option settings are determined by the rules files, ToolInfo variables, environment variables, or the resource database. For information about modifying default settings, see the discussion on user environments and ToolInfo variables in *StP Administration*.

Most options can be changed using the **Options** dialog box described in this chapter. You can change any option setting for the duration of your current session, as well as save them for use in later sessions.

Changing StP Options

You can access the **Options** dialog box from the:

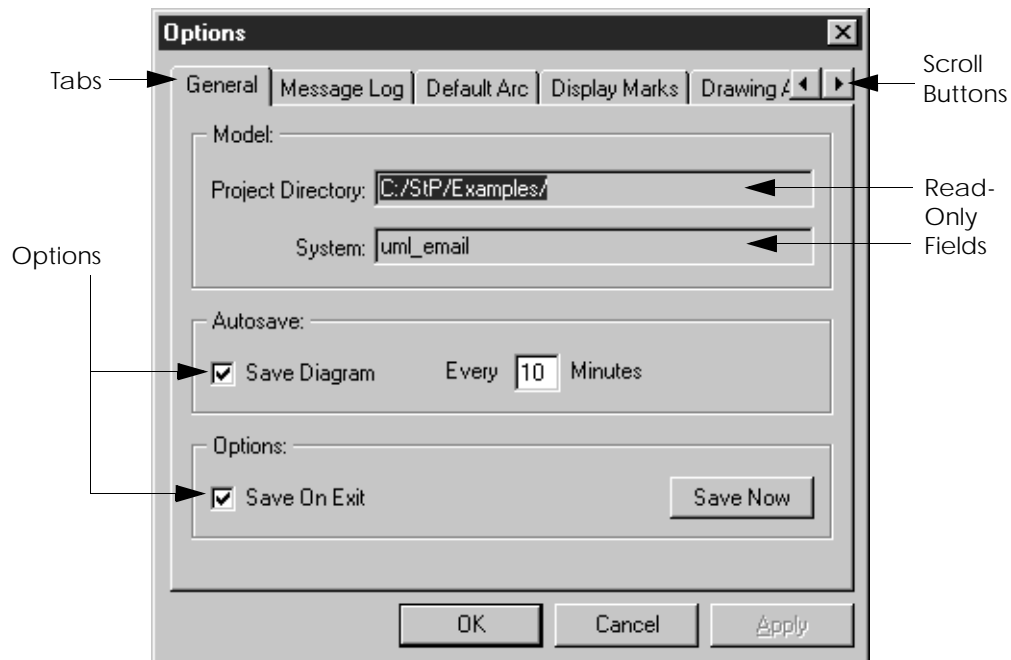
- StP Desktop
- Diagram editors
- Table editors
- Object Annotation Editor
- Repository Browser

The **Options** dialog box for each of these StP components has a **General** and a **Message Log** tab; some also have a set of component-specific tabs.

Changing Options

The **Options** dialog box contains tabs for changing options relevant to the editor or other StP component from which you accessed the dialog box. Figure 1 shows the diagram editor **Options** dialog box.

Figure 1: An Options Dialog Box



Using the Options Dialog Box

To use the **Options** dialog box:

1. Choose the **Options** command from the:
 - **Tools** menu from the Desktop, diagram and table editors, or StP Repository Browser
 - **Edit** menu from the Object Annotation Editor
2. On the **Options** dialog box, select the tab for the options you want to change.
 If necessary, use the scroll buttons in the upper right corner to display more tabs, or resize the dialog box by dragging its border.
3. On the dialog box tab, set the options as desired (see the descriptions of options on each tab throughout this chapter).
4. Click **OK** to set the options for all tabs in the dialog box for the current session.

Saving Modified Options for Future Sessions

The **OK** button on each of the **Options** dialog box tabs sets the selected options from all tabs as the user defaults for the current editor session only.

To save modified options as the user defaults for subsequent sessions of this editor, you must save them in either of these ways:

- **Save Now** button—Immediately saves all current option settings as the user default options for subsequent editor sessions
- **Save On Exit** option—When you exit the editor, saves all option settings that are current at that time as the user default options for subsequent editor sessions

StP saves the modified StP options to the `C:\IDE.ini` file.

StP Desktop Options

The StP Desktop provides access to all StP editors and utilities. For general information about the Desktop, see Chapter 3, “Using the StP Desktop.”

The Desktop **Options** dialog box allows you to set options for:

- Saving your changes as the default options
- Message log contents and behavior

For general instructions on using the **Options** dialog box, see “Changing Options” on page 7-2.

Table 1 lists the **Options** dialog box tabs available from the Desktop.

Table 1: Desktop Options Dialog Tabs

Tab	Description	For Details, See
General	Sets modified editor options as user default options.	“General Desktop Options” on page 7-5
Message Log	Sets Message Log options, such as number of messages saved and the type of messages displayed.	“Message Log Options” on page 7-6

General Desktop Options

The **General** tab on the Desktop **Options** dialog box (Figure 2) is similar to the same tab on the editor **Options** dialog box, but does not offer an **Autosave** option.

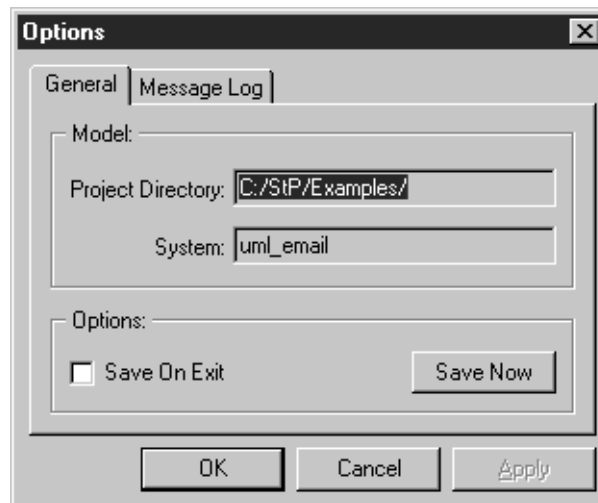
Figure 2: General Tab - Desktop Options Dialog Box

Table 2 describes the **General** tab of the Desktop **Options** dialog box.

Table 2: General Tab Desktop Options Summary

Element	Description	Settings
Project Directory field	Displays the project directory for the current system; used by StP file commands such as Open and Save .	(Read-only field)
System field	Displays the system directory for the current system; used by StP file commands such as Open and Save .	
Save On Exit option	On exiting this editor, saves the current options specified on all Options dialog box tabs as the user defaults for subsequent sessions.	Selected— Save options on exiting this editor
		Not selected—Revert to previously saved user default options on exiting this editor
Save Now button	On pressing this button, saves the options specified on all Options dialog box tabs, up to the current time, as the user defaults for subsequent sessions.	

Message Log Options

The Message Log displays error messages and notifications for each editor. For details about the Message Log, see Chapter 2, “Using Basic Features of StP.”

You can change these Message Log options using the **Message Log** tab of the Desktop **Options** dialog box (Figure 3):

- The number of messages saved
- When the Message Log is displayed
- The type of messages displayed (errors only, or both errors and non-error information)

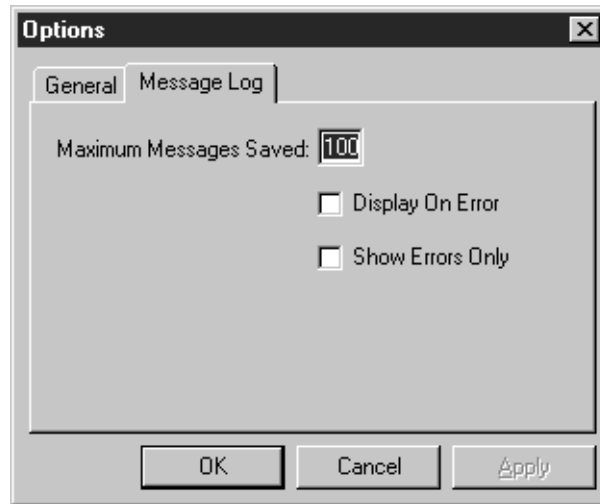
Figure 3: Message Log Tab - Desktop Options Dialog Box

Table 3 describes the options on the **Message Log** tab of the Desktop **Options** dialog box.

Table 3: Message Log Tab Options Summary

Elements	Description	Settings
Maximum Messages Saved field	Accepts input for the maximum number of messages you want to display in the Message Log at one time.	0 - 2000
Display On Error option	Displays the Message Log when an error occurs.	Selected—Display the Message Log when an error occurs
		Not selected—Do not display the Message Log when an error occurs

Table 3: Message Log Tab Options Summary (Continued)

Elements	Description	Settings
Show Errors Only option	For newly generated messages, displays only error messages in the Message Log. Existing informational messages are not removed.	Selected—Do not show informational messages; show only error messages
		Not selected—Show all messages, both informational and error

Diagram Editor Options

In diagram editors, the **Options** dialog box tabs enable you to set options for:

- Saving your changes as the default options
- Automatic save intervals
- Message log contents and behavior
- Default arc type
- Display mark visibility and update behavior
- Drawing area appearance
- Symbol appearance
- Symbol Toolbar appearance

For general instructions on using the **Options** dialog box, see “Changing Options” on page 7-2.

Table 4 lists the **Options** dialog box tabs available from the diagram editors.

Table 4: Diagram Editor Options Dialog Box Tabs

Tab	Description	For Details, See
General	Sets the automatic save interval for this editor. Sets modified editor options as user default options.	“General Diagram Editor Options” on page 7-9
Message Log	Sets Message Log options, such as number of messages saved and the type of messages displayed.	“Message Log Options” on page 7-6
Default Arc	Sets the default arc type for the diagram editor.	“Default Arc Options” on page 7-11
Display Marks	Sets update options for display marks.	“Display Marks Options” on page 7-12
Drawing Area	Sets drawing area options, such as alignment, zoom level, grid display, and so on.	“Drawing Area Options” on page 7-14
Symbol Type	Sets the default dimensions of each symbol type.	“Symbol Type Options” on page 7-16
Symbol Toolbar	Sets the symbols that appear on the Symbols toolbar.	“Symbol Toolbar Options” on page 7-18

General Diagram Editor Options

In a diagram editor, the **General** tab of the **Options** dialog box (Figure 4), allows you to:

- View the project and system directory specifications for the current project
- Set the **Autosave** option on or off, and specify how often to save the editor contents
- Save any modified options on all **Options** dialog box tabs as the user defaults for future sessions (see “Saving Modified Options for Future Sessions” on page 7-4)

Figure 4: General Tab - Diagram Editor Options Dialog Box

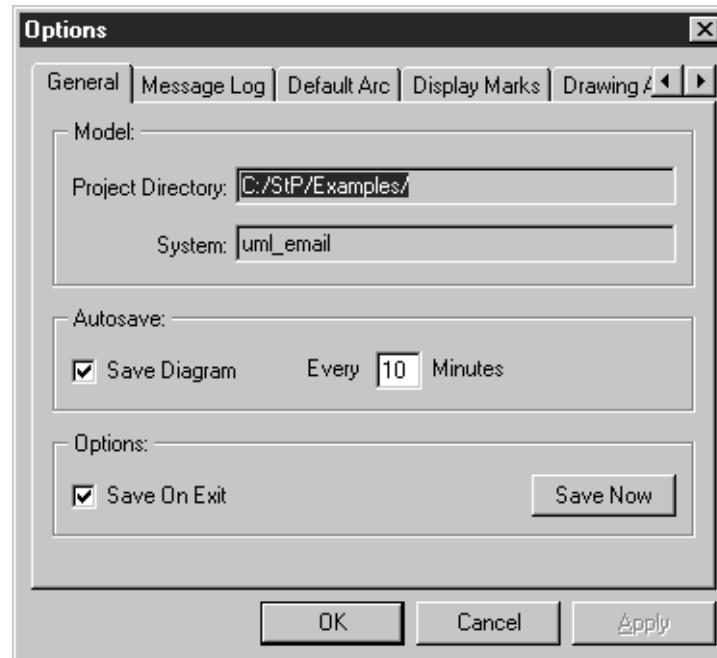


Table 5 describes the options on the **General** tab of the diagram editor **Options** dialog box.

Table 5: General Diagram Editor Options Summary

Element	Description	Settings
Project Directory field	Displays the project directory for the current system; used by StP file commands such as Open and Save .	(Read-only field)
System field	Displays the system directory for the current system; used by StP file commands such as Open and Save .	(Read-only field)

Table 5: General Diagram Editor Options Summary (Continued)

Element	Description	Settings
Save Diagram option; Every __ Minutes field	Saves backup file at intervals specified in minutes.	Minutes between autosaves
Save On Exit option	On exiting this editor, saves the current options specified on all Options dialog box tabs as the user defaults for subsequent sessions.	Selected— Save options on exiting this editor
		Not selected—Revert to previously saved default options on exiting this editor
Save Now button	On pressing this button, saves the options specified on all Options dialog box tabs, up to the current time, as the user defaults for subsequent sessions.	

Editor's Message Log Options

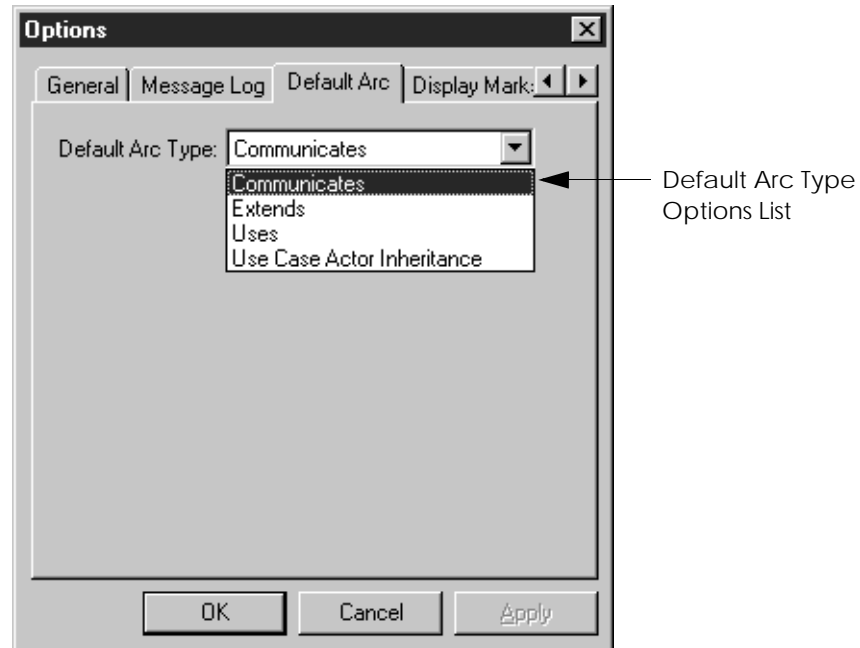
The diagram editor's **Message Log** options are the same as those for the Desktop, described in "Message Log Options" on page 7-6.

Default Arc Options

For diagram editors using notations with several valid arc types, you can define the default arc type (the one that automatically appears when you insert an arc) using the **Default Arc** tab of the diagram editor **Options** dialog box (Figure 5).

The **Default Arc Type** drop-down options list contains appropriate arc type choices for the notation used by your diagram editor.

Figure 5: Default Arc Tab - Diagram Editor Options Dialog Box



Display Marks Options

Display marks are used in diagrams to indicate a variety of information about certain symbols.

Using the **Display Marks** tab of the **Options** dialog box (Figure 6), you can set options that determine which display marks are:

- Currently visible in the diagram editor
- Updated automatically and continuously as you edit
- Updated only when you choose **Refresh Display Marks** from the **View** menu or diagram editor shortcut menus

Figure 6: Display Marks Tab - Diagram Editor Options Dialog Box

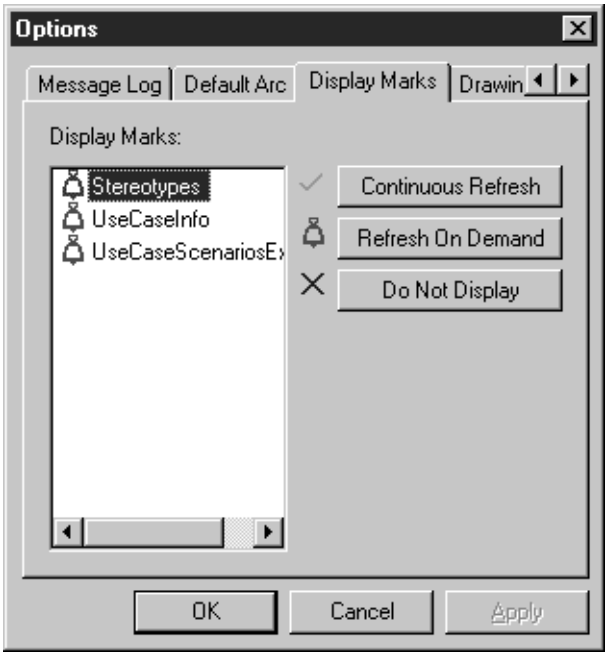


Table 6 describes the options on the **Display Marks** tab of the diagram editor **Options** dialog box.

Table 6: Display Marks Options Summary

Element	Description
Display Marks list	Indicates the current refresh option settings for each type of display mark in this editor. Allows you to select the display marks whose refresh options you want to change.
Continuous Refresh button	Sets the refresh option for the selected display marks to automatically and continuously refresh them as you edit the diagram.

Table 6: Display Marks Options Summary (Continued)

Element	Description
Refresh on Demand button	Sets the refresh option for the selected display marks to refresh them only when you choose the Refresh Display Marks command.
Do Not Display button	Hides the selected display marks.

Drawing Area Options

The drawing area is the part of the diagram editor where you insert and manipulate symbols. For more information about the drawing area, see “Adjusting the Diagram Display” on page 4-50.

Using the **Drawing Area** tab on the diagram editor **Options** dialog box (Figure 7), you can change the following drawing area options:

- Zoom level
- Alignment “snap” points
- Grid display
- Orthogonal arcs
- Page layout for printing
- Scrolling behavior

Figure 7: Drawing Area Tab - Diagram Editor Options Dialog Box



Table 7 describes the options on the **Drawing Area** tab of the diagram editor **Options** dialog box.

Table 7: Drawing Area Options Summary

Element	Description	Settings
Zoom field	Determines the zoom level of the diagram.	Any percentage, where 100% equals full size
Grid Size field	Determines the placement of symbols and arcs in the drawing area. The grid is always proportional to the zoom factor.	The number of pixels that separate the invisible grid lines (1, 2, 4, 8, 16, 32, 64, 128)

Table 7: Drawing Area Options Summary (Continued)

Element	Description	Settings
Show Grid option	Shows or hides the grid in the drawing area.	Selected—Shows the grid Not selected—Hides the grid
Orthogonal Arcs option	Draws all new arcs with only vertical and horizontal lines, using right angles, as needed.	Selected—Creates all new arcs orthogonally Not selected—Creates new arcs exactly as drawn by user
Page Layout option	Shows or hides the lines indicating page breaks in multipage print jobs.	Selected—Shows diagram in page layout view Not selected—Shows diagram in normal view
Active Scrolling option	Controls how the drawing area responds to dragging the slider of the horizontal or vertical scroll bars.	Selected—Drawing area moves while the scroll bar slider is moved
		Not selected—Drawing area moves to the new position after the scroll bar is released

Symbol Type Options

Each symbol dragged into the drawing area has options that determine its height and width. You can change the default dimensions of any symbol type using the **Symbol Type** tab of the diagram editor **Options** dialog box (Figure 8).

The symbol scaling list on the **Symbol Type** tab displays the defined scalings available for the symbol you select in the **Symbol** list. Using this dialog, you can:

- Select a different defined scaling to use as the default for the selected symbol type
- Create a new defined scaling by editing the **Width** and **Height** fields

Symbol type option edits affect only new symbols you insert in a diagram after changing the options.

To change the scale or type of an existing symbol in the diagram, see:

- “Scaling Symbols” on page 4-40
- “Replacing a Symbol” on page 4-44

Figure 8: Symbol Type Tab - Diagram Editor Options Dialog Box

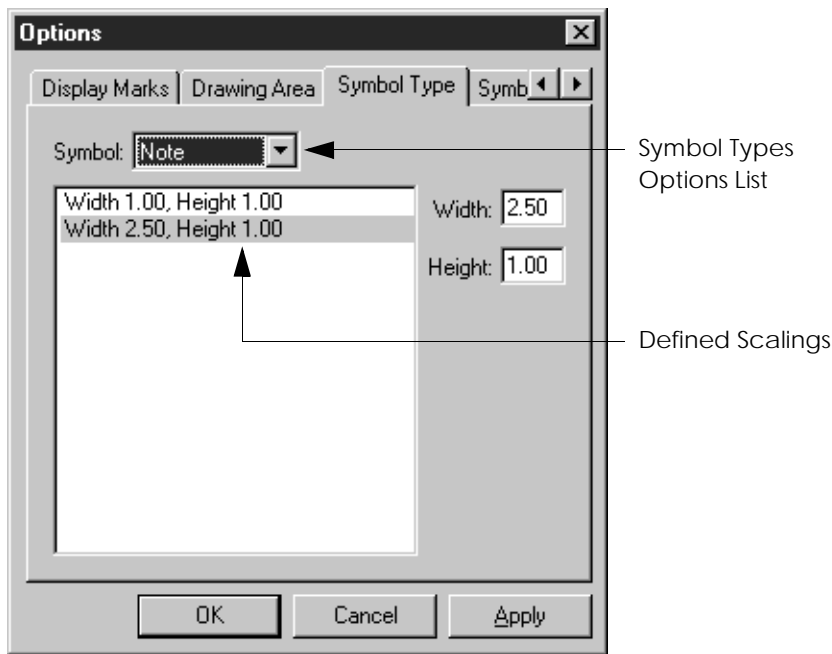


Table 8 describes the options on the **Symbol Type** tab of the diagram editor **Options** dialog box.

Table 8: Symbol Type Options Summary

Element	Description
Symbol field	Specifies the symbol type whose default scaling you want to edit.
Defined scalings list	Lists the defined scalings for the symbol type selected in the Symbol field.
Width field	Displays the currently selected width setting, in inches, and accepts input to create a new scaling.
Height field	Displays the currently selected height setting, in inches, and accepts input to create a new scaling.

Symbol Toolbar Options

The diagram editor's Symbol toolbar provides the symbols available for inserting into a diagram in that editor. For details about the Symbol toolbar, see "Symbols Toolbar" on page 4-6.

You can determine which of the symbols for this editor appear on the Symbol toolbar, using the **Symbol Toolbar** tab on the editor's **Options** dialog box (Figure 9).

You can select symbols in the **Toolbar Symbols** list as follows:

- Contiguous symbols—Select a symbol, then hold down the Shift key and select another symbol; all intervening symbols are also selected.
- Non-contiguous symbols—Hold down the Ctrl key and select individual symbols with the left mouse button.
- All symbols—Click **Select All** button.

Figure 9: Symbol Toolbar Tab - Diagram Editor Options Dialog Box

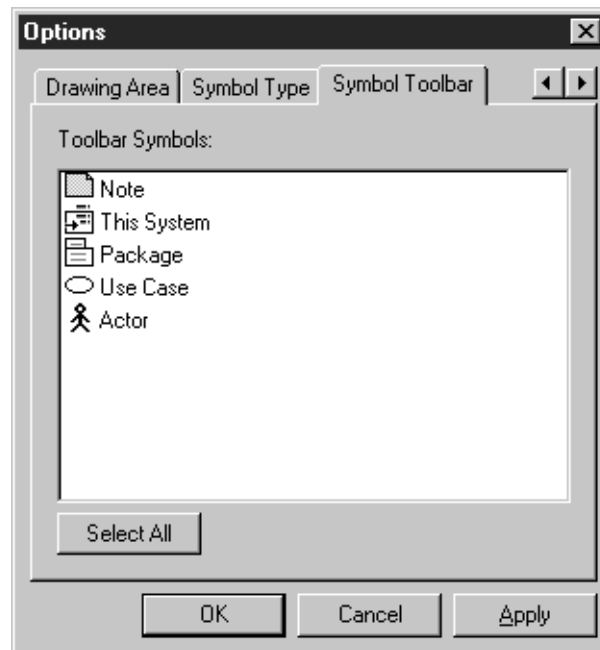


Table Editor Options

You create and edit tables using the table editors. Common features of all table editors are described in Chapter 5, “Editing Tables.”

Using the table editor’s **Options** dialog box tabs, you can set options for:

- Saving your changes as the default options
- Automatic save intervals
- Message log contents and behavior

For general instructions on using the **Options** dialog box, see “Changing Options” on page 7-2.

Table 9 lists the **Options** dialog box tabs available from the table editors.

Table 9: Table Editor Options Dialog Tabs

Tab	Description	For Details, See
General	Same options as for the diagram editors: Sets the automatic save interval for this editor. Sets modified editor options as user default options.	“General Diagram Editor Options” on page 7-9
Message Log	Same options as for the Desktop: Sets Message Log options, such as number of messages saved and the type of messages displayed.	“Message Log Options” on page 7-6

Object Annotation Editor Options

Using the Object Annotation Editor’s **Options** dialog box tabs, you can set options for:

- Which text editor to use for editing note descriptions
- Automatic save intervals
- Saving your changes as the default options
- Message log contents and behavior

For general instructions on using the **Options** dialog box, see “Changing Options” on page 7-2.

Table 10 lists the **Options** dialog box tabs available from the OAE.

Table 10: OAE Options Dialog Tabs Box

Tab	Description	For Details, See
Annotation	Sets an optional external text editor for entering and editing note descriptions.	“Annotation Options” on page 7-21
General	Same options as for the diagram editors: Sets the automatic save interval for this editor. Sets modified editor options as user default options.	“General Diagram Editor Options” on page 7-9
Message Log	Same options as for the Desktop: Sets Message Log options, such as number of messages saved and the type of messages displayed.	“Message Log Options” on page 7-6

Annotation Options

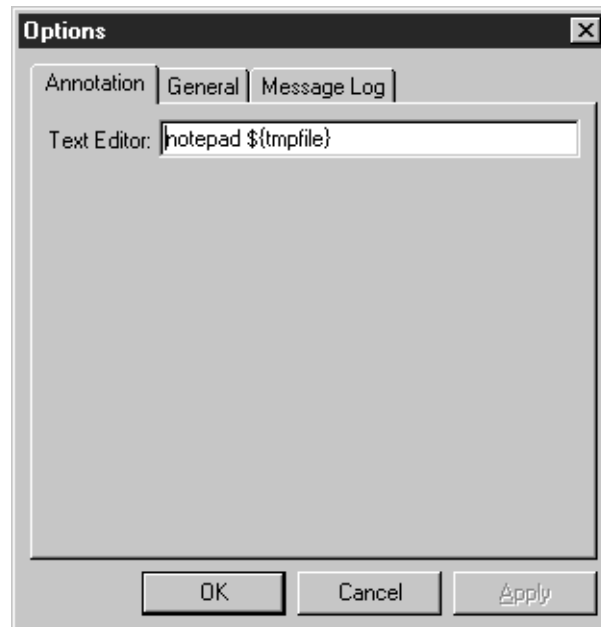
In the OAE, you can enter and edit annotation note descriptions in either of the following ways:

- Type or edit the note description in the OAE’s input text field
- Launch an external text editor from within the OAE, in which you can enter or edit the note description

The OAE provides full text editing capabilities for typing a note description in the input text field.

However, if you intend to launch an external text editor from the OAE to create or edit note descriptions, you must designate the external editor you want to use. To designate the external editor for note descriptions, use the **Annotations** tab on the OAE **Options** dialog box (Figure 10).

Figure 10: Annotation Tab - OAE Editor Options Dialog Box



The **Text Editor** field accepts the following input:

- Executable name for any valid text editor, such as “notepad” (required)
- Temporary output filename for the note description text, in the format `${tmpfile}` (optional)

If you do not specify a filename to temporarily store the note description text, StP automatically appends the default output filename `${tmpfile}` to your entry when you click **OK**.

StP launches the specified editor when you choose **Note Description** on the OAE **Edit** menu. For more information about using the external text editor for entering or editing note descriptions, see “Entering a Description in a Specified Text Editor” on page 6-13.

Summary of Options

This table is a quick reference guide to changing options. The “To Change” column lists the desired effect; the “Use” column lists the option and dialog box you use to achieve the effect. For more details about each of the tasks, refer to the appropriate section in this chapter.

Table 11: Changing Options Summary

To Change	Use
User defaults for Desktop or editor option settings	Desktop or editor Options dialog box, General tab
Contents and behavior of the Message Log	Any Options dialog box, Message Log tab
Automatic save interval	Any editor Options dialog box, General tab
Default arc type	Diagram editor Options dialog box, Default Arc tab
Display marks visibility and refresh behavior	Diagram editor Options dialog box, Display Marks tab
Zoom size of diagram	Diagram editor Options dialog box, Drawing Area tab; View menu Zoom command
Symbol alignment grid size	Diagram editor Options dialog box, Drawing Area tab
Symbol alignment grid visibility	
Arc drawing method (normal or orthogonal arcs)	
Diagram view (page layout or normal view mode)	Diagram editor Options dialog box, Drawing Area tab; View menu commands: Normal or Page Layout

Table 11: Changing Options Summary (Continued)

To Change	Use
Scrolling behavior in drawing area	Diagram editor Options dialog box, Drawing Area tab
Contents of the Symbols toolbar	Diagram editor Options dialog box, Symbol Toolbar tab
Text editor used in the OAE	Object Annotation Editor Options dialog box, Annotations tab

8 Using Diagram Filters

This chapter explains how to use filters to display or hide portions of a diagram. Topics covered are as follows:

- “What Are Diagram Filters?” on page 8-1
- “Applying Filters” on page 8-2
- “Creating and Editing Diagram Filters” on page 8-6
- “Specifying Operations in Filters” on page 8-18
- “Executing and Debugging Filters” on page 8-31
- “Examples” on page 8-35

What Are Diagram Filters?

A diagram can contain elements that may be desirable to view separately from the other elements in the same diagram. Rather than create another diagram that contains these elements, you can apply a filter to the diagram to restrict the visible segments to those symbols and arcs that meet certain criteria. With filters, one diagram can provide the basis for unlimited views of a model; you can create a view without disturbing the integrity of the underlying diagram.

StP provides both generic and editor-specific filters. Generic filters can be applied to any type of diagram in any type of StP diagram editor. Editor-specific filters can be applied only to the type of diagram supported by the current StP diagram editor. This chapter discusses generic filters. For descriptions of editor-specific filters, see your StP product documentation.

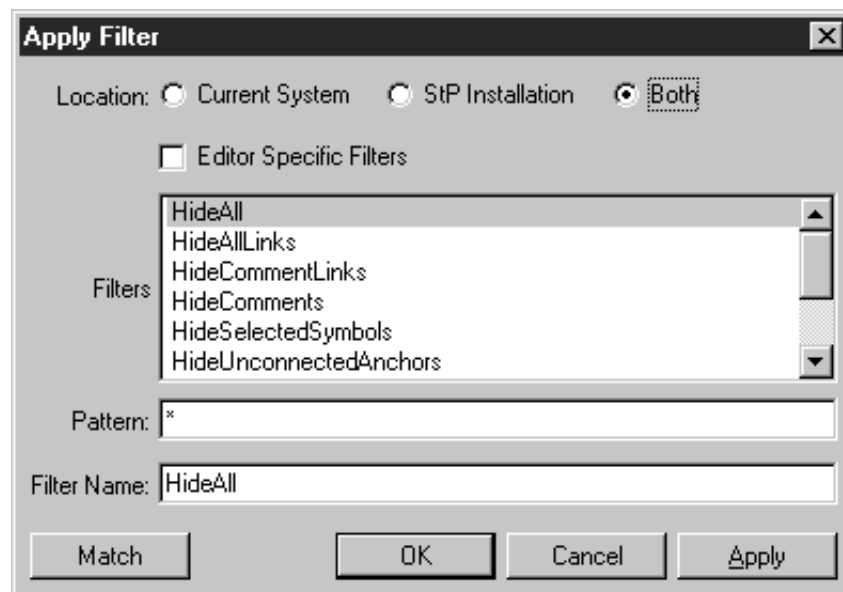
The use of filters often relies on understanding concepts from the Persistent Data Model, such as nodes, links, and contexts. For details, see *Object Management System*.

This chapter also describes how to create and save your own filters.

Applying Filters

When you apply a filter to a diagram, the result is a virtual diagram that hides or shows specific objects on the current diagram. You specify the objects you want to hide or show by choosing a template filter in the **Apply Filter** dialog box.

Figure 1: The Apply Filter Dialog Box



The **Apply Filter** dialog box contains standard features (as described in “Using Dialog Boxes” on page 2-12). The **Filters** scrolling list displays the names of all available filters for the selected options, as described in Table 1.

Table 1: Apply Filter Dialog Box Summary

Element	Description
Location group	Options are: Current System —Lists only those filters stored in the system directory for the current system. StP Installation —Lists only those filters stored globally in the StP template library. Both —Lists all filters, regardless of location.
Editor Specific Filters option	If selected, lists only filters that are specific to the current editor. If not selected, lists only generic filters, which can be applied to any type of diagram.
Filters list	Displays a list of existing filters that match your selected options, from which you can choose a filter.
Pattern field	Accepts a string including an asterisk (*) wild card to restrict the contents of the Filters list.
Filter Name field	Accepts a string for a valid filter name.

Pre-Defined Filters

Several pre-defined generic filters are available for use with all StP diagram editors:

- HideAll—Hides all symbols in the diagram
- HideAllLinks—Hides all arcs on the diagram
- HideCommentLinks—Hides the arcs connecting comment boxes to symbols
- HideComments—Hides comment boxes and connecting arcs

- **HideSelectedSymbols**—Hides the symbols and or arcs currently selected in the diagram
- **HideUnconnectedAnchors**—Hides anchors that are not connected to symbols
- **HideUnselectedSymbols**—Hides all symbols and arcs except the current selection in the diagram
- **ShowAll**—Displays all symbols in the diagram
- **ShowHidden**—Displays symbols that are hidden by a previous filter application

Other pre-defined filters may be available for specific StP editors. See your product documentation for details about editor-specific filters.

Using a Pre-Defined Filter

Before using a filter, be sure that a diagram is loaded into the drawing area.

1. From the diagram editor's **View** menu, choose **Apply Filter**.
2. Select options to display a list of existing filters in the **Filters** list (see Table 1 on page 8-3 for option descriptions):
 - Select a **Location** option to display filters stored in the current system directory, an StP installation subdirectory, or both.
 - To display only editor-specific filters, select **Editor Specific Filter**. Otherwise, the **Filters** list displays only generic filters for all diagram types.
3. To restrict the contents of the **Filters** list, if desired, enter a string including an asterisk (*) wild card in the **Pattern** field and click **Match**.
4. Select a filter from the **Filters** scrolling list or enter a valid filter name in the **Filter Name** field.
5. Click **OK** or **Apply**.

The selected filter is imposed on the current diagram.

Redisplaying the Unfiltered Diagram

To redisplay the current diagram with all elements visible:

1. In the **Apply Filter** dialog box, make sure the **Filters** list contains the generic StP predefined filters (**Editor Specific Filters** option should be unchecked).
2. In the **Filters** list, select the **ShowAll** filter.
3. Click **OK** or **Apply**.
StP applies the **Show All** filter to the current diagram and all diagram contents reappear.

Saving the Results of a Filter

Applying a filter does not disturb the integrity of a diagram; the hidden elements remain part of the diagram and can be made visible at any time by applying the **ShowAll** filter (see “Redisplaying the Unfiltered Diagram” on page 8-5). However, you can use the **Copy** and **Paste** editing commands to create a new version of the diagram containing only those elements that are visible after a filter has been applied. This method creates a diagram with a new name that does not contain any of the original diagram’s hidden elements.

To save the results of a filter:

1. Select all objects in the filtered diagram.
2. From the diagram editor’s **Edit** menu, choose **Copy**.
3. From the diagram editor’s **File** menu, choose **Open**.
4. In the **Open** dialog box, type a new diagram name in the **Selection** field.
5. Click **OK**.

The new (blank) diagram appears in the editor.

6. From the diagram editor’s **Edit** menu, choose **Paste**.

The selected objects appear in the diagram.

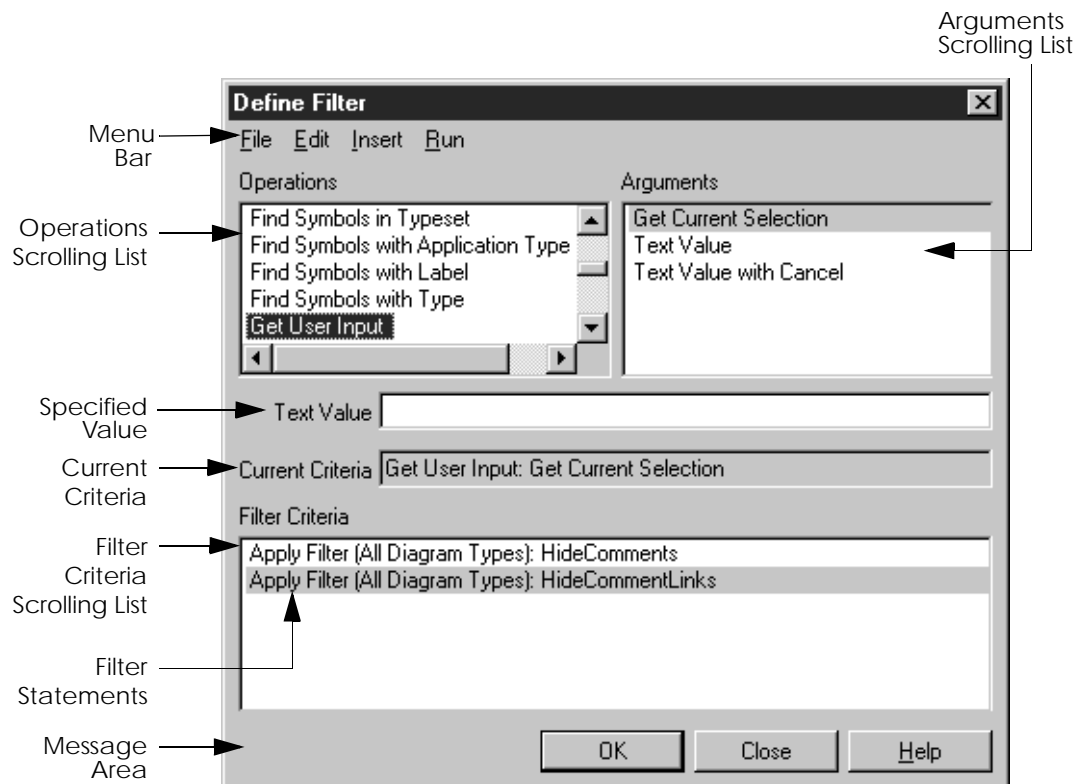
7. From the diagram editor’s **File** menu, choose **Save**.

The new diagram now contains only the visible elements of the original filtered diagram.

Creating and Editing Diagram Filters

In addition to using pre-defined filters, you can also create filters to meet specific needs. A filter comprises a sequence of filter criteria, which are statements that specify requirements for the view of the diagram. Filter criteria are constructed from the filter definition language elements available through the **Define Filter** dialog box.

Figure 2: The Define Filter Dialog Box



The **Define Filter** dialog box also provides a debugging environment for filter execution. For more details, see “Executing and Debugging Filters” on page 8-31.

Parts of the Define Filter Dialog Box

This section describes the parts of the **Define Filter** dialog box.

Menu Bar

The menu bar contains the menu names used for displaying the various menus. For a description of these menus, see “Using the Define Filter Menus” on page 8-10.

Operations Scrolling List

The **Operations** scrolling list displays all the operations available for the current diagram type.

When you select an operation, the arguments associated with it appear in the **Arguments** scrolling list. The operation and its argument also appear in the **Current Criteria** field.

You cannot select more than one operation at a time.

For details about each operation, see “Specifying Operations in Filters” on page 8-18.

Arguments Scrolling List

The **Arguments** scrolling list displays all the arguments available for the selected operation. When you select an argument, it appears in the **Current Criteria** field.

For details about each operation’s arguments, see “Specifying Operations in Filters” on page 8-18.

Text Value

Use the **Text Value** field to change the value of the selected argument. The **Text Value** field accepts regular expressions.

Current Criteria

The **Current Criteria** field shows the current statement (operation, argument, and text value) that you are creating or editing. This field is read-only.

Filter Criteria Scrolling List

The **Filter Criteria** scrolling list displays all the statements that make up the filter.

Message Area

The message area displays status, warning, and error messages.

Using the Filter Definition Language

The filter definition language is made up of the operations and arguments listed in the scrolling lists on the **Define Filter** dialog box.

Filter Statements

The combination of one operation, one of its arguments, and a value, if any, is a complete filter definition language statement. For example, the operation “Find Annotation” with the argument “Find Author: Homer” is one complete statement. Most arguments can have an associated value, such as “Homer.”

Each statement is one independent criterion in a filter; each criterion spans one line of text. A combination of filter statements is equivalent to a filter.

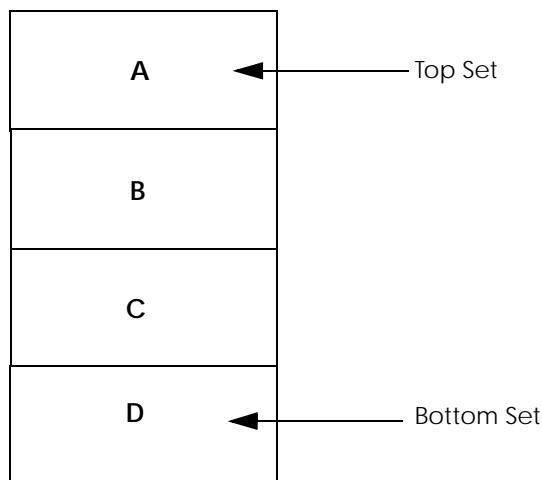
Filters can create sets in terms of the Persistent Data Model, which is the data definition for the repository. Sets are created in terms of nodes, links, and cntxs (contexts). For a complete description of the Persistent Data Model, see *Object Management System*.

Filters can also create sets in terms of application types, the defined symbols and constructs for a specific StP product. For information about application types, see the documentation for your StP product.

Filter Evaluation Stacks

An interpreter parses and executes the individual statements in a filter; the filter interpreter is a stack machine. The sets in the evaluation stack are ordered from top to bottom; the number of sets in the evaluation stack is variable. Sets can be added (“pushed”) to the top of the stack, or deleted from the top of the stack (“popped”). The set at the top of the stack is the top set; only the top set in the evaluation stack is accessible at any time.

Figure 3: Filter Evaluation Stack



The result of a filter statement is pushed on the evaluation stack. The subsequent filter criterion uses the top set of the evaluation stack as an argument and pushes its result on the evaluation stack.

You can manipulate the stack using the arguments described in “Filter Operations” on page 8-26. For examples of filters that push sets onto the evaluation stack, see “Examples” on page 8-35.

Local and Global Variables

Filters support local and global variables. The value of a variable is a set of graphical segments.

A local variable is one that is accessible only within the filter that defines it. This type of variable ceases to exist when the filter terminates execution.

A global variable is one that is defined for the entire execution of a filter and any filters executed by the current filter. This type of variable is also accessible to any filter called from a filter. The Filter Execution Environment (described in “Executing and Debugging Filters” on page 8-31) supports several pre-defined global variables:

- AllArcSegments—A set of all arc segments in the diagram
- AllNodeSegments—A set of all node segments in the diagram
- AllSegments—A set of all segments in the diagram
- ContextSegments—A set of all context segments in the diagram
- BaseSegments—A set of all base segments in the diagram (node and arc segments excluding context segments)
- EmptySet—A set with no contents
- LinkSegments—A set of all link segments (a collection of arcs that form a path between two nodes) in the diagram

To add a variable to a filter, insert the Operator operation with either the Local Variable or Global Variable argument, and specify the name of the variable in the **Text Value** field. To write to a variable, use either the Store or Store and Pop argument for the Operator operation. To load a variable, use the Load argument for the Operator operation. For more information on these Operator arguments, see Table 11 on page 8-27.

A special variable, \$UserInput, obtains its value from user input typed into a special dialog box at run time. To add this variable to a filter, insert a Get User Input operation, as described in “Get User Input” on page 8-23.

Using the Define Filter Menus

The **Define Filter** dialog box contains the following menus:

- **File**
- **Edit**
- **Insert**
- **Run**

Each menu lists commands and (if available) their corresponding access keys (mnemonics) and keyboard shortcuts.

Additionally, the **Define Filter** dialog box has a shortcut menu, accessed by right-clicking anywhere in the dialog box, for editing the filter statements in the **Filter Criteria** scrolling list. The shortcut menu contains all of the commands from the **Edit** menu plus a subset of commands from the **Insert** menu.

File Menu

The **File** menu provides commands for opening, saving, and deleting filters, as described in Table 2.

Table 2: File Menu Commands for Define Filter Dialog Box

Command	Description	For Details, See
Open	Opens an existing filter in the Define Filter window.	“Opening a Filter” on page 8-17
Save	Saves the current filter with its current name.	“Saving a Filter” on page 8-15
Save As	Saves the current filter with a name you specify.	
Delete	Deletes the current filter.	“Deleting a Filter” on page 8-17

Edit Menu

The **Edit** menu lists choices for changing filter criteria in the scrolling list, as described in Table 13. For information on how you can use these commands to edit a filter definition, see “Editing Filter Criteria” on page 8-14.

Table 3: Define Filter Edit Menu Commands

Command	Description
Cut	Cuts the selected statement from the Filter Criteria scrolling list and places it in the buffer.
Copy	Copies the selected statement from the Filter Criteria scrolling list into the buffer.
Paste	Displays a menu of positional choices for placing the buffer contents into the Filter Criteria scrolling list. Choices are Before , After , First , or Last .
Delete	Deletes the selected statement from the Filter Criteria scrolling list.
Delete All	Deletes all statements from the Filter Criteria scrolling list.

Insert Menu

The **Insert** menu lists choices for inserting the current filter criterion into the **Filter Criteria** scrolling list, as described in Table 4. For instructions on using these commands, see “Defining a Filter” on page 8-13 and “Editing Filter Criteria” on page 8-14.

Table 4: Define Filter Insert Menu Commands

Command	Description
Replace	Replaces the statement selected in the Filter Criteria scrolling list with the current criterion.
Edit	Displays the selected statement from the Filter Criteria scrolling list for editing in the Current Criteria and Text Value fields.
Insert Before	Inserts the current criterion before the criterion selected in the Filter Criteria scrolling list.
Insert After	Inserts the current criterion after the criterion selected in the Filter Criteria scrolling list.

Table 4: Define Filter Insert Menu Commands (Continued)

Command	Description
Insert First	Inserts the current criterion as the first item in the Filter Criteria scrolling list.
Insert Last	Inserts the current criterion as the last item in the Filter Criteria scrolling list.

Run Menu

The **Run** menu provides commands for executing and debugging complex filters in the Filter Execution Environment. For a description of the contents of this menu, see Table 13 on page 8-31 in the section, “Executing and Debugging Filters.”

Defining a Filter

You define a filter by inserting the filter criteria using the **Define Filter** dialog box and the **Insert** menu, described in “Creating and Editing Diagram Filters” on page 8-6. You can edit the filter criteria using the **Edit** menu, as described in “Editing Filter Criteria” on page 8-14. You can execute the filter using the **Run** menu, as described in “Executing and Debugging Filters” on page 8-31.

To define a filter:

1. From the diagram editor’s **View** menu, choose **Define Filter**.
2. In the **Define Filter** dialog box, select an operation from the **Operations** scrolling list (for descriptions of operations, see “Specifying Operations in Filters” on page 8-18).
The selected operation appears in the **Current Criteria** field, and various arguments appear in the **Arguments** scrolling list.
3. In the **Arguments** scrolling list, select an argument to the operation.
Your selection appears in the **Current Criteria** field, added to the selected operation.
4. If you want to enter or change the value of the argument, type the new value in the **Text Value** field.

5. From the **Insert** menu, choose an appropriate command to insert the statement from the **Current Criteria** field into the **Filter Criteria** scrolling list (see “Insert Menu” on page 8-12).
6. Repeat steps 2-5 until you have inserted all the statements you want in the filter criteria.
7. From the **File** menu, choose **Save** or **Save As** to save the filter (see “Saving a Filter” on page 8-15).

Editing Filter Criteria

Use the commands on the **Edit** and **Insert** menus to edit the contents of a filter, as described in Table 5. For a more detailed description of the commands on these menus, see “Edit Menu” on page 8-11 and “Insert Menu” on page 8-12.

Table 5: Commands for Editing Filter Criteria

Commands	Menu	Use To
Cut and Paste	Edit	Rearrange the execution order of the statements in the Filter Criteria list
Copy and Paste		Duplicate an existing statement in the Filter Criteria list
Delete or Delete All		Delete a selected statement or all statements in the Filter Criteria list
Replace	Insert	Replace the currently selected statement in the Filter Criteria list with the contents of the Current Criteria field
Edit		Place a statement from the Filter Criteria list into the Current Criteria field in order to edit its value or substitute a different operation

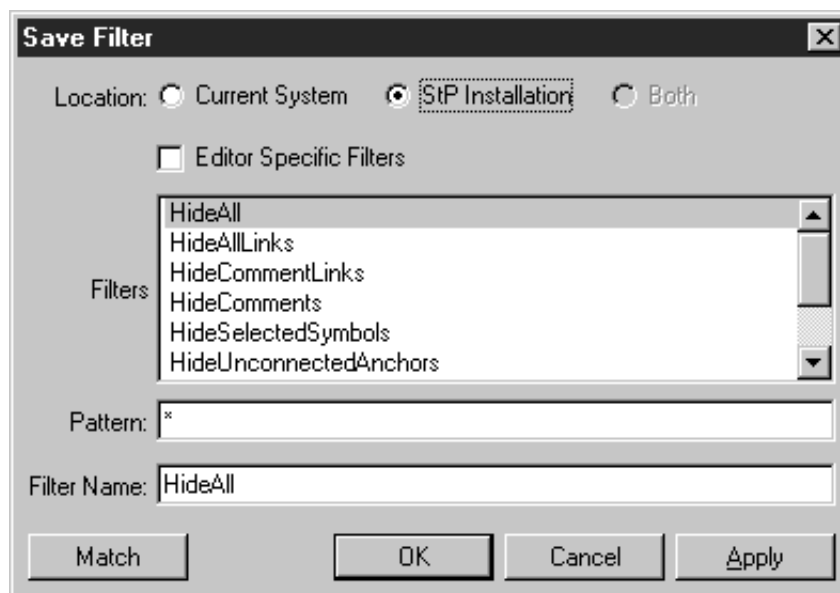
Saving a Filter

When you have a defined filter, you can save it using the **Save** or **Save As** commands on the **File** menu:

- **Save**—Save a previously saved filter
- **Save As**—Save a newly defined filter, or save a copy of an existing filter with a new name

The **Save As** command displays the **Save Filter** dialog box (Figure 4).

Figure 4: Save Filter Dialog Box



Filters are stored in files with the file extension *.filter*. The directory location depends on the options you choose when you save the filter, as described in Table 6.

Table 6: Save Filter Summary

Option	Description
Location group	Specifies the directory in which the filter is stored. Options are: Current System —Saves the filter to a subdirectory of the current system directory, for use with this StP system only. StP Installation —Saves the filter to a subdirectory of <StP>\templates\ct\filter, for use with any StP system.
Editor Specific Filters option	If selected, saves the filter to an editor-specific subdirectory in the current system or StP installation directory, for exclusive use in the editor in which the filter was created.
	If not selected, saves the filter in the \filter_files subdirectory of the current system or StP installation directory, for generic use in any diagram editor.
Filters list	Displays a list of existing filters that match the selected options.
Pattern field	Accepts a string including an asterisk (*) wild card to restrict the contents of the Filters list.
Filter Name field	Accepts a string for a valid filter name.

To save a new filter:

1. From the **Define Filter** dialog's **File** menu, choose **Save As**.
2. Select options for saving the filter (see Table 6 for descriptions):
 - Select a **Location** option to store the filter either in the current system directory or in an StP installation subdirectory.
 - To save the filter for use in the current editor only, select **Editor Specific Filter**. Otherwise, StP stores it as a generic filter for all diagram types.
3. Type a name in the **Filter Name** field.
4. Click **OK** or **Apply**.

Opening a Filter

You can open a previously defined filter for editing using the **Open** command on the **File** menu in the **Define Filter** dialog box. The parts of the **Open Filter** dialog box are the same as the **Apply Filter** dialog box, described in “Applying Filters” on page 8-2.

To open a filter:

1. From the **Define Filter** dialog box’s **File** menu, choose **Open**.
The **Open Filter** dialog box appears.
2. Select options to display a list of existing filters in the **Filters** list (see Table 1 on page 8-3 for option descriptions):
 - Select a **Location** option to display filters stored in the current system directory, an StP installation subdirectory, or both.
 - To display only editor-specific filters, select **Editor Specific Filter**. Otherwise, the **Filters** list displays only generic filters for all diagram types.
3. Optionally, to restrict the contents of the **Filters** list, enter a string including an asterisk (*) wild card in the **Pattern** field and click **Match**.
4. From the **Filters** list, select the filter you want to open.
5. Click **OK**.

The filter statements for the selected filter appear in the **Filter Criteria** list of the **Define Filter** dialog box.

Deleting a Filter

You can delete a filter using the **Delete Filter** dialog box, accessed from the **Define Filter** dialog box. The parts of the **Delete Filter** dialog box are the same as the **Apply Filter** dialog box, described in “Applying Filters” on page 8-2.

To delete a filter:

1. From the **Define Filter** dialog box's **File** menu, choose **Delete**.
2. Select options to display a list of existing filters in the **Filters** list (see Table 1 on page 8-3 for option descriptions):
 - Select a **Location** option to display filters stored in the current system directory, an StP installation subdirectory, or both.
 - To display only editor-specific filters, select **Editor Specific Filter**. Otherwise, the **Filters** list displays only generic filters for all diagram types.
3. Optionally, to restrict the contents of the **Filters** list, enter a string including an asterisk (*) wild card in the **Pattern** field and click **Match**.
4. From the **Filters** list, select the filter you want to delete.
5. Click **OK**.

The filter is removed from the **Filters** list.

Specifying Operations in Filters

When you specify an operation in the **Define Filter** dialog box, the appropriate arguments appear in the **Arguments** scrolling list. This section briefly describes each operation.

Apply Filter Operations

The Apply Filter operations call a pre-defined filter from the current filter. StP provides two apply filter operations:

- All diagram types
- Specific diagram types

A called filter shares the evaluation stack and global variables with the calling filter; the called filter can have its own local variables.

Apply Filter (All Diagram Types)

The Apply Filter (All Diagram Types) operation applies a filter that is not specific to the current diagram editor. The arguments list contains the pre-defined filters that apply to any diagram type.

Apply Filter (Diagram Type—Specific)

The Apply Filter (Diagram Type—Specific) operation applies a filter that is specific to the current diagram editor. The arguments list contains the pre-defined filters that apply to the diagram editor type.

Assert Operation

The Assert operation invokes a test on the set of symbols at the top of the evaluation stack (as described in “Filter Evaluation Stacks” on page 8-9). If the test fails, the filter stops executing and displays a message.

The arguments list contains the tests that can be performed. Table 7 lists Assert operation arguments.

Table 7: Assert Operation Arguments

Argument	Description
Segments Are Valid	Validates that the top set contains valid segments.
Set Contains Contexts Only	Validates that the top set contains one or more cntx symbols.
Set Contains Links Only	Validates that the top set contains one or more link symbols.
Set Contains Nodes Only	Validates that the top set contains one or more node symbols.
Set Contains One Context	Validates that the top set contains one and only one cntx symbol.
Set Contains One Context or Node	Validates that the top set contains one and only one cntx or node symbol.

Table 7: Assert Operation Arguments (Continued)

Argument	Description
Set Contains One Link	Validates that the top set contains one and only one link.
Set Contains One Member	Validates that the top set contains one and only one member.
Set Contains One Node	Validates that the top set contains one and only one node.
Set is not Empty	Validates that the top set contains one or more symbols.
Subprocess Execution Succeeded	Checks subprocesses for successful completion. If the subprocess completes successfully, the filter continues; if the subprocess fails, the filter is exited.

Execute Command Operation

The Execute Command Operation enables you to execute an editor, control integration, or operating system command from the filter, as described in Table 8.

Table 8: Execute Command Operation Arguments

Argument	Description
Execute Editor Command	Runs the designated editor command.
Execute OS Command	Runs the designated operating system command.
Execute OS Command; Wait for Completion	Runs the command entered in a shell and wait until the operating system command completes before continuing filter execution.
Load Diagram	Loads the specified diagram.
Save Diagram	Saves the specified diagram.

Table 8: Execute Command Operation Arguments (Continued)

Argument	Description
Save Diagram As	Saves the specified diagram with a specific name.
Save Diagram State for Undo	Saves the diagram before the filter executes; uses the diagram and the Undo command to undo the filter results after execution.

Find Operations

Find operations restrict the search criteria by excluding objects and symbols from the stack that do not match the criteria specified in the arguments and values. Find operations are:

- Find Annotation
- Find Annotation for Context
- Find Annotation for Link
- Find Annotation for Node
- Find Links with Type
- Find Symbols in Typeset
- Find Symbols with Application Type
- Find Symbols with Label
- Find Symbols with Type

Find operations use the top set of the evaluation stack as the argument of the operation. Therefore, you can apply a find operation to a top set that is the result of the previous find operation to further constrain the set.

Find Annotation

The Find Annotation operation finds symbols based on the corresponding object's annotation note item values. The arguments list contains all note items listed by note type. To specify the value for the argument, type it in the **Text Value** field.

Find Annotation for Context

The Find Annotation for Context operation finds context symbols based on annotation note item values. The arguments list contains all note items listed by note type. To specify the value for the argument, type it in the **Text Value** field.

Find Annotation for Link

The Find Annotation for Link operation finds link symbols based on annotation note item values. The arguments list contains all note items listed by note type. To specify the value for the argument, type it in the **Text Value** field.

Find Annotation for Node

The Find Annotation for Node operation finds node symbols based on annotation note item values. The arguments list contains all note items listed by note type. To specify the value for the argument, type it in the **Text Value** field.

Find Links with Type

The Find Link with Type operation finds arc segments based on their application type. The arguments list contains all valid application types for the current diagram editor.

Find Symbols in Typeset

A typeset is a group of symbols that share a PDM type or application type. The Find Symbols in Typeset operation finds symbols based on a typeset definition. The argument list contains typesets for the current editor. To specify the typeset, select an argument, or type its name in the **Text Value** field.

Find Symbols with Application Type

The Find Symbols with Application Type operation finds symbols based on application type. The arguments list contains all valid application types for the current diagram editor.

Find Symbols with Label

The Find Symbols with Label operation finds symbols whose labels match the criteria. A regular expression may be specified as a text value. The argument list contains all labels defined in the current diagram.

For example, the criterion Find Symbols with Label `^A.*` finds symbols whose labels start with an uppercase “A” followed by any number of any characters.

Find Symbols with Type

The Find Symbols with Type operation finds all symbols whose type matches the type specified as an argument. The arguments list contains all symbol types defined for the current editor.

Get User Input

The Get User Input operation supports interaction with the user at run-time, while the filter is executing. Table 9 lists Get User Input operation arguments.

Table 9: Get User Input Operation Arguments

Argument	Description
Get Current Selection	Makes the user-selected symbols the top set.
Text Value	Displays the Filter Text dialog at run time, which prompts the user to specify a text value that is stored in the \$UserInput variable as part of the run-time environment. Other filter statements, such as the Find Annotations and Find Symbols with Labels operations, can refer to this text value as \$< or \$UserInput.
Text Value with Cancel	Same as Text Value, except the Filter Text dialog used for user input also includes a Cancel button.

Include Operations

Include operations add symbols to the top set of the evaluation stack that are related to the symbols in the top set. All symbols on the diagram are available for inclusion. StP provides several include operations:

- Include Connecting Links
- Include In Links
- Include In/Out Links
- Include Link Sources
- Include Link Targets
- Include Out Links
- Include Symbols connected by...

Arguments for include operations are valid application types for the current editor.

Include Connecting Links

The Include Connecting Links operation adds all arcs in the diagram that connect symbols in the top set whose type matches the argument. The arguments list contains link types or typesets for the diagram editor.

Include In Links

The Include in Links operation adds all arcs in the diagram whose “to” end is at a symbol in the top set. The arguments list contains link types or typesets for the diagram editor.

Include In/Out Links

The Include In/Out Links operation adds all arc segments in the diagram leading into or starting from any symbol to the argument. This operation is equivalent to applying both the Include in Links and the Include out Links operations. The arguments list contains link types or typesets for the diagram editor.

Include Link Sources

The Include Link Sources operation adds nodes represented on the diagram that are at the “from” end of arcs in the top set. The arguments list contains node types for the diagram editor.

Include Link Targets

The Include Link Targets operation adds nodes represented in the diagram that are at the “to” ends of arcs in the top set. The arguments list contains node types for the diagram editor.

Include out Links

The Include out Links operation adds all arcs in the diagram whose “from” end is a symbol in the top set. The arguments list contains link types or typesets for the diagram editor.

Include Symbols Connected by...

The Include Symbols Connected by... operation adds all symbols in the diagram that are connected by arcs whose type matches the argument. The arguments list contains link types or typesets for the diagram editor.

Load Specific Segments

The Load Specific Segments operation selects segments based on specific segment id's. The argument for this operation is a list of segment id's in the current diagram. Segments are listed in the format:

```
segment id <type:label>
```

where `segment id` is a unique numeric identifier, `type` is a valid editor symbol type and `label` is the symbol label. For example, a symbol with the label "Title" is identified:

```
6 <Node:Title>
```

The *****Select segment in editor***** argument enables you to select a segment in the diagram editor while creating the filter.

Filter Operations

Filter operations provide extended capabilities for creating filters. Filter operations are:

- Operations on Diagram
- Operator
- Operator on Set

Operations on Diagram

Operations on Diagram manipulates the currently selected symbol or selected set. Table 10 lists arguments for Operations on Diagram.

Table 10: Operations on Diagram Arguments

Argument	Description
Add to Current Selection	Adds all symbols in the diagram to the current selection.
Delete Symbols	Deletes all symbols on the diagram.
Get Current Selection	Adds current selection to the evaluation stack.
Set Current Selection	Selects everything on the diagram, but does not add it to the evaluation stack.

Operator

Operator performs primitive functions other than apply or include. The **Argument** list contains the individual operators. Table 11 lists primitive Operator arguments.

Table 11: Primitive Operator Arguments

Argument	Description
Comment	Adds a comment to the filter template. This operator has no effect on the filter template.
Convert to Appids	Replaces symbols on the evaluation stack with symbol ids from the repository.
Convert to Segment Ids	Replaces symbol ids on the evaluation stack with segment ids.
Feedback	Causes all symbols in the top set to blink.
Global Variable	Creates a global variable. The name of the variable is specified in the Text Value field. If there is a local variable with the same name, it takes precedence over the global variable.
Hide	Hides all symbols and labels.

Table 11: Primitive Operator Arguments (Continued)

Argument	Description
Hide Labels	Hides all labels.
Include Complete Link	Places all segments (even those not selected) of a selected arc into the current select set.
Include Context Symbols	Includes context symbols for a selected link into the select set.
Include Exported Symbols	Places any to and from nodes into the select set.
Include Link Ends	Places any symbols connected by inclusion links into the select set.
Load	Makes the contents of the named variable the top set.
Load All	Makes all symbols in the diagram the top set.
Load All Links	Makes all links represented in the diagram the top set. Defines a set of all links. This operator is equivalent to Load: AllArcSegments.
Load All Nodes	Makes all nodes represented in the diagram the top set. Defines a set of all nodes. This operator is equivalent to Load: AllNodeSegments.
Load Base Symbols	Makes all nodes the top set.
Load Context Symbols	Makes all cntxs represented in the diagram the top set.
Load Hidden Symbols	Makes all symbols that are currently invisible on the diagram the top set.
Load Link Symbols	Makes all symbols representing links in the current diagram the top set.
Load Null	Makes an empty set the top set. This operation is equivalent to LOAD: EmptySet.
Load Selected Symbols	Makes symbols selected on the diagram the top set.

Table 11: Primitive Operator Arguments (Continued)

Argument	Description
Load Shown Symbols	Makes symbols currently visible on the diagram the top set.
Local Variable	Defines the variable given as an argument as a local variable. If a global variable with the same name exists, a local variable with a null value is created.
NULL	NULL operator
Reevaluate Global Variables	Sets the global variables to new values based on the current contents of the diagram. Used when filters insert, delete, or replace symbols in a diagram.
Return	Stores the current operand in a pre-defined local variable called ReturnValue. Used to communicate between called scripts.
Show	Makes all segments and their labels that are in the top set visible.
Store	Assigns the value of the top set to the variable specified as an argument. A new local variable is created if a variable with the specified name does not exist.
Store and Pop	Works like the Store operator, except the top set is popped from the evaluation stack.

Operator on Set

The Operator on Set group of operations builds complex sets from the elements in the evaluation stack. The **Arguments** list contains the set of operators. Table 12 lists arguments for Operator on Set.

Table 12: Set Operator Arguments

Argument	Description
Complement	Replaces the top set with all symbols in the diagram currently not in the set.
Difference	Replaces the top set with a set made of the difference between the top two sets.
Duplicate	Makes a copy of the top set.
Exchange	Reverses the positions of the two top sets in the evaluation stack.
Intersection	Replaces the two top sets with a set made of the intersection of the two sets.
Pop	Removes the top set from the evaluation stack.
Union	Replaces the two top sets with a set made of the union of the two sets.

Replace Operations

The following replace operations change the application types of the current Persistent Data Model type to the specified application type:

- Replace Links
- Replace Nodes

Replace Links

The Replace Links operation replaces links in the top set with the type specified in the argument. The arguments list contains link application types for the diagram editor.

Replace Nodes

The Replace Nodes operation replaces nodes in the top set with the type specified in the argument. The arguments list contains node application types for the diagram editor.

Executing and Debugging Filters

If you are creating complex filters, you can use the various operations available for executing and debugging a filter. With the execution and debugging operations, you can:

- Run an entire filter
- Run a selected criterion in a filter
- Step through a filter one statement at a time
- Set and clear breakpoints in the filter
- Run a filter up to a breakpoint
- View the current evaluation stack
- View current global and local variables

The **Run** menu on the **Define Filter** dialog box provides access to operations for executing and debugging a filter, as described in Table 13. For more information, see “Using the Execution Environment” on page 8-33.

Table 13: Run Menu Commands

Command	Description
Run	Starts execution of the current filter. Execution stops if a breakpoint is encountered, an error occurs, or if all criteria are executed.
Show Run Environment	Displays the Filter Execution Environment (described in “Using the Execution Environment” on page 8-33).

Table 13: Run Menu Commands (Continued)

Command	Description
Initialize Run	Creates global variables (described in “Local and Global Variables” on page 8-9) and makes all symbols the top set. This command also sets the Current Criteria field to the first statement in the Filter Criteria list.
Next	Steps through a filter by executing the selected statement and advancing the Current Criteria to the next statement in the Filter Criteria list. This command is not active if nothing is selected, if the filter criteria list is not initialized, or if there is no next criterion.
Set Breakpoint	Sets a breakpoint at the currently selected statement in the Filter Criteria list. An asterisk (*) indicates a breakpoint.
Clear Breakpoint	Clears a breakpoint set by the Set Breakpoint command. This command is inactive if nothing is selected or if no breakpoint was set on the current filter criterion.
Clear All Breakpoints	Clears all breakpoints set in the current filter criteria. This command is not active if the filter criteria do not contain any breakpoints.
Set Program Counter	Sets the current program counter to the currently selected criterion. The Next and Continue commands start execution with the selected criterion.
Run Selected	Executes the selected statement in the Filter Criteria list. This command is inactive if nothing is selected or if the Filter Criteria list is not initialized.
Continue	Continues execution of the current filter starting with the selected statement in the Filter Criteria list. This command is not active if nothing is selected, if the Filter Criteria list is not initialized, or if there is no next statement. Execution stops if a breakpoint is encountered, an error occurs, or if all criteria are executed.

Using the Execution Environment

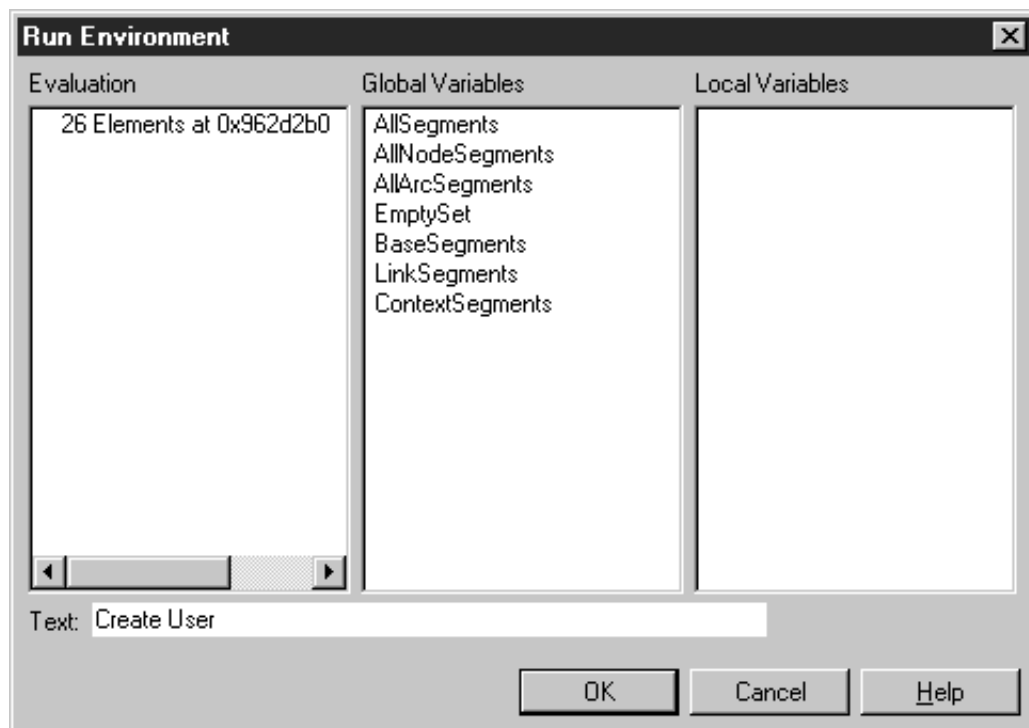
The **Run Environment** dialog box contains three scrollable sections:

- Evaluation Stack
- Global Variables
- Local Variables

The following sections describe the parts of the **Run Environment** dialog box.

To show the **Run Environment** dialog box, choose **Show Run Environment** from the **Run** menu on the **Define Filter** dialog box.

Figure 5: StP: Filter Environment



Evaluation Stack Section

The Evaluation Stack scrolling list displays the contents of the stack with the top of the stack displayed at the top of the list. Each item in the list represents one set of segments in the stack. Each set is in the form:

`<Number of> Elements at <internal address of the set>`

This list is updated whenever a set is modified, pushed onto or popped from the evaluation stack.

Global Variables Section

The Global Variable scrolling list displays all the currently active global variables in alphabetical order. Each entry is in the form:

`VariableName <Number of Elements>`

The list is updated whenever a global variable is created or the value of a global variable changes.

Local Variables Section

The Local Variables scrolling list displays the variables locally defined in the current filter. The entries are displayed using the same format as the global variables. A special local variable named ReturnValue is used as a placeholder for the return result of the current filter.

Text Field

The **Text** field displays the value of the \$UserInput variable, if any, which was entered by the user in the **Filter Text** dialog box called by the filter at run time. You can also change the value of the \$UserInput variable in the **Text** field of the **Run Environment** dialog box while debugging the filter. For more information on the \$UserInput variable, see “Local and Global Variables” on page 8-9 and “Get User Input” on page 8-23.

Examples

This section contains examples of filters created with the **Define Filter** dialog box. The first two examples are simple show and hide filters. The subsequent examples build sets that are pushed onto the evaluation stack (described in “Filter Evaluation Stacks” on page 8-9).

Show All

This filter makes all segments in the current diagram visible:

```
Operator: Load All  
Operator: Show
```

Hide Symbols

This filter finds all symbols in the diagram with the label “Title” and hides them:

```
Find Symbols with Label: ^Title$  
Operator: Hide
```

Hide Unconnected Comments

This example presents a more complex filter that manipulates the evaluation stack. It hides comments that are not connected to any diagram symbols.

```
Operator: Load All Nodes
Find Symbols with Type: Comment
Operator on Set: Duplicate
Operator: Load Shown Symbols
Operator: Load All Links
Operator on Set: Intersection
Operator: Load Shown Symbols
Operator: Load All Links
Operator on Set: Intersection
Operator on Set: Intersection
Operator on Set: Difference
Operator: Hide
Operator: Include Link Ends
```

The first part of this filter finds all nodes with type comment and puts two copies of the set onto the evaluation stack:

```
Operator: Load All Nodes
Find Symbols with Type: Comment
Operator on Set: Duplicate
```

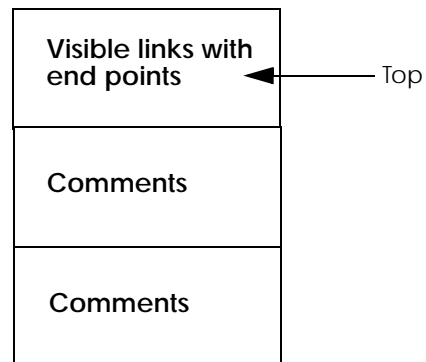
The next part of the filter loads all displayed symbols and links and builds the intersection of the two sets. The result is a set containing only visible links:

```
Operator: Load Shown Symbols
Operator: Load All Links
Operator on Set: Intersection
```

The next statement adds end nodes of the links to the set:

```
Operator: Include Link Ends
```

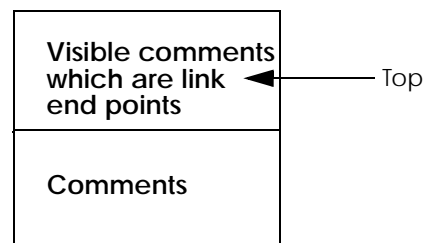
The evaluation stack looks like this:



The next command builds a set that is the intersection of all comments that are end points of visible links:

Operator on Set: Intersection

The evaluation stack now looks like this:



The final two statements:

- Create the difference between all comments and the comments that have visible arcs connected to them
- Hide the result, which is comments that do not have visible arcs

Operator on Set: Difference

Operator: Hide

Display Environment of a Symbol

This example prompts for user input, finds symbols with the designated label, then hides all nodes that are not linked to the selected symbol.

```
Get User Input: Text Value<Enter symbol name>
Find Symbols with Label: $UserInput
Include Symbols Connected by ...: AnyLinkType
Include Connecting Links: AnyLinkType
Operator: Include Context Symbols
Operator on Set: Complement
Operator: Hide
```

The first statement prompts for user input:

```
Get User Input: Text Value<Enter symbol name>
```

The next statement uses the user input for the variable \$UserInput:

```
Find Symbols with Label: $UserInput
```

The next statements find connected symbols, links, and context symbols:

```
Include Symbols Connected by ...: AnyLinkType
Include Connecting Links: AnyLinkType
Operator: Include Context Symbols
```

At this point, the top of the evaluation stack is a set containing all nodes connected to the specified symbol and the links that connect the symbols, including any attached context objects.

The next statement builds a complement set against all segments in the diagram; the last statement hides the resulting set.

```
Operator on Set: Complement
Operator: Hide
```

9 **Using the Repository Browser**

This chapter explains how to use the Repository Browser to examine the contents of the StP repository.

Topics covered are as follows:

- “What Is the Repository Browser?” on page 9-1
- “Using the Repository Browser” on page 9-2
- “Using the Browser Menus” on page 9-4
- “Executing Queries” on page 9-6
- “Browsing the Repository for Related Objects” on page 9-8
- “Manipulating the Query Results” on page 9-11
- “Navigating to an Object Reference” on page 9-16
- “Adding Annotations to Objects from the Browser” on page 9-16

What Is the Repository Browser?

The Repository Browser allows you to examine the contents of the repository in terms of the Persistent Data Model. Based on queries you construct, repository data appears in a table editor where you can perform various operations, such as sorting results, browsing for related objects, and navigating to an object in its native editor.

Browsing allows you to:

- Verify the contents of the repository
- Perform low level debugging
- View project-specific data
- Learn how repository data is stored, which can be helpful in writing QRL scripts

Using the Repository Browser

Using the Repository Browser requires familiarity with the StP Object Management System, the Persistent Data Model, and the OMS Query Language. For more information about the Persistent Data Model, refer to *Object Management System*. For information about the OMS Query Language, see *Query and Reporting System*.

Starting the Repository Browser

You can start the Repository Browser from:

- The StP Desktop
- A QRL script

Starting the Browser from the Desktop

To invoke the Repository Browser from the StP Desktop, choose **Browse Repository** from the **Tools** menu. For more information about using the StP Desktop, see Chapter 3, “Using the StP Desktop.”

When the Repository Browser window first appears, it contains only section headings, as in Figure 1. You must execute a query to populate the table with data. Query execution is discussed in “Executing Queries” on page 9-6.

Starting the Browser from a QRL Script

Certain StP products provide product-specific QRL scripts for various purposes. In many scripts, you can view output in printed form or online using the Repository Browser. For more information about using QRL scripts and the Repository Browser, see *Query and Reporting System* and the documentation provided with your StP Product.

Parts of the Repository Browser Window

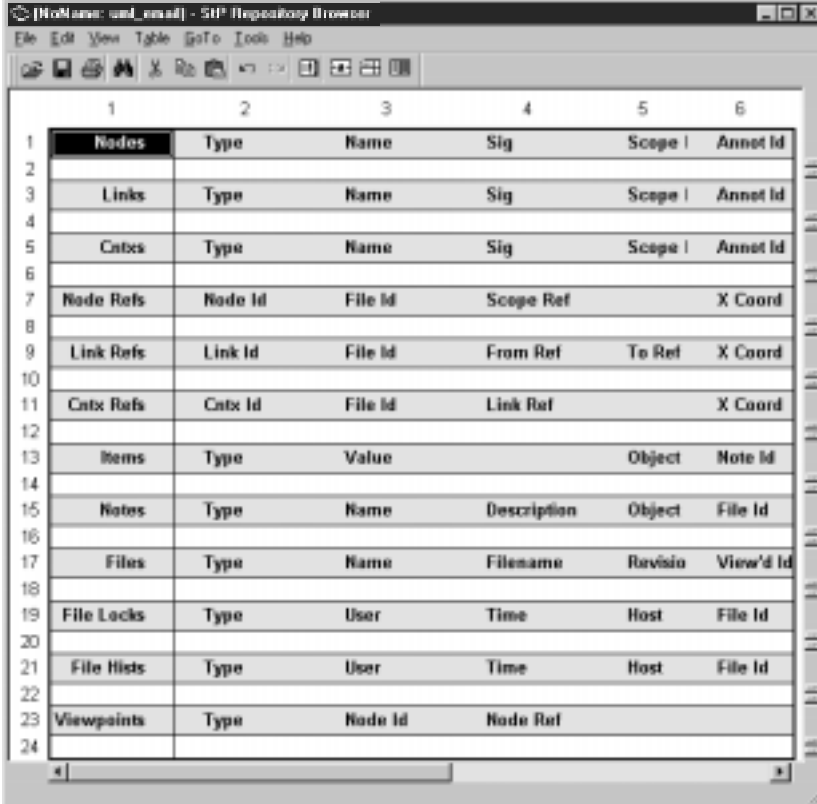
The Repository Browser (Figure 1) shares some features common to all StP table editors. For general information about using table editors, see Chapter 5, “Editing Tables.”

The Repository Browser table is divided into sections corresponding to the StP Persistent Data Model. There is one section for each persistent data type. For more information about the Persistent Data Model, see *Object Management System*.

Additionally, the Repository Browser table contains specific commands and features for querying the repository and for displaying and manipulating the query results.

Using the Repository Browser

Figure 1: Repository Browser Window with Section Headings



The screenshot shows a window titled "[NoName: unt_email] - STP Repository Browser". The window has a menu bar with "File", "Edit", "View", "Table", "GoTo", "Tools", and "Help". Below the menu bar is a toolbar with various icons. The main area contains a table with 6 columns and 24 rows. The columns are numbered 1 to 6 at the top. The rows are numbered 1 to 24 on the left. The table contains section headings for various repository entities.

	1	2	3	4	5	6
1	Nodes	Type	Name	Sig	Scope I	Annot Id
2						
3	Links	Type	Name	Sig	Scope I	Annot Id
4						
5	Cntes	Type	Name	Sig	Scope I	Annot Id
6						
7	Node Refs	Node Id	File Id	Scope Ref		X Coord
8						
9	Link Refs	Link Id	File Id	From Ref	To Ref	X Coord
10						
11	Cntx Refs	Cntx Id	File Id	Link Ref		X Coord
12						
13	Items	Type	Value		Object	Note Id
14						
15	Notes	Type	Name	Description	Object	File Id
16						
17	Files	Type	Name	Filename	Revisio	View'd Id
18						
19	File Locks	Type	User	Time	Host	File Id
20						
21	File Hists	Type	User	Time	Host	File Id
22						
23	Viewpoints	Type	Node Id	Node Ref		
24						

Using the Browser Menus

In addition to the standard table menu commands, the Repository Browser provides commands that are browser-specific. The section describes the Browser-specific commands only. For descriptions of standard commands, see "Using the Table Editors" on page 5-2.

Edit Menu

The **Edit** menu provides standard commands, as described in “Edit Menu” on page 5-9. Additional Browser-specific commands are described in Table 1.

Table 1: Edit Menu Command Summary

Command	Description	For Details, See
Execute Query	Provides a dialog box in which you construct and execute OMS queries to search the repository and populate the Repository Browser with the search results.	“Executing Queries” on page 9-6
Clear Browser	Removes all query results from the Repository Browser table.	“Clearing the Browser” on page 9-12

View Menu

The **View** menu provides standard commands, as described in “View Menu” on page 5-10. Additional Browser-specific commands are described in Table 2.

Table 2: View Menu Command Summary

Command	Description	For Details, See
Hide/Show Groups	Toggles between hiding and showing certain groups of data in the Browser, selected from a submenu.	“Hiding/Showing Groups” on page 9-12

Tools Menu

The **Tools** menu provides standard commands, as described in “Tools Menu” on page 5-13. Additional Browser-specific commands are described in Table 3.

Table 3: Tool Menu Command Summary

Command	Description	For Details, See
Browse	Provides commands for searching the repository for additional, related objects.	“Browsing the Repository for Related Objects” on page 9-8
Sort	Provides commands for organizing rows of the table.	“Sorting Results” on page 9-14

Executing Queries

There are two methods for loading data into the Repository Browser:

- Using the **Execute Query** command
- Using a QRL script

For more information about using QRL scripts and the Repository Browser, see *Query and Reporting System* and the documentation provided with your StP Product.

Using the Execute Query Command

To execute a query:

1. From the Repository Browser’s **Edit** menu, choose **Execute Query**.
2. In the **Execute Query** dialog box (Figure 2), enter a query in the **Query** text box.
3. Select other options in the dialog box, as described in Table 4.

4. Click **OK** or **Apply**.

Zero or more result objects appear in the table under the appropriate section heading.

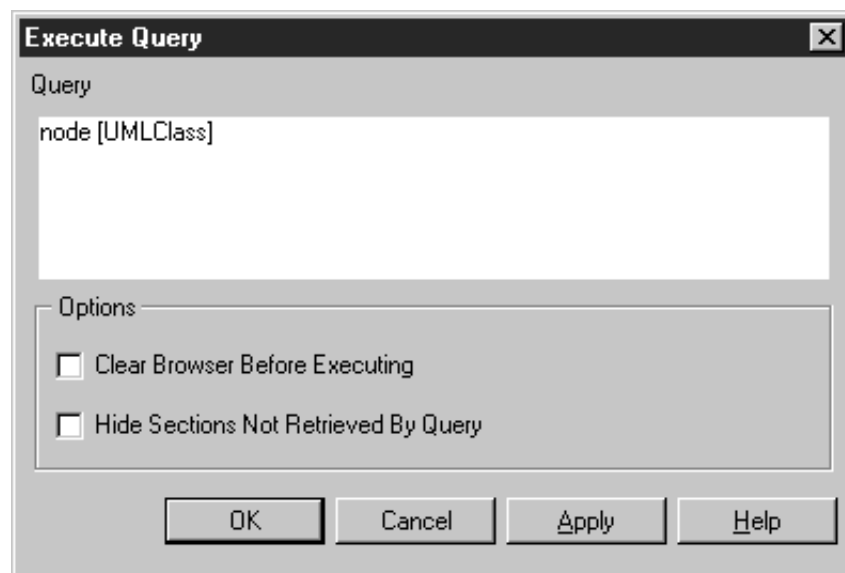
The number of objects retrieved appears in the Repository Browser's message area. The Browser table may contain both your current results and the results of a previous query, if you did not clear the table before executing the query (see "Clearing the Browser" on page 9-12).

If your query contains a syntactical error, the Message Log appears (if you have set it to display on error) and the contents of the Repository Browser remain unchanged. If your query returns no results, a message is displayed in the Repository Browser Message Area.

The Execute Query Dialog Box

The **Execute Query** dialog box allows you to construct OMS queries and load the results into the Repository Browser. For specific information about query syntax, see *Object Management System*.

Figure 2: Execute Query Dialog Box



The parts of the **Execute Query** dialog box are described in Table 4.

Table 4: Execute Query Dialog Box Summary

Element	Description
Query text box	Accepts an OMS query.
Clear Browser Before Executing option	If selected, clears all other query results from the table before loading the results of the current query. If unselected, the results of the current query appear along with the data already in the table, appended to the appropriate section.
Hide Sections Not Retrieved By Query option	If selected, displays only the section containing the results of the current query. If unselected, all sections remain visible.

Browsing the Repository for Related Objects

After executing a query to populate the table, you can extend the search and explore the relationships between objects by browsing from a selected object to related objects in the repository.

For example, you might select a node object and then browse to that node's node_refs. The related node_refs are highlighted in the table. If the related node_refs do not already appear in the table, they are automatically loaded from the repository.

The possible browse targets vary according to the selected object. Table 5 describes the browse targets for each object type. Browse targets correspond to stored relationships in the Persistent Data Model.

To browse the repository for additional related objects:

1. Select the row(s) containing the source object.
2. From the **Tools** menu, choose **Browse**, then choose a browse target from the **Browse** submenu.

Browsing the Repository for Related Objects

The related objects appear highlighted in the appropriate section of the Browser.

Table 5: Browse Targets

Selected Object	Browse To
Node	node_refs annot_file notes items scope_node in_links out_links scoped_nodes scoped_links scoped_cntxs
Link	link_refs annot_file notes items scope_node from_node to_node cntxs
Cntx	cntx_refs annot_file notes items scope_node link

Table 5: Browse Targets (Continued)

Selected Object	Browse To
Node Ref	node file scope_node_ref in_link_refs out_link_refs scoped_node_refs viewpoints
Link Ref	link file from_node_ref to_node_ref cntx_refs
Cntx Ref	cntx file link_ref
Item	note annotatable object
Note	items containing file annotatable object

Table 5: Browse Targets (Continued)

Selected Object	Browse To
File	file_hists file_lock lview_hist lmdfy_hist lsync_hist annotatable object notes items contains_notes SE objects node_refs link_refs cntx_refs
File Lock	file
File Hist	file
Viewpoint	node node_ref

Manipulating the Query Results

You can remove and organize the query results displayed in the Repository Browser by:

- Deleting rows or clearing the Browser
- Hiding or showing groups of results
- Sorting the results

Removing Query Results

To remove query results from the Browser, you can:

- Delete selected result rows
- Clear all results from the Browser

Deleting Result Rows

To delete one or more rows of results from the table:

1. Select the rows you want to delete.
2. From the **Table** menu, select **Delete Cells**.

Clearing the Browser

Results of all queries are retained in the table until specifically cleared from the Browser. This allows you to perform multiple queries to populate the Browser. However, if different queries report the same result, multiple rows for that object appear in the table.

To clear the table of all previous query results before executing a query, choose **Clear Browser** from the **Edit** menu.

Hiding/Showing Groups

To help you view your data more easily, you can hide and show certain groups of data in the Repository Browser. Groups that can be shown or hidden include:

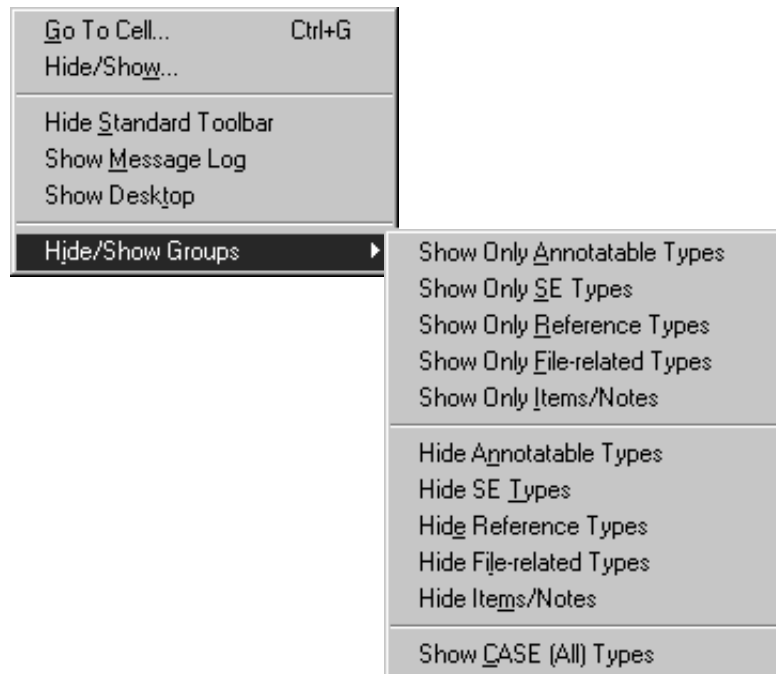
- Annotatable Types
- SE Types
- Reference Types
- File-Related Types
- Items/Notes
- CASE Types

For more information about these data types, see *Object Management System*.

The **Hide/Show Groups** submenu is available from the **View** menu, as shown in Figure 3.

Do not confuse the **Hide/Show Groups** command with the **Hide/Show** command (also on the **View** menu), which is used to hide or show table sections. For more information about **Hide/Show**, see Chapter 5, “Editing Tables.”

Figure 3: The Hide/Show Groups Submenu



To hide/show groups:

1. From the Repository Browser's **View** menu, choose **Hide/Show Groups**.
2. Choose a hide or show command from the **Hide/Show Groups** submenu.

The appropriate groups are hidden or shown, depending on your choice.

Sorting Results

The Repository Browser allows you to sort the results of queries according to:

- Type, Name, Id
- Name, Type, Id
- Type, Value, Id
- Type, User, Time
- User, Host, Time
- Time
- Type, Id
- Current Cell

Sections must be sorted one at a time. The exact sort commands from which you can choose vary according to the section you are sorting.

To sort a section:

1. Select a row in the section you want to sort.
If your selection spans more than one section, only the first section is sorted.
2. From the **Tools** menu, choose **Sort**, then choose one of the sorting commands from the **Sort** submenu.

The section is sorted according to the criteria of the chosen command.

Sorting by Type, Name, Id

Rows in the selected section are first sorted by Type. Where Types are the same, rows are then sorted by Name. Where Names are the same, rows are then sorted by Id. Rows may be sorted in either ascending or descending alphabetical order.

Sorting by Name, Type, Id

Rows in the selected section are first sorted by Name. Where Names are the same, rows are then sorted by Type. Where Types are the same, rows are then sorted by Id. Rows may be sorted in either ascending or descending alphabetical order.

Sorting by Type, Value, Id

Rows in the selected section are first sorted by Type. Where Types are the same, rows are then sorted by Value. Where Values are the same, rows are then sorted by Id. Rows may be sorted in either ascending or descending order.

Sorting by Type, User, Time

Rows in the selected section are first sorted by Type. Where Types are the same, rows are then sorted by User. Where Users are the same, rows are then sorted by Time. Rows may be sorted in either ascending or descending order.

Sorting by User, Host, Time

Rows in the selected section are first sorted by User. Where Users are the same, rows are then sorted by Host. Where Hosts are the same, rows are then sorted by Time. Rows may be sorted in either ascending or descending order.

Sorting by Time

Rows in the selected section may be sorted in either ascending or descending chronological order.

Sorting by Type, Id

Rows in the selected section are first sorted by Type. Where Types are the same, rows are sorted by Id. Rows may be sorted in either ascending or descending order.

Sorting by Current Cell

Rows in the selected section are sorted according to the current cell. For example, you could choose to sort a section according to Scope Id by selecting a cell (within the section) containing a Scope Id.

Since the Current Cell may contain alphanumeric or numeric information, you must choose the appropriate Current Cell sort command. Rows may be sorted in either ascending or descending order.

Navigating to an Object Reference

You can navigate from a selected query result in the Repository Browser to its object reference in the object's native editor. The editor is automatically launched. If the editor is a diagram editor, the object blinks to show you its location in the diagram. If the editor is a table editor, the object is selected.

Navigation commands are available from the **GoTo** menu. The commands in the menu vary according to the selected object.

To navigate to an object from a query result in the Repository Browser:

1. Select the row containing the desired object.
2. From the **GoTo** menu, choose a command.
3. If an object selector dialog box appears (indicating the object has more than one reference in your model), select a reference from the list and click **OK**.

Adding Annotations to Objects from the Browser

From the Repository Browser, you can access the Object Annotation Editor (OAE) to:

- Add annotation notes containing descriptive text and values to objects in the repository
- To annotate a saved table of browser results

Adding Annotations to Objects from the Browser

To annotate an object in the repository from the Repository Browser:

1. In the Repository Browser, select a query result row representing the object you want to annotate.
2. From the **Edit** menu, choose **Row Annotation**.
StP starts the OAE. The object represented by the selected Browser row appears in the OAE annotations list.

For more information about annotations, see Chapter 6, “Annotating Objects,” and the documentation provided with your StP product.

10 Printing

This chapter explains how to print diagrams and tables from the StP Desktop or diagram and table editors, or by using the **dprint** or **tpprint** commands at the command prompt.

Topics covered are as follows:

- “StP Printing Capabilities” on page 10-1
- “Printing Commands” on page 10-2
- “Printing a Diagram or Table to a Printer” on page 10-4
- “Printing Output to a File for Publishing” on page 10-8
- “Changing and Reusing Print Options” on page 10-12
- “Creating a Named Print Setting” on page 10-23
- “Printing Large or Multipage Diagrams” on page 10-27
- “Using Supported Publishing Products” on page 10-31
- “Summary” on page 10-33

StP Printing Capabilities

You can print a diagram or table using default print options or modify the print options for a particular diagram or table. Print options, which you set on the **Page Setup** and **Print** dialog boxes, control the appearance and content of the printed output. You can save a set of print options as a named setting for later use with a particular diagram or table.

Additionally, you can create and print complex documents combining tables, diagrams, and text using StP Query and Reporting Language (QRL) scripts. For information on QRL, see the *Query and Reporting System* manual.

Printing Commands

StP provides several printing commands for:

- Printing from the StP Desktop, an editor, or the command prompt
- Formatting and saving output to a file for later publishing
- Changing print options and saving a group of options as a named setting for later use
- Previewing the page layout of a large diagram in the editor to check the pagination before printing

Different print commands are available from the StP Desktop, editors, and command prompt, as described in Table 1.

Table 1: Print Command Descriptions

Command	Available From	Description	For Details, See
Print Diagram Print Table	Desktop	Prints selected diagram(s) or table(s) to a default printer, using a default print setting.	“Printing from the Desktop to a Default Printer” on page 10-4
Print Diagram As		Prints selected diagram or table to a file, as specified in the Desktop Print As dialog.	“Printing from the Desktop to a File” on page 10-8
Print Table As			

Table 1: Print Command Descriptions (Continued)

Command	Available From	Description	For Details, See
Print	Diagram or Table Editor	Prints all or selected parts of the current diagram or table to a specified printer, using default or customized print options, as specified in the Print and Page Setup dialogs.	“Printing from a Diagram Editor to a Printer” on page 10-5
			“Printing from a Table Editor to a Printer” on page 10-6
Print As		Prints a diagram or table (or a range of pages for a diagram) to a file, as specified in the editor’s Print As dialog.	“Printing from a Diagram Editor to a File” on page 10-9
			“Printing from a Table Editor to a File” on page 10-10
Page Setup		Displays a dialog for changing print options that affect the appearance and content of a printed diagram or table.	“Changing and Reusing Print Options” on page 10-12
Page Layout	Diagram Editor only	Displays the page breaks for printing a multipage diagram.	“Adjusting and Checking Pagination” on page 10-29
dprint	Command prompt	Prints saved diagram(s) to a file in a specified output format for a supported publishing product.	Command reference appendix in <i>StP Administration</i>
tprint		Prints saved table(s) to a file in a specified output format for a supported publishing product.	

Printing a Diagram or Table to a Printer

From the StP Desktop you can print selected diagram(s) or table(s) to a default printer, using a default print setting.

From an StP editor, you can:

- Print all or selected parts of the current diagram or table to a specified printer, using the current print options
- Change various print options that affect the appearance and content of a printed diagram or table

You can also use the **Page Layout** command on the diagram editor's **View** menu to preview the page breaks that StP applies to a multipage diagram when printed (see "Adjusting and Checking Pagination" on page 10-29).

For tips on printing very large diagrams, see "Printing Large or Multipage Diagrams" on page 10-27.

Printing from the Desktop to a Default Printer

When you print a diagram or table from the StP Desktop, StP prints an image of the current, saved information to a default printer, using the default print setting.

To print one or more diagrams or tables from the Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a diagram or table type.
2. In the objects pane, select the diagram(s) or table(s) you want to print.
3. Do any one of these:
 - Right-click the selected object(s) in the objects pane and choose **Print** from the shortcut menu.
 - Click the **Print Diagram/Table** toolbar button.
 - From the **File** menu, choose **Print Diagram** or **Print Table**.

Diagrams print to the system default printer; tables print to Microsoft Word's default printer.

StP uses the values from the default print setting to control how the diagram or table is printed. For more information about default print settings, see “Creating a Default Print Setting” on page 10-24.

Printing from a Diagram Editor to a Printer

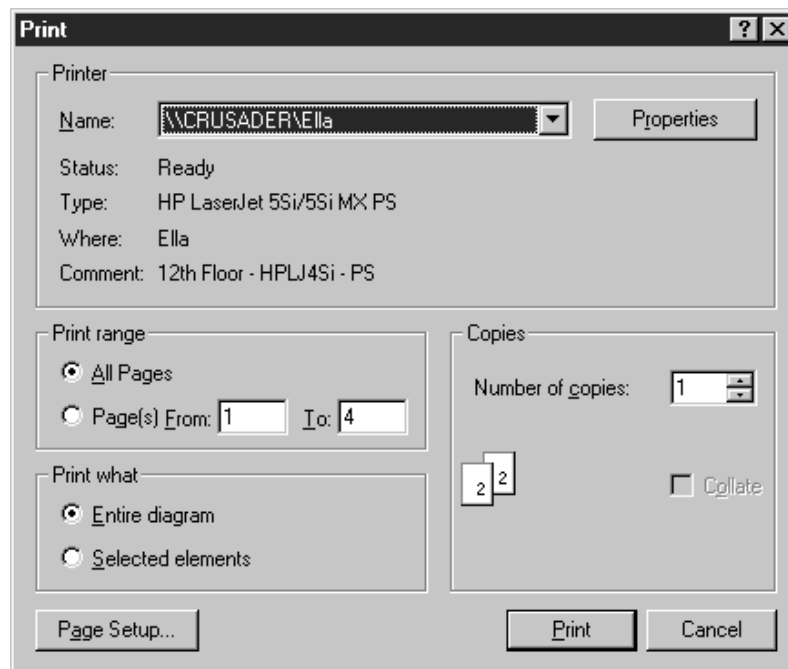
You can print a diagram from an editor whether or not the diagram has been saved. StP prints an image of the information currently displayed in the editor.

To print all or part of the currently displayed diagram to a printer:

1. With the diagram open in the editor, do one of these:
 - Click the **Print** toolbar button.
 - From the **File** menu, choose **Print**.

The diagram editor **Print** dialog box appears.

Figure 1: Diagram Editor Print Dialog Box



2. In the **Print** dialog box, select standard options and any of the following additional ones:
 - Click **Properties** to edit the selected printer's settings, such as paper source trays and duplex printing. StP ignores **Properties** options that conflict with StP **Page Setup** options.
 - In the **Print what** group, select options to print the entire diagram, or only the diagram elements that are currently selected in the editor.
 - Click **Page Setup** to change print options (see "Changing and Reusing Print Options" on page 10-12).
3. Click **Print**.

The diagram prints to the specified printer.

Printing from a Table Editor to a Printer

When printing from a table editor, StP uses Microsoft Word's currently configured default printer as the target printer.

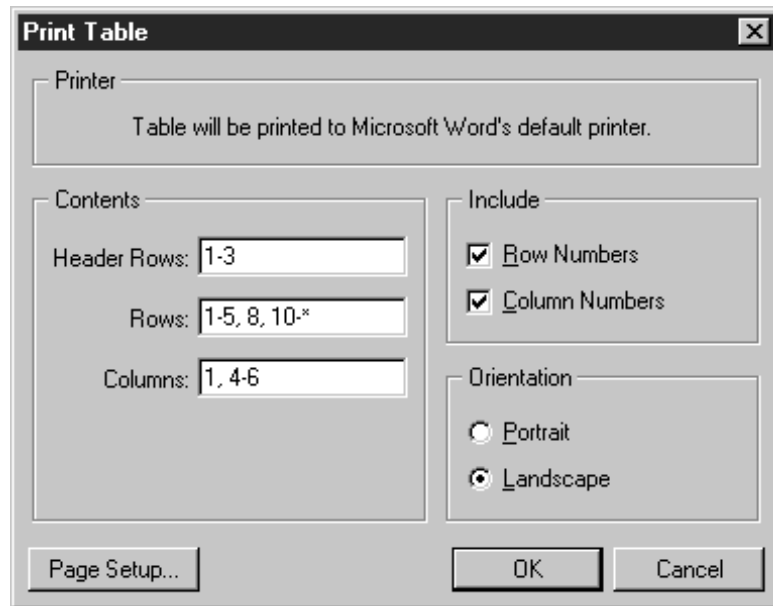
You can print a table from an editor whether or not the table has been saved. StP prints an image of the information currently displayed in the editor.

To print all or part of the currently displayed table to the default printer:

1. With the table open in the editor, do one of these:
 - Click the **Print** toolbar button.
 - From the **File** menu, choose **Print**.

The **Print Table** dialog box appears.

Figure 2: Table Editor Print Dialog Box



2. In the **Print Table** dialog box, select standard options and any of the following additional ones:
 - In the **Contents** group, specify which **Header Rows**, **Rows**, and **Columns** from the table you want to print. Use a hyphen (-) to indicate a range, commas (,) to separate entries, and the asterisk (*) wild card, as needed. To print the entire table, leave these fields blank.
 - In the **Include** group, select or deselect options to print **Row Numbers** and **Column Numbers**, as desired.
 - Click **Page Setup** to change print options (see “Changing and Reusing Print Options” on page 10-12).
3. Click **Print**.

The table is opened temporarily in Microsoft Word and prints to the Microsoft Word default printer.

Printing Output to a File for Publishing

Use the **Print As** command to print all or selected pages of a diagram or table to a specified output file and file type for later viewing or printing in a supported publishing product.

You can save the output in any of these formats:

- Enhanced Metafile (.emf)—diagrams only
- FrameMaker File (.mif)
- HTML File (.html)—tables only
- Interleaf File (.doc)
- Postscript File (.ps)—diagrams only
- Postscript File - Level 2 (.ps)—diagrams only
- RTF (Microsoft Word) File (.rtf)

Note: Because Enhanced Metafile format does not support the concept of diagram pages, StP creates a separate .emf file for each page of a multipage diagram, appending a sequential integer to each filename (for example, <diagram>.emf, <diagram>_2.emf, <diagram>_3.emf and so forth). These sequential integers do not reflect the page numbers that appear in a diagram's **Page Layout** view.

To print a formatted file, you must have access to a printer from the appropriate publishing product. For more information on using StP file output with a publishing product, see "Using Supported Publishing Products" on page 10-31.

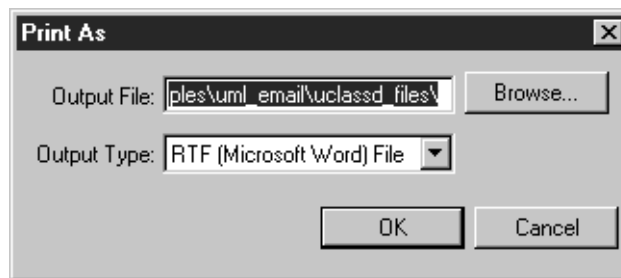
Printing from the Desktop to a File

To print one or more diagrams or tables to a specified output file and file type from the StP Desktop:

1. In the Model pane on the StP Desktop, open the **Diagrams** or **Tables** category and select a diagram or table type.
2. In the objects pane, select the diagram(s) or table(s) you want to print.

3. Do one of the following:
 - Right-click the selected object(s) in the objects pane and choose **Print As** from the shortcut menu.
 - From the **File** menu, choose **Print Diagram As** or **Print Table As**.The Desktop **Print As** dialog box appears.

Figure 3: Desktop Print As Dialog Box



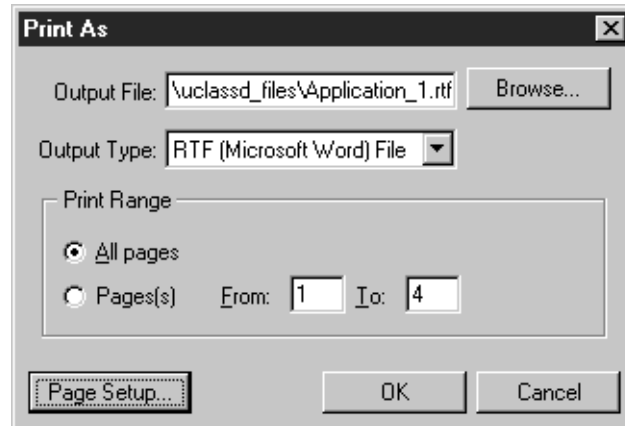
4. In the **Print As** dialog box, specify the output file and file type. Click **Browse** to display a standard file search dialog (see “Using the Browse Output File Dialog Box” on page 10-11).
5. Click **OK** to format and print the output to the specified file.

Printing from a Diagram Editor to a File

To print all or part of the currently displayed diagram to a file:

1. With the diagram open in the editor, choose **Print As** from the **File** menu.
The diagram editor **Print As** dialog box appears.

Figure 4: Diagram Editor Print As Dialog Box



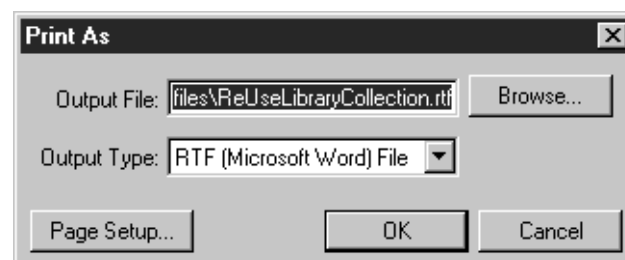
2. In the **Print As** dialog box, specify the output file, file type, and pages to print. Optionally:
 - Click **Browse** to display a standard file search dialog box (see “Using the Browse Output File Dialog Box” on page 10-11).
 - Click **Page Setup** to change print options (see “Changing and Reusing Print Options” on page 10-12).
3. Click **OK** to format and print the output to the specified file.

Printing from a Table Editor to a File

To print all or part of the currently displayed table to a file:

1. With the table open in the editor, choose **Print As** from the **File** menu.

Figure 5: Table Editor Print As Dialog Box

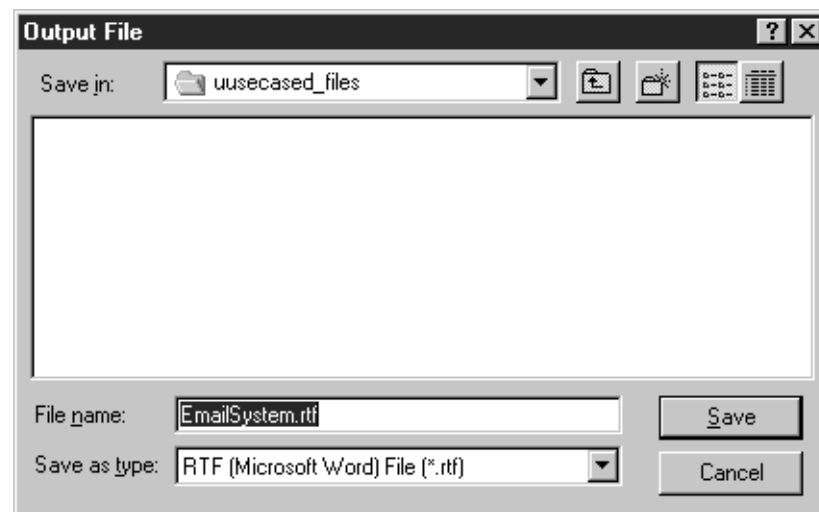


2. In the **Print As** dialog box, specify the output file and file type. Optionally:
 - Click **Browse** to display a standard file search dialog box
 - Click **Page Setup** to change print options (see “Changing and Reusing Print Options” on page 10-12).
3. Click **OK** to format and print the output to the specified file.

Using the Browse Output File Dialog Box

If you click **Browse** on the **Print As** dialog box, the **Output File** dialog box (Figure 6) appears. It enables you to browse through the existing directory and file names to locate a specific file.

Figure 6: Output File Dialog Box



The **Output File** dialog box contains standard features, as described in Table 2, which follows, and “Using Dialog Boxes” on page 2-12.

Table 2: Output Dialog Box Summary

Element	Description
Save in field	The directory whose contents appear in the text box.
Up One Level button	Displays the contents of the directory at the next higher level of the hierarchy.
Create New Folder button	Creates a new folder.
List button	Displays directory contents as a list of folders and filenames.
Details button	Displays directory contents as a detailed list with file type and modification date.
File name field	Accepts a filename to which the output is to be saved.
Save as type field	Specifies the file format for the output.

Changing and Reusing Print Options

StP uses print settings for formatting pages. A print setting consists of a group of default or customized print options that control the format of the printed output. Examples of print options include paper size, margins, page orientation, and captions. StP provides default print settings for diagram and table editors.

You can also:

- Create user-defined default print settings
- Create customized print settings
- Save print settings for reuse

You accomplish these tasks using the various tabs of the **Page Setup** dialog box. StP provides one set of **Page Setup** dialog box tabs for diagram editors and another set of tabs for table editors. The general printing options are the same for both; each also provides options specific to diagrams or tables.

Specifying Print Options

To use the **Page Setup** dialog box to specify new print options:

1. From the **File** menu, choose **Page Setup**.
2. In the **Page Setup** dialog box, select options on each tab, as described in the sections:
 - “Page Setup Options for Diagram Editors” on page 10-13
 - “Page Setup Options for Table Editors” on page 10-20
3. Click **OK**.

After specifying the print options, choose **Print** or **Print As** on the **File** menu to print the diagram or table with those options, or **Page Layout** on the **View** menu to preview a diagram’s page layout before printing.

Page Setup Options for Diagram Editors

This section describes the **Page Setup** dialog box tabs for StP diagram editors. Each figure representing a dialog box tab is followed by a table that describes the print options on that tab.

Appearance Tab on the Page Setup Dialog

The **Appearance** tab on the **Page Setup** dialog box (Figure 7) provides options that control the page orientation, alignment, and scale of the diagram image to be printed. Table 3 describes these options.

Figure 7: Page Setup Appearance Tab for Diagram Editors

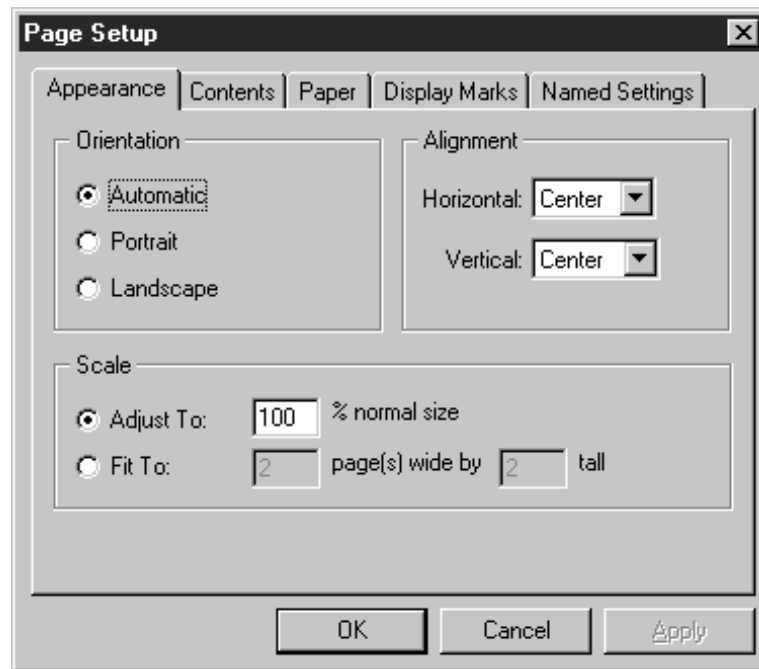


Table 3: Page Setup Appearance Tab Summary

Group	Option	Description
Orientation	Mutually exclusive page orientation options:	
	Automatic	Automatically chooses page orientation to maximize the size of the diagram.
	Portrait	Prints diagram on a vertical page.
	Landscape	Prints diagram on a horizontal page.

Table 3: Page Setup Appearance Tab Summary (Continued)

Group	Option	Description
Alignment	Independently specified alignment options:	
	Horizontal	Aligns diagram horizontally to Center , Left , or Right .
	Vertical	Aligns diagram vertically to Center , Top , or Bottom .
Scale	Mutually exclusive options that scale the diagram in different ways. Entries in these fields automatically adjust each other's values accordingly when you click OK or Apply .	
	Adjust To	Adjusts the size of the diagram (where 100% is full size), automatically calculates the size of the page grid needed to print this size diagram, and updates the dialog Fit To values accordingly.
	Fit To	Adjusts the size of the diagram to fit a specified grid <i>x</i> pages wide by <i>y</i> pages tall, and automatically calculates the scale percentage and updates the dialog box Adjust To value accordingly. Type entries or use the arrow buttons to specify.

Contents Tab on the Page Setup Dialog

The **Contents** tab on the **Page Setup** dialog box (Figure 8) provides options that control what part of the diagram is printed, and whether or not to include optional page numbers, cut lines, and a caption. Table 4 describes these options.

Figure 8: Page Setup Contents Tab for Diagram Editors

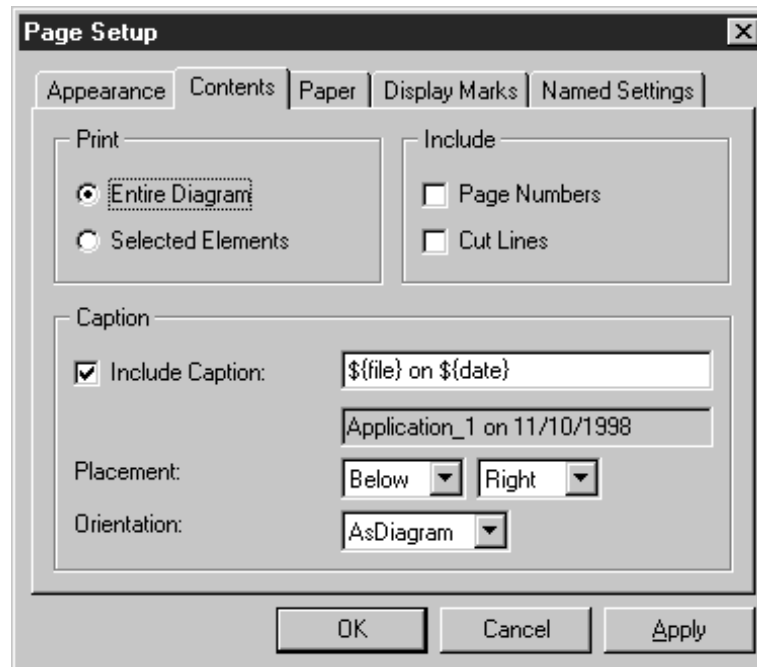


Table 4: Diagram Page Setup Contents Tab Summary

Group	Option	Description
Print	Mutually exclusive options for printing all or selected elements of a diagram:	
	Entire Diagram	Prints entire diagram.
	Selected Elements	Prints only elements that are currently selected in the diagram.

Table 4: Diagram Page Setup Contents Tab Summary (Continued)

Group	Option	Description
Include	Independently selected options for adding page marks to a printed diagram:	
	Page Numbers	Prints page numbers in the form of coordinates, such as (0,0), (0,1), (1,1), and (1,2), on each page to show how the pages of a multipage diagram fit together.
	Cut Lines	Prints “cut lines” showing where the pages of a multipage diagram fit together.
Caption	Independently selected options for adding a caption to a printed diagram.	
	Include Caption	Adds a specified caption to the printed diagram. The text input field accepts a string, including the following system variables for string substitution (see <i>Customizing StP</i> for descriptions): \${editor}, \${file}, \${filepath}, \${filestore}, \${filetype}, \${projdir}, \${rev}, \${system}, \${tabletype}, \${tmpfile}, \${user}, \${time}, \${date}, \${server} A read-only field below the text input field displays the substituted string.
	Placement	Determines placement of a caption in relation to the diagram, vertically (Below or Above) and horizontally (Right , Center , or Left).
	Orientation	Sets page orientation of a caption to match the diagram orientation (AsDiagram), or sets it for a Portrait or Landscape page.

Paper Tab on the Page Setup Dialog

The **Paper** tab on the **Page Setup** dialog box (Figure 9) provides options that control the paper size and margins for this print job. Table 5 describes these options.

The **Paper** tab is identical for both the diagram and table editors.

Figure 9: Page Setup Paper Tab

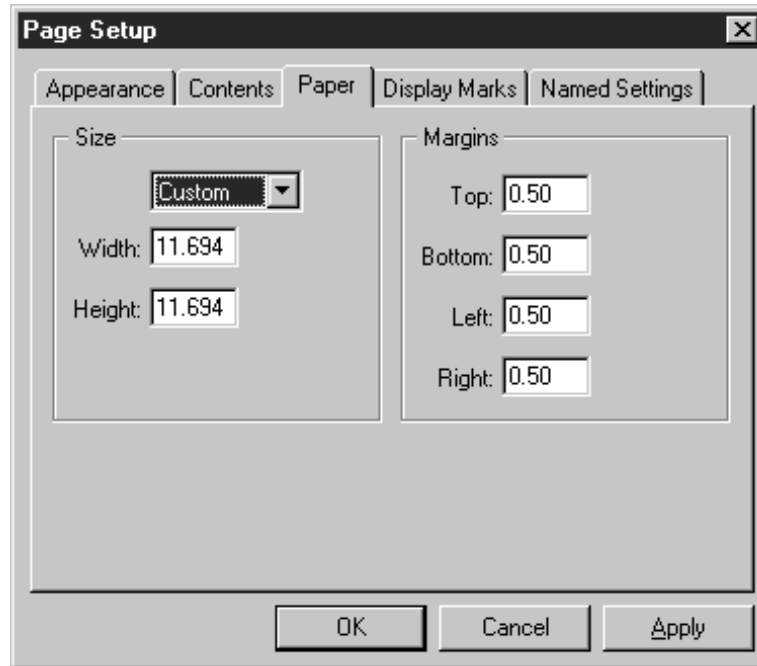


Table 5: Page Setup Paper Tab Summary

Group	Option	Description
Size		Specifies the size of paper to be used for this print job.
	(no title)	Offers a choice of valid paper sizes on a drop-down options list. Selections (except for the Custom option) automatically set Width and Height fields.
	Width	Automatically set by selection from drop-down list. If the Custom option is selected, these fields accept user input in the form of decimal numbers for specifying width and height of paper in inches.
	Height	
Margins	Top Bottom Left Right	Sets margins to be used, specified in decimal numbers for units such as inches or centimeters (as determined by the default rules file).

Display Marks Tab on the Page Setup Dialog Box

The **Display Marks** tab on the **Page Setup** dialog box (Figure 10) provides options that control which display marks are visible in the printed diagram. Table 6 describes these options.

Figure 10: Page Setup Display Marks Tab for Diagram Editors

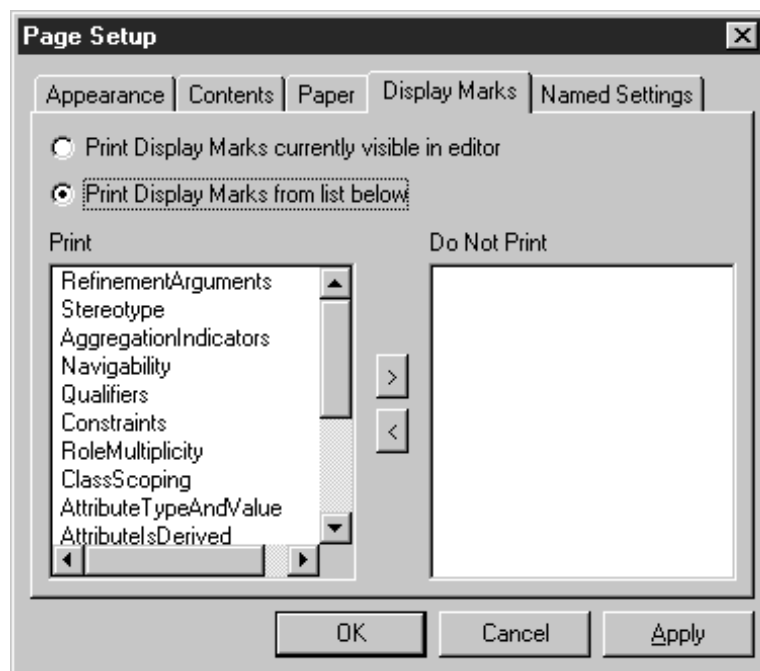


Table 6: Page Setup Display Marks Tab Summary

Element	Description
Print Display Marks currently visible in editor option	In the printed diagram, shows only display marks that are currently visible in the editor.
Print Display Marks from list below option	In the printed diagram, shows only display marks selected from the Print list on this dialog box tab.

Table 6: Page Setup Display Marks Tab Summary (Continued)

Element	Description
Print list	Lists the display marks that will and will not be printed, respectively. Use the arrow buttons to move selected display marks between the Print list and the Do Not Print list.
Do Not Print list	

Named Settings Tab on the Page Setup Dialog Box

The **Named Settings** tab on the **Page Setup** dialog box provides options that allow you to load, save, or delete a customized set of print options for printing a diagram or table. The **Named Settings** tab is identical for both the diagram and table editors.

For information on this tab, see “Creating a Named Print Setting” on page 10-23.

Page Setup Options for Table Editors

The **Page Setup** dialog box for the StP table editors contains the following tabs:

- **Contents**
- **Paper**
- **Named Settings**

The **Paper** and **Named Settings** tabs are identical to those for the diagram editors, described in “Paper Tab on the Page Setup Dialog” on page 10-17 and “Named Settings Tab on the Page Setup Dialog Box” on page 10-20, respectively.

The **Contents** tab for StP table editors is illustrated in Figure 11 and its options are described in Table 7 in this section.

Figure 11: Page Setup Contents Tab for Table Editors

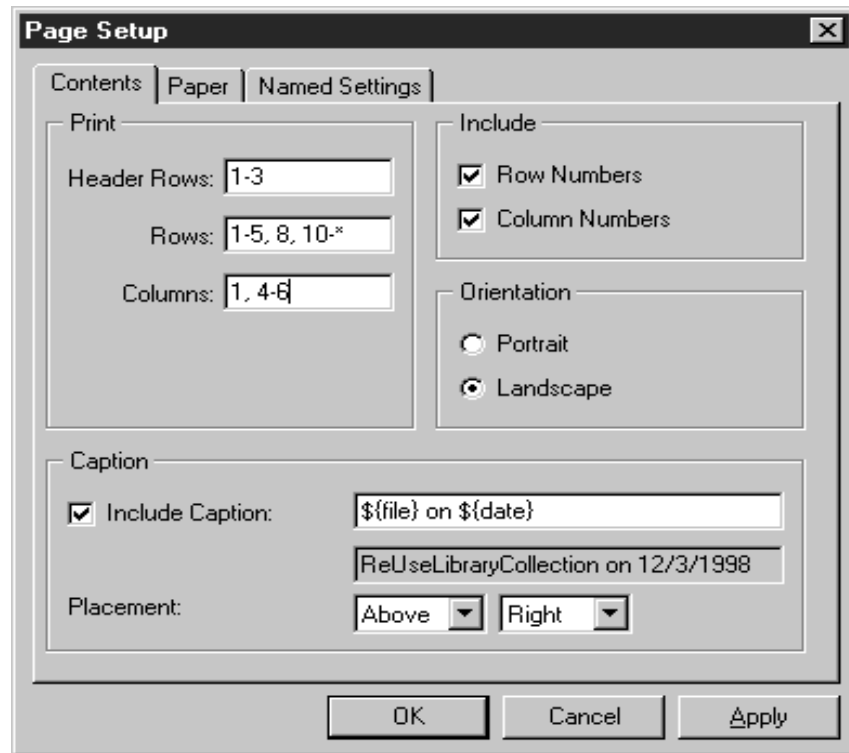


Table 7: Table Page Setup Contents Tab Summary

Group	Option	Description
Print	Independently specified options for printing selected parts of a table. To print the entire table, leave these fields blank.	
	Header Rows	These fields accept numerical entries for the row and column numbers of the parts of the table you want to print. Use a hyphen (-) to indicate a range, commas (,) to separate entries, and asterisk (*) wild card, as needed.
	Rows	
	Columns	

Table 7: Table Page Setup Contents Tab Summary (Continued)

Group	Option	Description
Include	Independently selected options for adding row and column numbers to a printed diagram:	
	Row Numbers	Prints table's row numbers.
	Column Numbers	Prints table's column numbers.
Orientation	Mutually exclusive page orientation options:	
	Portrait	Prints table on a vertical page
	Landscape	Prints table on a horizontal page
Caption	Independently selected options for adding a caption to a printed table:	
	Include Caption	<p>Adds a specified caption to the printed table.</p> <p>The text input field accepts a string, including the following system variables for string substitution (see <i>Customizing StP</i> for descriptions): \${editor}, \${file}, \${filepath}, \${filestore}, \${filetype}, \${projdir}, \${rev}, \${system}, \${tabletype}, \${tmpfile}, \${user}, \${time}, \${date}, \${server}</p> <p>A read-only field below the text input field displays the substituted string.</p>
	Placement	Determines placement of a caption in relation to the table, both vertically (Below or Above) and horizontally (Right , Center , or Left).

Creating a Named Print Setting

When you use the **Page Setup** dialog box to modify how a diagram or table is printed, you can save that group of print options as a named setting for this diagram or table. You save the group of print options, with a setting name of your choice, on the **Named Settings** tab (Figure 12). You can later recall a saved named setting to print this diagram or table with the saved options.

When you save a named setting for the first time, StP creates a file in the editor directory that has the same name as the current diagram or table and a *.prso* extension. Any named settings you create for this diagram or table are stored in this file when they are saved. You should never have to directly manipulate this file.

Figure 12: Page Setup Named Settings Tab

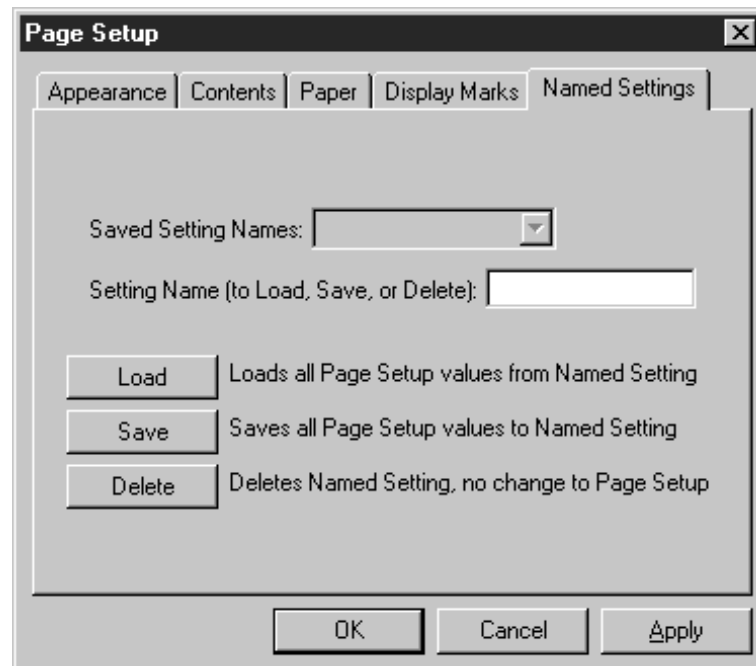


Table 8 describes the **Named Settings** options.

Table 8: Page Setup Named Settings Tab Summary

Element	Description
Saved Setting Names field	Provides a selection list of the saved named settings.
Setting Name field	Accepts a selection or text input for the name of the setting you want to load, save, or delete.
Load button	Opens the specified named setting and loads its values into the Page Setup dialog box.
Save button	Saves the current Page Setup print options to the specified named setting.
Delete button	Deletes the specified named setting.

Creating a Default Print Setting

When you open a diagram or table, or print from the Desktop, StP automatically loads a default print setting to control how the diagram or table is printed. You can override the default setting by selecting print options manually, or by loading a saved named setting.

You can also create a diagram-specific or table-specific default print setting, called *editor*, for each diagram or table. This default print setting applies only to the diagram or table for which you created it. You cannot use the **Page Setup** dialog box to create a default print setting for the editor itself, or to create a single print setting for multiple diagrams or tables.

The user-defined *editor* setting for a diagram or table takes precedence over the StP-supplied default setting. When you open the diagram or table in the editor, StP automatically loads the diagram's or table's user-defined *editor* setting, if one exists. If no user-defined *editor* setting exists for this diagram or table, StP loads the *editor* default print setting from the default print rules file. You can customize StP's default print settings by modifying the *print_default.rules* file (see *Customizing StP*).

To create an *editor* default print setting for a specific diagram or table, follow the procedure in “Creating a Named Print Setting,” which follows, but save the setting with the name *editor*.

Creating New Named Print Settings

To create a named setting:

1. Open the diagram or table for which you want to create the print setting.
2. From the editor’s **File** menu, choose **Page Setup**.
3. In the **Page Setup** dialog box, select appropriate tabs and modify the options you want to include in the saved setting.
4. Select the **Named Settings** tab.
5. Type a name for the setting in the **Setting Name** field.
6. Click **Save**.

You can save more than one group of print options for a diagram, giving each group a unique name. Each new named setting is added to the *.prso* file.

Once a diagram or table has a named setting associated with it, you can invoke the named setting by name whenever you print the diagram, whether from the editor, command line, or a QRL script (described in *Query and Reporting System*).

Using an Existing Named Print Setting

When you first open a diagram or table in the editor, StP automatically loads either the user-defined *editor* named setting, if one exists (see “Creating a Default Print Setting” on page 10-24), or an StP-supplied default print setting. You can change the print options manually, as desired, or load a saved named setting using the **Named Settings** tab on the **Page Setup** dialog box.

The last setting you load or save remains the current named setting until you change named settings, open the same or another diagram or table, or exit the editor. However, you can change the current print options and apply them to a diagram or table without affecting the current named setting. The options for the current named setting are modified only if and when you save the named setting.

To use an existing named setting:

1. Open the **Page Setup** dialog box for the diagram or table you want to print.
2. Select the **Named Settings** tab.
3. On the **Named Settings** tab, specify a saved setting you want to use in either of these ways:
 - In the **Setting Name** field, enter the name of the saved setting.
 - In the **Saved Setting Name** field, display the options list and select a named setting.
4. Click **Load** to load the values for the named setting.

Deleting a Named Setting

To delete a named setting:

1. Open the **Page Setup** dialog box for the diagram or table for which you want to delete a named setting.
2. Select the **Named Settings** tab.
3. On the **Named Settings** tab, specify the saved setting you want to delete, in either of these ways:
 - In the **Setting Name** field, enter the name of the saved setting.
 - In the **Saved Setting Name** field, display the options list and select a setting.
4. Click **Delete**.

Printing Large or Multipage Diagrams

When printing large or complex diagrams, you may want to print only selected elements or certain areas of the diagram. Also, some external publishing products have file size limitations that cannot accommodate an output file created by StP for a very large diagram.

To reduce the file size when printing large diagrams, you can:

- Limit the content to be printed, if appropriate
- Divide the print job into several smaller files to be printed later from a publishing tool

You may also want to:

- Include page numbers and cut lines, to show how the printed pages fit together
- Adjust and check diagram pagination before printing

Limiting the Content to be Printed

You can reduce the size of a print file by limiting the content to be printed.

To print only selected elements of a diagram:

1. With the diagram open in the editor, select individual elements or an area of the diagram you want to print.
2. From the editor's **File** menu, choose **Print** (to print to a printer) or **Print As** (to print to a file).
3. To print only the elements currently selected in the editor, select the **Selected Elements** option on either the:
 - **Print** dialog
 - **Contents** tab of the **Page Setup** dialog
4. Click **OK** on the **Print** or **Print As** dialog to print the selected elements.

Dividing the Print Job into Smaller Files

Some diagrams may be too large to print as a single file from certain publishing products, because of limitations within those products.

To avoid file size problems when printing a large diagram to a file, divide the print job into smaller files.

1. With the diagram open in the editor, choose **Print As** from the **File** menu.
2. In the **Print** or **Print As** dialog box, specify a range of pages to print, to limit the size of the print file.
3. Repeat the previous step until all the pages for this diagram have been printed to individual files.

Note: Enhanced Metafile format does not support the concept of diagram pages. When printing to a file in EMF format, StP creates a separate *.emf* file for each page of a multipage diagram, appending a sequential number to each filename (for example, *<diagram>.emf*, *<diagram>_2.emf*, *<diagram>_3.emf* and so forth). These sequential integers do not reflect the page numbers that appear in a diagram's **Page Layout** view.

Using Page Numbers and Cut Lines

Page numbers and cut lines show how all of the pages of a printed multipage diagram fit together. You specify these options on the **Contents** tab of the **Page Setup** dialog box.

If the **Page Numbers** option is selected, each printed page has a pair of coordinates in the upper left corner indicating the page's position relative to the other pages. For example, the first page of a multipage diagram is numbered (0, 0) in its upper left corner. The other pages are numbered according to their vertical and horizontal coordinates, in relation to the first page, as shown in Figure 13.

Figure 13: Page Numbering of Multipage Diagrams

(0,0)	(0,1)
(1,0)	(1,1)

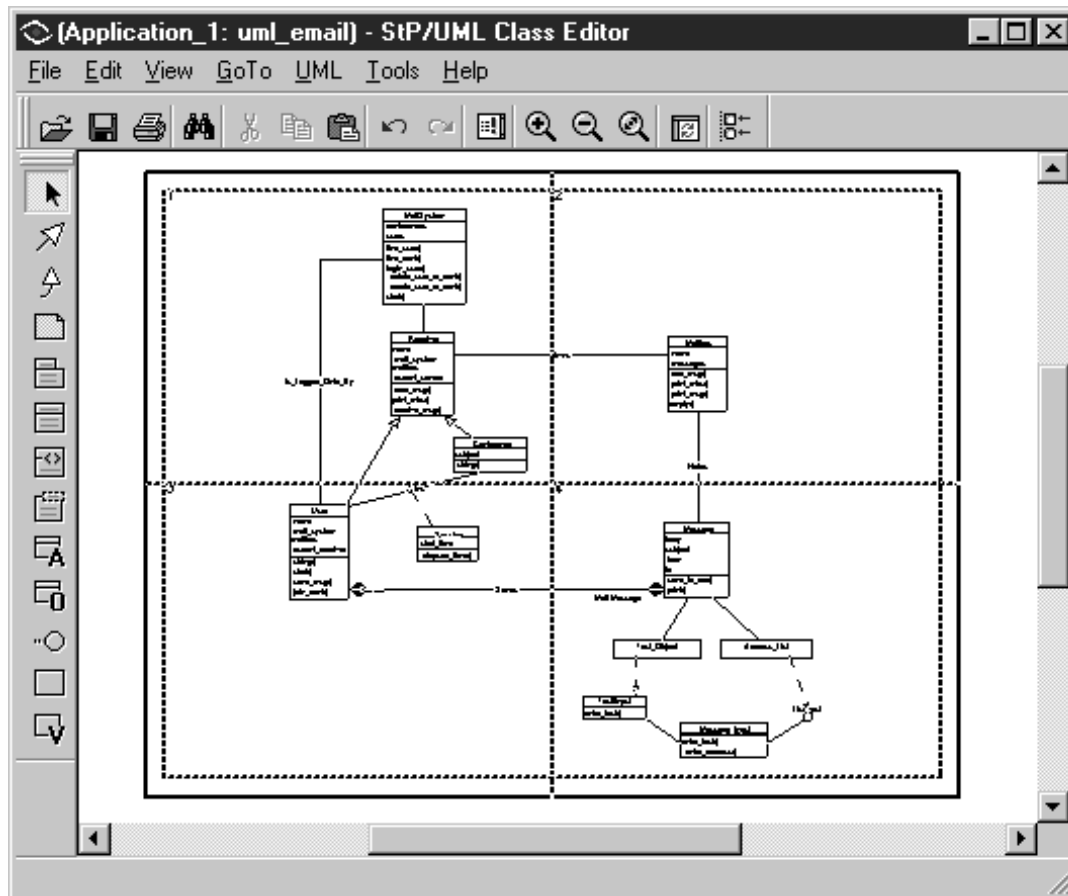
If the **Cut Lines** option is selected, dotted lines appear on the printed pages, which indicate where to align the pages of the diagram.

Adjusting and Checking Pagination

StP determines the necessary pagination for printing a diagram from the selections in the **Scale** group on the **Appearance** tab of the **Page Setup** dialog box. The **Adjust To** and **Fit To** options in this group allow you to scale a diagram larger or smaller, or as needed, to fit on a specified number of pages in a grid. This is especially useful for printing large, complex diagrams that have too much detail to represent on one page.

You can use the **Page Layout** command on the editor's **View** menu to check pagination, as shown in Figure 14.

Figure 14: Page Layout View



Page layout view reflects the following print options, as specified on the **Page Setup** dialog box's **Appearance** and **Paper** tabs:

- Selected page orientation
- Selected alignment
- Diagram scale and pagination grid specifications
- Paper size
- Margins

Using Supported Publishing Products

After printing a diagram or table to a file in StP, you can edit or print it from the publishing product for that file type. You can also import a formatted file into another document in a supported publishing product.

StP provides automatic access to various publishing products through the Desktop **Reports** menu for viewing, editing, and printing the following types of files:

- Reports containing text, diagrams, and/or tables that have been generated using the StP Script Manager
- Diagrams or tables formatted and saved to files for editing or printing in StP-supported publishing products

This section discusses how to access and use an external publishing product with diagram and table print files. For more information on report generation and printing, see the *Query and Reporting System* manual.

Supported Formats and Products

You can access a file in any of the supported formats from StP, provided you have installed the appropriate publishing product. StP uses the file extension to determine which publishing product to launch when you open the file. To change the default association between a file extension and a publishing product, see your operating system documentation. Table 9 lists the supported file formats for diagram and table print files and the publishing product that is launched, by default, when you access one of these files.

Table 9: Supported Publishing Products

File Format	Diagrams or Tables	File Extension	By Default, Launches this Publishing Product
Enhanced Metafile (EMF)	Diagrams only	<i>.emf</i>	Usually imported into other documents; If accessed directly, prompts for the program to use
HTML	Tables only	<i>.html</i>	Default web browser (Microsoft Internet Explorer or Netscape Navigator)
Interleaf-ASCII	Both	<i>.doc</i>	Interleaf or Microsoft Word, depending on how your operating system default file extension / publishing product associations are set
Maker Interchange Format (MIF)		<i>.mif</i>	Adobe FrameMaker
Postscript	Diagrams only	<i>.ps</i>	Prompts for the program to use
Postscript-Level 2			
Rich Text Format (RTF)	Both	<i>.rtf</i>	Microsoft Word

Opening a File in a Publishing Product from StP

To open a file in a supported publishing product from StP:

1. From the Desktop **Report** menu, choose **Open Report**.
2. In the **Open Report** dialog box, locate and select the file or specify its location and name in the **File name** field.
3. Click **Open**.
StP opens the file in the appropriate installed publishing product.

For complete information about using these publishing products, see the documentation that came with the product.

Viewing and Printing RTF Documents

When viewing or printing RTF documents in Microsoft Word, you must select the **Page Layout** view mode on Word's **View** menu to see diagrams. They are not visible in **Normal** or **Outline** mode. Text and tables are visible in **Normal** mode.

Importing MIF Files into Other Documents

FrameMaker MIF files created by StP print commands can be imported by reference into other FrameMaker documents.

Diagrams printed to output files in MIF format from StP editors (but not from a QRL script) can be imported by reference, as follows:

- A single diagram on a single page can be imported.
- More than one diagram, each on a single page, can be imported, except when the chosen orientation is Automatic (unless the *print_mif_importable* ToolInfo variable is set to **yes**).
- A single diagram printed over multiple pages (multipage), and more than one multipage diagram can be imported only if the *print_mif_importable* ToolInfo variable is set to **yes**.

For information about setting the *print_mif_importable* ToolInfo variable, see the discussion on ToolInfo files and the ToolInfo variable appendix in *StP Administration*.

Summary

Table 10 is a quick reference guide to Print tasks. The “To” column lists the task; the “Do” column lists the steps you use to accomplish the task. For more information about each of the tasks, refer to the appropriate section in this chapter.

Table 10: Summary of Print Tasks

To	Use
Print diagram(s) or table(s) from the Desktop to a default printer, using a default print setting	Print Diagram or Print Table from the File menu
Send output from an editor to a printer	Print from the editor's File menu
Send output from the Desktop or an editor to a file	Print As from the File menu
Choose an existing directory and/or file for output	Browse button on the Print As dialog box
Specify page orientation, alignment, scale, or pagination grid for a diagram before printing	Appearance tab of the Page Setup dialog box
Specify the diagram or table content to be printed, including optional features, such as a title and page or row and column numbers	Contents tab of the Page Setup dialog box
Specify the paper size and margins	Paper tab of the Page Setup dialog box
Specify which diagram display marks to include in the output	Display Marks tab of the Page Setup dialog box
Save a new named print setting	Save button on the Named Settings tab of the Page Setup dialog box
Load an existing named print setting for current table or diagram	Load button on the Named Settings tab of the Page Setup dialog box
Delete a named setting	Delete button on the Named Settings tab of the Page Setup dialog box
Check pagination of the diagram to be printed	Page Layout on the View menu

Table 10: Summary of Print Tasks (Continued)

To	Use
Prepare a very large or complex diagram for printing from an external publishing product	Print Range options on the Print As dialog box to divide the diagram's output into several smaller files that the publishing product can load

11 Locking Files

This chapter describes the diagram, table, and annotation (files) locking features of StP. Locks prevent multiple users from accessing files at the same time.

Topics covered are as follows:

- “How Locking Works in StP” on page 11-1
- “Using Locking Commands” on page 11-3
- “Setting Lock Administrators” on page 11-5
- “Listing Locks” on page 11-5
- “Using Locking on Selected Files” on page 11-7
- “Opening a Locked File” on page 11-9

How Locking Works in StP

There are two categories of locking commands in StP:

- StP Utilities category locking commands
- Model category locking commands

StP Utilities category commands support general locking features, while Model category locking commands allow you to operate on a specific file.

Developers need access to one another’s models, but it is important that they do not interfere with one another’s work. If two or more users try to edit the same file simultaneously, the StP locking utility detects the situation and prevents users from accidentally overwriting each other’s

work. StP also provides the ability for all users to read a file at any time, assuming that they have the necessary file permissions to do so.

Some locks are automatically set by the editors, while other locks must be set manually.

Automatic Locks

StP sets an automatic lock when you load a file for editing. StP discards the automatic lock when you load another file or quit the editor. An automatic lock can be removed by a Lock Administrator, who is a user with the authority to override all locks.

This is how automatic locking works:

- When a user starts editing a file, StP locks the file.
- When a user terminates editing, StP removes the lock.
- When a user tries to edit a file already locked by another user, StP displays a reset lock confirmation box.

Permanent Locks

Permanent locks are user-defined locks that control file access by a single user or a group of users. StP checks a list of machine/user names associated with every permanent lock to verify access rights. When you set a lock, StP makes you the lock owner. Lock owners can specify who is able to edit the file (Access list) and who is able to remove the lock (Delete list).

Specifying Users in Access Lists

StP maintains the following lists to determine which users have permission to override all locks, access a file, delete a lock on a file, and own a file:

- Lock Administrators list (for this system)
- Access list (for each file)
- Delete list (for each file)
- Owner list (for each file)

To specify these users in locking dialogs, use comma-separated lists of users and hostnames, with no blank spaces before or after the commas.

Each entry in the list can be in either of the following form(s):

`<user>@<host>`

`<host>:<user>`

The name can be a pattern, which is in turn a regular expression. The pattern matching feature is especially useful with the “*” pattern, which indicates a universal match. If part of the user specification is empty, then “*” is assumed. If neither delimiter (@ or :) is used, the user@host form is assumed and “*” is assumed for the host.

For example:

- `aonix@*` means user “aonix” on any machine
- `aonix@aonix*` means user “aonix” on any machine starting with “aonix,” such as `aonix@aonixdemo` or `aonix@aonixhome`

Using Locking Commands

To use the locking commands:

1. From the StP Desktop **Tools** menu, choose **Locks**.
2. From the **Locks** submenu, choose one of the following locking commands:
 - **Manage Locks**—To implement and manage locking on selected files
 - **Set Lock Administrators**—To specify which users have authority to override all locks in the current system
 - **List Locks**—To display lock information for all or specified file(s) in the entire system
3. Select options and enter appropriate information in the dialog box that appears.

Table 1 describes the options that may appear in these dialog boxes.

Locking Files

Table 1: Locking Command Dialog Options

Option	Dialog	Description
Lock Administrator(s)	Set Lock Administrators	Displays an editable list of users and hosts who have authority to override all locks in the current system, including deleting manual locks. Edit the list to create, add, or delete users; be sure to include your own name. See “Specifying Users in Access Lists” on page 11-2 for the format.
Name	List Locks	Specifies the file(s) whose lock information you want to display. Do not include file extensions; for example, specify <i>a16</i> for <i>a16.ant</i> , or <i>2.2.1</i> for <i>2.2.1.dfe</i> .
Lock Type	List Locks and Manage Locks	Specifies the type of lock the command is to be evoked on: Any —Locks of any type Permanent —Described in “Permanent Locks” on page 11-2 Automatic —Described in “Automatic Locks” on page 11-2
Access List		Displays an editable list of users and hosts who have access to the file(s). By default, all users have permission to access a file. If any users have been explicitly specified in the Access List for a file, only the specified users have permission to access the file. See “Specifying Users in Access Lists” on page 11-2 for the format.
Delete List		Displays an editable list of users and hosts who can delete manually set locks. Only users who are Lock Administrators or are specified on a file’s Delete List have permission to delete locks. See “Specifying Users in Access Lists” on page 11-2 for the format.
Owner List		Displays an editable list of users and hosts who are lock owners. A user becomes a lock owner by setting a lock on the file. Lock owners can delete manually set locks on those files. See “Specifying Users in Access Lists” on page 11-2 for the format.
Ask for Confirmation	Manage Locks	If selected, requests confirmation before overwriting existing file locks. Activated for Delete Lock command only.
Force Lock Deletion		If selected, forces the deletion of a lock. Activated for Delete Lock command only.

Setting Lock Administrators

By default, the initial lock administrator for an StP system is the creator of that system. You can add more users as lock administrators with the **Set Lock Administrators** command.

To set additional lock administrators:

1. From the StP Desktop **Tools** menu, choose **Locks > Set Lock Administrators**.
2. In the **Set Lock Administrators** dialog box, type entries for all Lock Administrator(s) for this system, including yourself, using the following format (for details, see “Specifying Users in Access Lists” on page 11-2):
`<user>@<host>` or `<host>:<user>`
3. Click **OK**.

Listing Locks

StP provides two ways to display file locking information:

- **List Locks** command on the Desktop **Tools** menu
- **List Locks** command in the **Manage Locks** dialog box

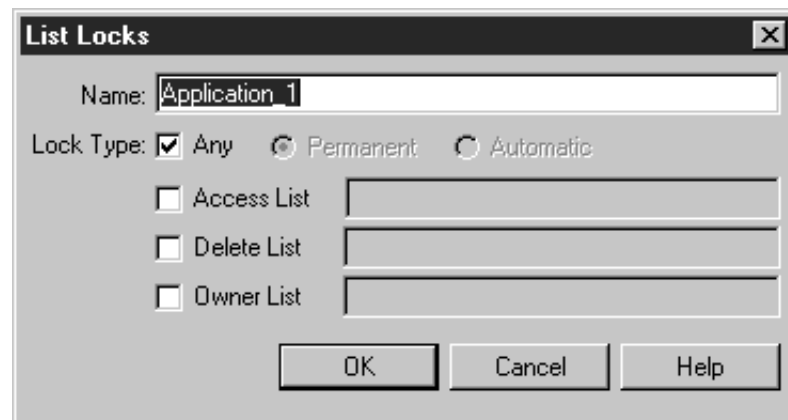
The **Tools** menu **List Locks** command displays information for all locks that exist in the current system, as constrained by options you specify in the **List Locks** dialog box. You can constrain the displayed results to locks on certain files and to locks with specified user permissions.

The **List Locks** command on the **Manage Locks** dialog box displays lock information for file(s) you select in the Desktop objects pane only. You can also constrain these results by specifying options on the **Manage Locks** dialog box. For more information, see “Using Locking on Selected Files” on page 11-7.

To list locks for the current system:

1. From the StP Desktop **Tools** menu, choose **Locks > List Locks**.
2. In the **List Locks** dialog box, type the filename(s), without file extensions, whose lock information you want to display.
Leave this field blank to list locks for the entire system.
Optionally, use StP's pattern matching capabilities to specify the filenames.

Figure 1: List Locks Dialog Box



3. Set other options to further constrain the search to specified lock types or locks set with certain user permissions, as described in Table 1.
4. Click **OK**.
The locking information for the specified diagram or table appears in a separate window.

Using Locking on Selected Files

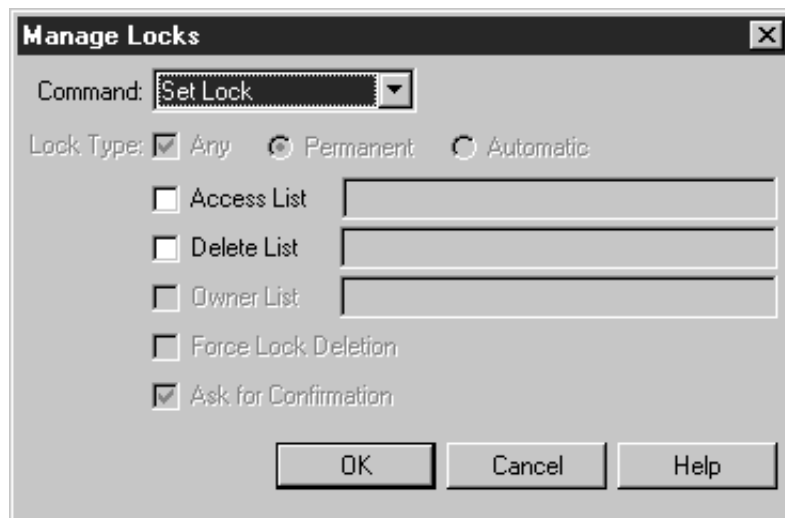
You use the **Manage Locks** command to implement and manage locking on specified files.

To use locking on one or more selected files:

1. In the StP Desktop Model pane, open a category and select a subcategory of diagram types or table types.
2. In the Desktop objects pane, select one or more diagrams or tables.
3. From the **Tools** menu, choose **Locks > Manage Locks**.
4. In the **Manage Locks** dialog box, display and select an available command in the **Command** field.

For descriptions of commands, see Table 2 on page 11-8.

Figure 2: Manage Locks Dialog Box



5. Select options, as described in Table 1 on page 11-4.
6. Click **OK**.

Results appear in a separate window.

Locking Files

The following table describes the commands available from the **Manage Locks** dialog box and the available options for each.

Table 2: Locking Commands on the Manage Locks Dialog

Command	Description	Options
List Locks	Displays locks for the selection(s) in the Desktop objects pane that match the specified constraints.	Lock Type, Access List, Delete List, Owner List
Inquire for Lock Set	Queries for locking status of the selection(s) in the Desktop objects pane, and displays a message regarding your ability to edit the selection.	Lock Type
Check Permission	Checks for locks that would prevent you from editing the file(s) selected in the Desktop objects pane.	(none)
Set Lock	Sets a permanent lock on the file(s) selected in the Desktop objects pane. You must have file access permission to set a lock on this file.	Access List, Delete List
Delete Lock	Deletes a lock on the file(s) selected in the Desktop objects pane. You must be a Lock Administrator or be on the Delete Lock list for the selected file(s) to delete a lock.	Lock Type, Force Lock Deletion, Ask for Confirmation

Opening a Locked File

If you try to edit a locked file, StP displays a confirmation box, asking if you want to:

- Reset the lock and open the file
- Open the file in read-only mode

If a machine crash or other error caused the locked file, you may reset the lock to open the file. Otherwise, you can open a locked file for viewing in read-only mode.

12 **Creating Requirements Tables**

The Requirements Table Editor (RTE), included in several StP products, can be used to specify requirements for a project.

This chapter explains the fundamental features of the Requirements Table Editor and how to use it to specify requirements. For more product-specific information about specifying requirements, see the documentation that came with your StP product.

Topics covered in this chapter are as follows:

- “Using the Requirements Table Editor” on page 12-1
- “Using the RTE Menus” on page 12-6
- “Hiding and Showing RTE Sections” on page 12-12
- “Creating Requirements” on page 12-14
- “Refining Requirements” on page 12-17
- “Manipulating Requirements Table Contents” on page 12-19
- “Allocating Requirements” on page 12-23
- “Checking Requirements for Completeness” on page 12-29

Using the Requirements Table Editor

The Requirements Table Editor provides some of the functions and menu options of other StP table editors. For general information about using StP table editors, see Chapter 5, “Editing Tables.”

Starting the RTE

You can start the RTE from:

- StP Desktop
- Another editor, using navigation

Starting the RTE from the Desktop with an Empty Table

To start an empty Requirements Table Editor from the Desktop:

1. In the Model pane, open the **Tables** category and select **Requirements**.
2. Do one of the following:
 - Click the **Start New Editor** toolbar button.
 - From the **File** menu, choose **New > Requirements Table**.

An empty requirements table appears.

Opening an Existing Requirements Table from the Desktop

To open an existing requirements table from the Desktop:

1. In the Model pane, open the **Tables** category and select **Requirements**.
2. Do any one of the following:
 - Double-click a requirements table name in the objects pane.
 - Select a requirements table in the objects pane and click **Open**.
 - Select a requirements table in the objects pane and click the **Edit Diagram/Table** toolbar button.
 - Select a requirements table in the objects pane and choose **Open Table** from the **File** menu.

The selected requirements table appears.

Navigating to RTE from a Diagram

You can start the RTE by navigating from an object in a diagram. If more than one requirements table exists for this system, you can select one from the object selector dialog box that appears.

The object from which you navigate automatically becomes the target object for operations you perform in the requirements table. Using commands in the RTE, you can allocate or deallocate requirements for the target object.

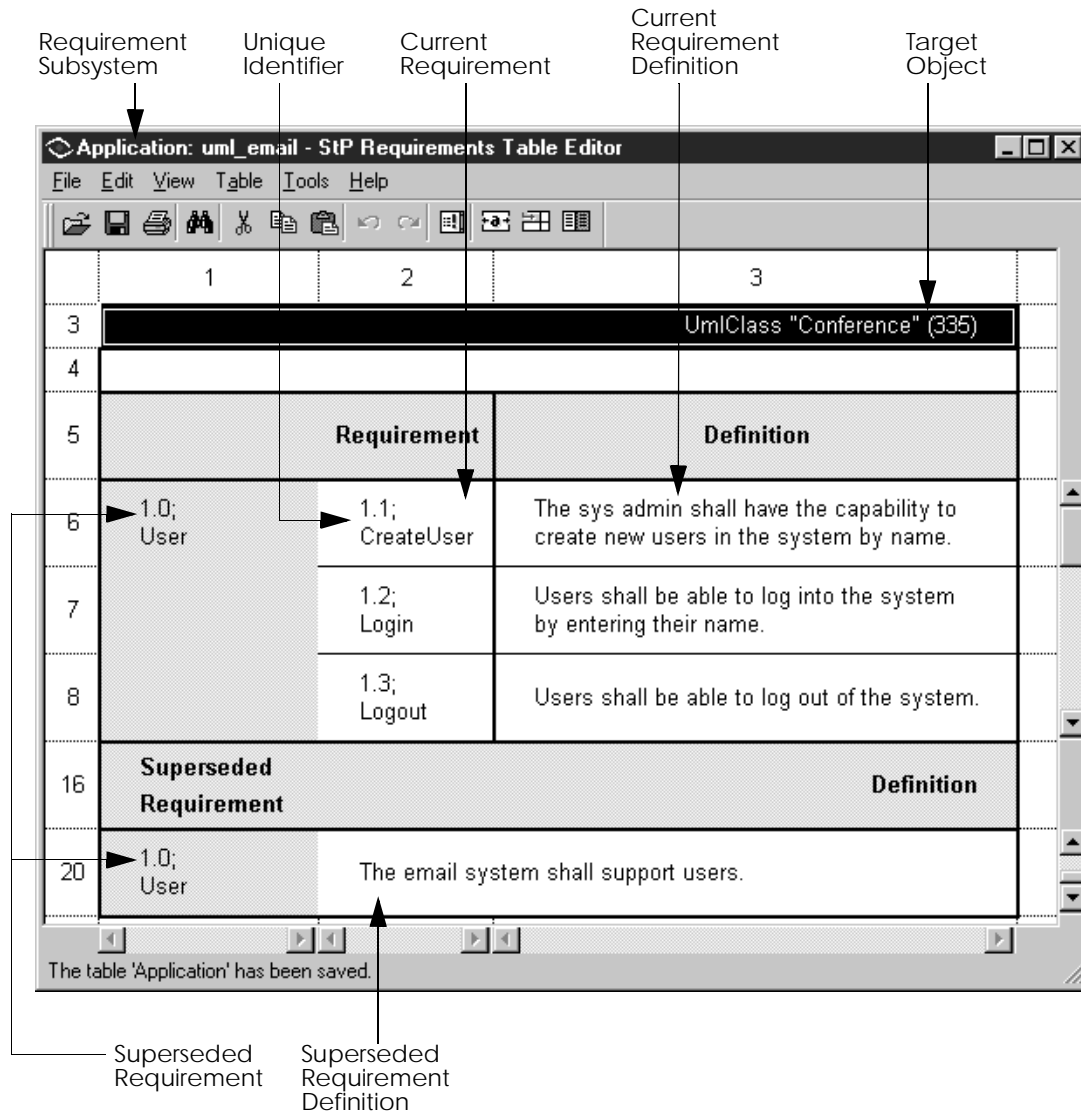
For more information about navigating from an object to a requirements table, see “Allocating Requirements” on page 12-23.

Parts of the Requirements Table Editor

This section describes the parts of an StP requirements table, as shown in Figure 1. For general information about editor windows, see “Using the Window” on page 2-2.

Creating Requirements Tables

Figure 1: Requirements Table Editor (RTE)



Requirement Subsystem

The requirement subsystem represents a logical grouping of requirements. The name of the requirement subsystem is the name of the requirements table. Requirements are often described as being assigned to a particular requirement subsystem.

Target Object

The target object is the object in your model for which you are allocating (or deallocating) requirements. The name of the target object, if one exists, is displayed in the “Target Object” row of the table header. Operations you perform in the RTE affect the target object. You can change the target object in a table using drag and drop or by navigating to the table from an object in a diagram. For details, see “Changing the Target Object” on page 12-19.

Unique Identifier

Each requirement, current or superseded, is uniquely identified. The form of the identifier is:

`<unique id><character separator><informal name>`

The following unique identifier uses a semicolon as the character separator:

`A345-1243;make it waterproof`

Only the unique identifier (A345-1243) is necessary to identify the requirement. The informal name (make it waterproof) is for readability and keyword searches only.

The ToolInfo variable *REQ_unique_id_terminus* controls the value of the separator character. For information on how to set this ToolInfo variable, see the discussion on ToolInfo files and the ToolInfo appendix in *StP Administration*.

Current Requirement

A current requirement is a requirement that the system you are modeling must satisfy. Current requirement information is stored in the repository.

Superseded Requirement

A superseded requirement is a requirement that has been refined and is no longer current. Superseded requirements are stored to record the ancestry of the current requirements. Superseded requirement cells are shaded darker than current requirement cells. Superseded requirement information is also stored in the repository, along with information about the relationship between superseded and current requirements.

Requirement Definition

A requirement definition is the full text of a requirement. It is recorded in the Definition column of the requirements table.

Using Standard Table Editor Features

The RTE uses standard StP table editor features, such as the table editor's Standard toolbar and pointer shapes. For more information about these features, see Chapter 5, "Editing Tables."

Using the RTE Menus

In addition to the standard table menu commands, the RTE provides commands that are specific to requirements tables. This section describes RTE-specific commands only. For descriptions of standard table editor commands, see "Using the Table Editor Menus" on page 5-7.

File Menu

The **File** menu provides standard commands, as described in “File Menu” on page 5-8. Table 1 describes RTE-specific commands on the **File** menu.

Table 1: File Menu Command

Command	Description	For Details, See
Import Requirements from ASCII File	Populates RTE from an ASCII file.	“Importing Requirements from an ASCII File” on page 12-14

Edit Menu

The **Edit** menu provides standard commands, as described in “Edit Menu” on page 5-9. Additional commands or commands that are used in a different context in the RTE are described in Table 2.

Table 2: Edit Menu Command Summary

Command	Description	For Details, See
Refine	Creates two new current requirements that supersede the selected current requirement.	“Refining Requirements” on page 12-17
	Creates one new current requirement that is a child of the selected superseded requirement.	
Create	Creates a requirement.	“Typing Requirements in the Table” on page 12-14

Table 2: Edit Menu Command Summary (Continued)

Command	Description	For Details, See
Delete	Deletes selected current requirement(s) if not allocated.	“Deleting Requirements” on page 12-22
Delete Undo	Undoes previous delete of selected current requirement(s).	“Undoing a Deletion” on page 12-23
Copy Cell Text	Copies text and places it on clipboard.	“Copying and Pasting Cell Text” on page 12-21
Paste Cell Text	Places clipboard contents in a cell.	

View Menu

The **View** menu provides standard commands, as described in “View Menu” on page 5-10. Additional RTE-specific commands are described in Table 3.

Table 3: View Menu Command Summary

Command	Description	For Details, See
Toggle Superseded Requirements	Hides or shows the Superseded Requirements table section.	“Toggling Superseded Requirements Display” on page 12-20
Switch Project Phase	Specifies project phase for requirement allocation.	“Allocating Requirements to Project Phases” on page 12-23
Table Refresh	Recalculates requirement allocations for target object, removes query displays, and redisplay the table.	“Refreshing the Table” on page 12-20

Tools Menu

The **Tools** menu provides standard commands, as described in “Tools Menu” on page 5-13. Additional RTE-specific commands are described in Table 4. The following sections describe the commands on these submenus.

Table 4: Tools Menu Command Summary

Command	Description
Allocate	Displays a submenu of commands for allocating, deallocating, and inheriting requirements.
Query	Displays a submenu of commands for retrieving information about objects and requirements.
Sort	Displays a submenu of commands for organizing rows of the table.

Allocate Submenu

The **Allocate** menu provides commands for allocating, deallocating, and inheriting requirements. Table 5 describes the commands available from the **Allocate** submenu.

Table 5: Allocate Menu Command Summary

Command	Description	For Details, See
Allocate	Associates selected requirement with current target object for current phases.	“Allocating Requirements” on page 12-23
Deallocate	Dissociates selected requirement from current target object for current phases.	“Deallocating Requirements” on page 12-27

Table 5: Allocate Menu Command Summary (Continued)

Command	Description	For Details, See
Inherit	Allows the current requirement to assume user-selected allocations belonging to its superseded requirement.	“Inheriting Requirements” on page 12-27
Deallocate Any Allocations	Dissociates selected requirement from a list of objects in the model in the current project phase.	“Deallocating Requirements” on page 12-27

Query Submenu

The **Query** submenu provides commands for retrieving information about objects and requirements. Table 6 describes commands available from the **Query** submenu.

Table 6: Query Menu Command Summary

Command	Description	For Details, See
Allocated Requirements of Target Object	Shows the requirements in the table that have been allocated to the target object.	“Showing Allocated Requirements” on page 12-28
Unallocated Requirements	Shows all current requirements not allocated to an object, and enables Go to Next Query Result command.	“Showing Unallocated Requirements” on page 12-29
Cycles in Requirements	Checks for occurrences of recursively refined requirements, and enables Go to Next Query Result command.	“Showing Cycles in Requirements” on page 12-30
Objects that Satisfy Selected Requirements	Shows all objects that satisfy the selected requirement(s).	“Listing Objects that Satisfy Requirements” on page 12-29

Table 6: Query Menu Command Summary (Continued)

Command	Description	For Details, See
Superseded Requirement Definition	Displays row that contains definition of superseded requirement.	“Showing Superseded Requirement Definitions” on page 12-30
Go to Next Query Result	Shows next occurrence of query match.	“Displaying Next Query Match” on page 12-30

Sort Submenu

The **Sort** submenu provides commands for organizing rows of the table. Table 7 describes commands available from the **Sort** submenu.

Table 7: Sort Menu Command Summary

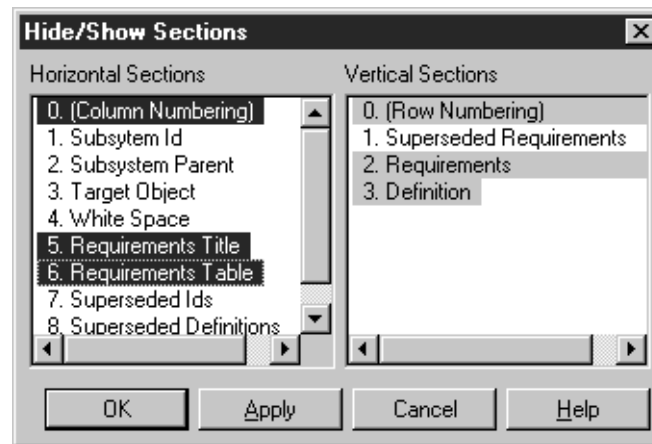
Command	Description	For Details, See
Alphanumerically by Selected Column	Sorts rows in alphanumeric string (ASCII) order.	“Alphanumerically by Selected Column” on page 12-20
Numerically by Selected Column	Sorts rows in absolute numeric order (non-alphanumerics treated as delimiters).	“Numerically by Selected Column” on page 12-21
Query Results to Top	Sorts all requirements allocated to target object to top of table.	“Satisfied Requirements to Top” on page 12-21

Hiding and Showing RTE Sections

When you start the RTE, some sections are hidden by default.

To hide or show a table section, choose **Hide/Show** from the **View** menu. The **Hide/Show Sections** dialog box appears as shown in Figure 2.

Figure 2: RTE Hide/Show Dialog Box



For detailed information about using a **Hide/Show** dialog box, see “Hiding/Showing Table Sections” on page 5-20.

Table 8 lists the horizontal sections of the RTE that you can hide or show.

Table 8: RTE Horizontal Sections

Section	Description
Column Numbering	Column numbers for each column in the table
Subsystem Id	The identifier of the requirements subsystem (also the name of the requirements table)

Table 8: RTE Horizontal Sections (Continued)

Section	Description
Subsystem Parent	The parent requirements subsystem of the table (requirements subsystem)
Target Object	The object that is the target of any requirement allocations and deallocations
White Space	Blank space for convenience and readability
Requirements Title	The line that shows the Requirements and Definition headers
Requirements Table	Requirements and definitions
Superseded Ids	The title bar for the table area that shows superseded requirement definitions
Superseded Definitions	Definitions of superseded requirements

Table 9 lists the vertical sections of the RTE that you can hide or show.

Table 9: RTE Vertical Sections

Section	Description
Row Numbering	Row numbers for each row in the table
Superseded Requirements	Requirements that have been refined and are no longer current
Requirements	Requirements that the system you are modeling must satisfy
Definition	The full text of a requirement

Creating Requirements

In the beginning of a project, a set of system requirements is established that must be satisfied during the analysis, design, testing, and/or implementation development phase or phases. In the following simple example (Figure 3), there is only one system requirement. Its unique identifier is *1.0*, and its informal name is *Use Email*.

Requirements can be entered into the table directly or entered into an ASCII file and then imported into the table.

Typing Requirements in the Table

To enter system requirements:

1. Select a cell in the Requirements column.
2. From the **Edit** menu, choose **Create**.
3. Enter the requirement and its definition in the appropriate columns, as shown in Figure 3.

Figure 3: System Requirements

Requirement	Definition
1.0; Use Email	Use electronic mail system to communicate with other users.

4. From the **File** menu, choose **Save**.

Importing Requirements from an ASCII File

You can load the contents of an ASCII file into the RTE. No **Undo** command is available for this operation; therefore, importing data into a production table is not recommended. A temporary table should be used until the ASCII file format is debugged and the contents of the temporary table have been verified.

The ASCII file must follow these guidelines:

- The first line of the ASCII file must contain only the delimiter used in the file.

In the following example, the delimiter is %.

- A hierarchy describes the requirements and the parent-child relationships between requirements. A hierarchy must be on a single line, with the chain of requirements separated by delimiters.

In the example below, `define mailbox%identify mailbox` is a hierarchy line.

- A definition line specifies the text that defines a requirement. There must be one definition line for each requirement in the hierarchy line. The definition lines are separated by lines that contain only a delimiter.
- The definitions of any superseded requirements are stored in a hidden section of the table, which can be displayed by invoking **Hide/Show** from the **View** menu.

Here is a sample ASCII import file:

```
%
define mailbox%identify mailbox
%
Define characteristics of mailboxes
%
Give each mailbox a unique ID
%
identify mailbox%allocate space
%
Define characteristics of mailboxes
%
Allocate fixed amount of memory for each mailbox
```

To import system requirements from an ASCII file:

1. Create an ASCII file that contains requirements and/or requirement hierarchies.
2. In an empty requirements table, select a cell in the Requirements column.
3. From the **File** menu, choose **Import Requirements from ASCII File**.

Creating Requirements Tables

4. In the **File Name** field of the **Import Requirements from ASCII File** dialog box, type the full pathname for the ASCII file.
5. Click **OK**.
The file is read into the table.
6. From the **File** menu, choose **Save**.

Importing the preceding file creates the following requirements table:

Figure 4: RTE with ASCII Import

	1	2	3
5	Requirement		Definition
6	define mailbox	identify mailbox	Give each mailbox a unique ID
7	identify mailbox	allocate space	Allocate fixed amount of memory for each mailbox
8	Superseded Requirement		Definition
9	define mailbox	Define characteristics of mailboxes	
10	identify mailbox	Define characteristics of mailboxes	

Refining Requirements

The set of the original system requirements usually needs refinement. Common reasons for refinement are to:

- Make a requirement more specific.
- Break down a requirement into components to allow flexibility in tracking the requirement.
- Remove conflicts or inconsistencies between two or more requirements by merging them.

In this example, “use email” is vague. There are many ways to use email, so a more specific requirement must be created.

To refine system requirements:

1. Select a current or superseded requirement cell.
2. From the **Edit** menu, choose **Refine**.

If a current requirement is selected, it is superseded by two new requirements.

If a superseded requirement is selected, a new current requirement is added.

3. Enter the refined requirements and their definitions.

The superseded requirement is displayed in the column immediately to the left of the new current requirement.

The first refinement is shown in Figure 5.

Figure 5: First Refinement of System Requirements

Requirement		Definition
1.0; Use Email	1.1; read mail	Read email sent by other users.
	1.2; send mail	Send email to other users.

4. Continue refining requirements as necessary.

The second refinement is shown in Figure 6. Requirement 1.2 has become the superseded requirement and two new refined requirements (“1.2.1; send mail to users” and “1.2.2; send mail to conference”) have been added.

Figure 6: Second Refinement of System Requirements

Requirement			Definition
1.0; Use Email		1.1; read mail	Read email sent by other users.
	1.2; send mail	1.2.1; send mail to users	Send email to an individual user id.
		1.2.2; send mail to conference	Send email to an electronic bulletin board.

5. From the **File** menu, choose **Save**.

The final refinement is shown in Figure 7. In this refinement, “1.2.2; send email to conference” has been superseded by the refined requirements “1.2.2.1; name conference” and “1.2.2.2; join conference.”

Figure 7: Final Refinement of System Requirements

Requirement			Definition
1.0; Use Email		1.1; read mail	Read email sent by other users.
	1.2; send mail	1.2.1; send mail to users	Send email to an individual user id.
		1.2.2.1; name conference	A conference must have a name.
		1.2.2.2; join conference	When logged in, a user must be able to join a conference.

Manipulating Requirements Table Contents

You can manipulate the contents of a requirements table in several ways:

- Change the target object
- Toggle superseded requirements display on or off
- Refresh the table
- Sort the requirements
- Copy and paste cell text
- Delete requirements

Changing the Target Object

The target object is the object in your model for which you are allocating (or deallocating) requirements.

The following actions automatically change the target object for the table:

- Navigating to the requirements table from an object in a diagram
- Allocating a requirement by dragging an object from a diagram and dropping it on a requirement in the table
- Allocating a requirement by dragging a requirement from the table and dropping it on an object in a diagram

You can also use drag and drop to change the table's target object without allocating a requirement:

1. Select the target object in the diagram editor, using the left mouse button.
2. Pressing the Alt key, drag the object from the diagram editor.
3. Release the Alt key and drop the object outside the bounds of the table in the Requirements Table Editor.

StP changes the target object in the table accordingly.

Toggling Superseded Requirements Display

To display or hide superseded requirements, choose **Toggle Superseded Requirements** from the **View** menu. This command allows you to toggle the display of the Superseded Requirements vertical section on or off, without having to set the hide/show options in the **Hide/Show** dialog box each time.

Refreshing the Table

To refresh the table, choose **Table Refresh** from the **View** menu.

The requirements allocations for the current target object are recalculated (which may change the darker shading to a different set of requirements). Query results are removed and the requirements table is redisplayed.

Sorting Requirements

To organize requirements in a designated sort order, choose **Sort** from the **Tools** menu and select one of the following sort commands for requirements:

- **Alphanumerically by Selected Column**
- **Numerically by Selected Column**
- **Query Results to Top**

Alphanumerically by Selected Column

To sort requirements table rows in alphanumeric order for a selected column:

1. Select a cell in a current or superseded requirements column.
2. From the **Tools** menu, choose **Sort > Alphanumerically by Selected Column**.

The selected rows are sorted as alphanumeric ASCII strings, with the selected column as the primary key. Columns to the right of the selected column are secondary keys in the sort.

Numerically by Selected Column

To sort requirements table rows in numeric order for a selected column:

1. Select a cell in a current or superseded requirements column.
2. From the **Tools** menu, choose **Sort > Numerically by Selected Column**.

The selected rows are sorted in absolute numeric order, with the selected column as the primary key. Columns to the right of the selected column are secondary keys in the sort. Non-alphanumeric characters are treated as zone delimiters, and zone sorting is prioritized from left to right.

Satisfied Requirements to Top

To sort requirements table rows so that satisfied requirements are displayed at the top of the table, choose **Sort > Query Results to Top** from the **Tools** menu.

Requirements satisfied by the target object are moved to the top of the table.

Copying and Pasting Cell Text

To copy the text from a table cell:

1. Select a cell.
2. From the **Edit** menu, choose **Copy Cell Text**.

To paste copied text into a table cell:

1. Select a cell.
2. From the **Edit** menu, choose **Paste Cell Text**.

Copying Requirements

You can copy individual requirements, or groups of neighboring requirements within a requirements table or from one table to another.

To copy requirements:

1. Select the requirement(s) in the table editor.
2. Hold down the Alt key, then press and hold the left mouse button on the selected requirement(s).
3. When the pointer changes to an arrow with an attached drag icon, begin dragging the requirement(s) to the target destination.
4. Release the Alt key.
5. Place the pointer's arrow on the target within the table or on another table and drop the requirement(s).

The requirement(s) are copied.

This method copies the selected requirement, its description, and all its parent requirements to the new location. The semantics of the requirement are retained.

Deleting Requirements

Current requirements can be deleted either singly or in groups. A current requirement can be deleted only if it is not allocated to a target object. A superseded requirement cannot be deleted without first deleting all the current requirements that have superseded it.

Deleting One or More Requirements

To delete one or more current requirements:

1. Select one or more current requirements.
2. Verify that none of the current requirements to be deleted are allocated to a target object.
3. From the **Edit** menu, choose **Delete**.

The selected requirements are deleted.

If the current requirement is the last child of a superseded requirement, the superseded requirement becomes a current requirement.

Undoing a Deletion

To undo a deletion of one or more current requirements:

1. Verify that a delete has been performed.
2. From the **Edit** menu, choose **Delete Undo**.

The last delete operation performed is undone. You can only undo the last delete operation.

Allocating Requirements

StP provides two methods of allocating a requirement to an object:

- Using drag and drop
- Navigating from the diagram editor to the RTE

These methods have the same effect.

Objects to which requirements can be allocated are editor-specific. The **Allocate Requirement** command on the editor's **GoTo** menu is available only when an appropriate object is selected. See your product-specific documentation for more information about objects to which you can allocate requirements.

Allocating Requirements to Project Phases

When you allocate a requirement to an object, StP creates a Requirement annotation note for the object with an item describing the project phase for which the requirement is being allocated (for example, ReqAnalysisAssignmentItem or ReqDesignAssignmentItem). The project phase to which the requirement is allocated, and the object's corresponding annotation item, is determined by the current project phase for the table when the allocation is made.

By default, the table is in the Analysis phase. You can change the current project phase to any of the following:

- Analysis
- Design
- Test
- Implementation

The current project phase, if changed from the default, appears as part of the **Requirements** column header, for example, as **Design Requirements**.

To change the current project phase for which you are allocating requirements:

1. Verify that the table has a target object.
2. From the RTE's **View** menu, choose **Switch Project Phase**.
3. In the object selector dialog box, select a project phase.
4. Click **OK**.

StP changes the project phase for allocations made to the current target object.

Using Drag and Drop to Allocate Requirements

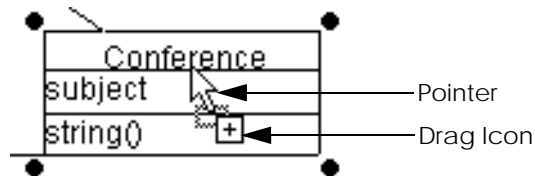
To allocate requirements using drag and drop, you must open both the diagram containing the target object and the table editor containing the requirement to be allocated.

Dragging an Object to the Requirements Table


To allocate a requirement to an object:

1. Select the target object in the diagram editor.
2. Hold down the Alt key, then press and hold the left mouse button on the target object in the diagram editor.

- When the pointer changes to an arrow with an attached drag icon, begin dragging the icon to the requirements table.



- Release the Alt key.
- Place the pointer's arrow on the target requirement cell in the table and drop the object in the table.

UmlClass "Conference" (335)	
Requirement	Definition
2.1;  Created+Inf	The sys admin shall have the capability to create new conferences in the system by name.

StP allocates the requirement and changes the target object for the table accordingly.

Dragging a Requirement to the Diagram Editor

Alternatively, you can drag from the table editor to the diagram editor:

- Select the requirement in the table editor, using the left mouse button.
- Pressing the Alt key, drag the requirement from the table editor.
- Release the Alt key and drop the requirement on the target object in the diagram editor.

StP allocates the requirement and changes the target object for the table accordingly.

Using Navigation to Allocate Requirements

To allocate requirements to an object using navigation:

1. In the diagram editor, select the object to which requirements are to be allocated.
2. From the diagram editor's **GoTo** menu, choose **Allocate Requirements**.
3. Depending on whether the requirements table already exists or not, do the following, if necessary:
 - If a blank requirements table appears, perform the steps described in "Typing Requirements in the Table" on page 12-14. to create a new requirements table.
 - If an object selector dialog appears with existing requirements tables to choose from, select the desired table and click **OK**.

The selected object from the diagram appears as the target object in the requirements table, if the Target Object row is visible.

4. From the requirements table, select the current requirement or requirements to be allocated.
5. From the **Tools** menu, choose **Allocate > Allocate**.
A message appears in the message area and Message Log, describing the allocation.

Using the OAE to Allocate Requirements

Usually, you allocate a requirement to an object by using the drag and drop method, or by navigating to the RTE from the object, as described previously.

An alternative method is to use the OAE to allocate a requirement:

1. Select the object to which the requirement is to be allocated.
2. Start the OAE.
3. Add the Requirement Allocation note to the object.
4. Add one of the following items to the Requirement Allocation note to specify the phase to which the allocation applies:
 - AnalysisRequirementId
 - DesignRequirementId

- ImplementationRequirementId
 - TestRequirementId
5. For the value of the item you just added, specify the unique identifier for the requirement (see “Unique Identifier” on page 12-5).
 6. Choose **Save** from the OAE **File** menu.

Inheriting Requirements

A refined requirement can inherit the allocation (to an object) of a superseded requirement.

To select objects to be inherited from superseded requirements:

1. Select a non-blank current requirement.
2. From the **Tools** menu, choose **Allocate > Inherit**.
An object selector dialog box displays all objects to which the current selection’s superseded requirements have been allocated.
3. Select any number of the displayed objects.
4. Click **OK**.
The current requirement inherits the allocations of its superseded requirements that were previously made to the selected objects.
5. To verify that allocations have been inherited, from the **Tools** menu choose **Query > Objects that Satisfy Selected Requirements**.
For more information, see “Listing Objects that Satisfy Requirements” on page 12-29.

Deallocating Requirements

You can deallocate a requirement from the current target object or from a specified target object that is not current.

To deallocate a requirement from the current target object:

1. Select one or more current requirements.
2. From the **Tools** menu, choose **Allocate > Deallocate**.
The selected requirement is deallocated from the current target object and is no longer shaded darker.

Creating Requirements Tables

To deallocate a requirement from any target object (not the current target object) in the current project phase:

1. Select a current or superseded requirement.
2. From the **Tools** menu, choose **Allocate > Deallocate Any Allocations**.

A selector box shows all objects to which the selected requirement is currently allocated.

3. Choose any number of the displayed objects.
4. Click **OK**.

The selected requirement is deallocated from the specified object or objects.

Showing Allocated Requirements

You can highlight requirements that are allocated to the current target object in a table. To show allocated requirements, from the **Tools** menu choose **Query > Allocated Requirements of Target Object**. The cells containing the allocated requirements are shaded.

Figure 8: Allocated Requirement

Allocated Requirement

2	3
UmlClass "User" (307)	
Requirement	Definition
1.1; ▼ CreateUser	The sys admin shall have the capability to create new users in the system by name.
1.2; Login	Users shall be able to log into the system by entering their name.

Checking Requirements for Completeness

Typically, a list of requirements is long; consequently, keeping track of which requirements have already been satisfied and which requirements still need to be satisfied can be complicated. The commands available from the **Tools > Query** submenu provide mechanisms for checking the completeness of a set of requirements.

Listing Objects that Satisfy Requirements

To show all objects that satisfy a selected requirement:

1. Select a current or superseded requirement.
2. From the **Tools** menu, choose **Query > Objects that Satisfy Selected Requirements**.

A list of all objects that satisfy the selected requirement appears.

3. To navigate to one of the objects, select the object from the list and click **OK**.

The diagram that contains the object is displayed, with the object selected.

Showing Unallocated Requirements

To display all current requirements that have not been allocated to any object, from the **Tools** menu choose **Query > Unallocated Requirements**.

Any current requirements that have not been allocated to an object are redisplayed in shaded cells. The **Go to Next Query Result** command becomes active.

Showing Cycles in Requirements

To verify that no requirements have superseded themselves:

1. Select a current or superseded requirement.
2. From the **Tools** menu, choose **Query > Cycles in Requirements**.
Any requirements that supersede themselves are redisplayed in shaded cells. The **Go to Next Query Result** command becomes active.

Showing Superseded Requirement Definitions

To display the definitions of superseded requirements:

1. Select a superseded requirement.
2. From the **Tools** menu, choose **Query > Superseded Requirement Definition**.
3. The definition of the superseded requirement is displayed at the bottom of the table.
Because this query increases the number of table rows displayed, you may need to increase the size of the window in which the table is displayed.

Displaying Next Query Match

This command is available only if an **Unallocated Requirements** or **Cycles in Requirements** query has been executed.

To display the next occurrence of a query match, from the **Tools** menu choose **Query > Go to Next Query Result**.

The RTE scrolls until the next occurrence of a match that satisfied the previous query is displayed.

Index

- (hyphen) in Print Table dialog 10-7
- % (percent sign) in diagram/table names 4-57, 5-40
- * (asterisk) 4-17, 4-56, 5-16, 5-27, 8-4, 8-16, 8-17, 10-7
- , (comma) in Print Table dialog 10-7
- ... (ellipsis) on menus 2-9
- / (slash) in diagram/table names 4-57, 5-40
- @ (At sign) in diagram/table names 4-57, 5-40
- _ (underscore) in diagram/table names 4-57, 5-40

A

- About StP command 3-16
- Accept Remote Access command
 - diagram editors 4-14, 4-60
 - table editors 5-13, 5-43
- access keys on menus 2-11
- Add button, OAE 6-5
- Add button, Object Annotation Editor 6-5
- Add Item command 6-8, 6-13
- Add New Files to Current System Repository command 3-12
- Add Note command 6-8, 6-10
- Add Sybase User(s) command 3-13
- Adjust Scale to Fit Label command 5-12, 5-14, 5-30

- Align All Links command 4-16, 4-48
- Align command 4-14, 4-48
- Align dialog box 4-46
- Align toolbar button 4-5, 4-48
- Allocate command 12-9, 12-26
- Allocate menu, Requirements Table Editor 12-9
- Allocate Requirements command 12-26
- Allocated Requirements of Target Object command 12-10, 12-28
- Alphanumerically by Selected Column command 12-11, 12-20
- Alt key 2-11, 4-43, 12-19, 12-22
- Alt+Ctrl+D keyboard shortcut 4-51, 4-52
- Alt+Ctrl+I keyboard shortcut 4-51
- Alt+Ctrl+O keyboard shortcut 4-51
- Alt+Ctrl+S keyboard shortcut 4-51, 4-52
- analysis phase, requirements for 12-24
- Annotation tab, Options dialog box 7-21
- annotations
 - adding for multiple objects 6-17
 - adding from Repository Browser 9-16
 - adding items 6-13
 - adding notes 6-10
 - creating 6-10 to 6-18
 - cutting, copying, pasting 6-17
 - deleting 6-18
 - described 2-15, 6-1
 - help on descriptions of 6-9
 - item values 6-5, 6-15
 - key values 6-2

- note descriptions 6-5, 6-12
- printing 6-19
- Requirement Allocation annotation
 - note 12-26
- saving 6-18
- templates 6-2
- values, manually typing 6-15
- values, selecting 6-15
- Aonix
 - documentation comments xx
 - Technical Support xxi
 - websites xxi
- application PDM types 1-9
- applications, StP 1-5
- Apply button on dialog boxes 2-14
- Apply Filter command 4-12, 8-4
- Apply Filter dialog box 8-2 to 8-5
- apptypes, *See* application PDM types
- Arc symbol 4-24
- arcs
 - aligning 4-45, 4-47, 4-48
 - attaching symbols to 4-31
 - cancelling drawing of 4-24, 4-25
 - default arc type 4-24, 7-9, 7-11
 - deleting 4-43
 - described 4-23
 - direction, indicating 4-24, 4-27
 - drawing 4-23 to 4-27
 - drawing multiple 4-24
 - inserting vertices 4-25
 - labeling 4-28
 - moving 4-41
 - orthogonal 4-26, 7-16
 - replacing 4-44
 - selecting 4-22
 - types of 4-24
- arrow keys 4-29, 5-23, 5-25
- ASCII file format 3-28
- Ask for Confirmation dialog option 2-14
- Attach to Arc command 4-14, 4-31
- automatic file locks 11-2
- autosave option 2-14, 7-5, 7-9, 7-11, 7-20, 7-21

B

- Backspace key 4-29, 5-25
- Browse command 9-6, 9-8
- Browse Repository command 3-15, 9-2

C

- Cancel button on dialog boxes 2-14
- cancelling operations
 - diagram editors 4-19
 - table editors 5-23
- case sensitivity in StP 4-57, 5-40
- categories, Desktop 3-5
- Cell Annotation command 5-10, 5-14, 6-3
- Cell Content command 5-10, 5-25
- Cell Content dialog box 5-25
- Cell Content toolbar button 5-6, 5-25
- cells in tables
 - borders 5-38
 - cutting, copying, pasting content 5-27
 - deleting 5-35
 - deleting contents 5-29
 - described 5-3
 - inserting 5-34
 - labeling 5-24 to 5-27
 - locating by label 5-18
 - locating by row and column 5-17
 - modifying visual
 - characteristics 5-36 to 5-39
 - selecting 5-22, 5-23
 - shading 5-37
 - spanning 5-33
- Center command 4-12, 4-50
- Change Sybase Owner of Current System
 - command 3-13
- Change Sybase User(s) Group
 - command 3-13
- Change User(s) Sybase Password
 - command 3-13
- check boxes on dialog boxes 2-13
- Check command 3-14, 3-29
- Check Diagram Syntax command 4-14, 4-16

-
- Check if System Repository Exists
 - command 3-12
 - Check Permission command 11-8
 - Check Semantics command 4-14, 4-16, 4-59, 5-42
 - Check Semantics dialog box 3-29
 - Check Syntax command 4-58, 5-13, 5-42
 - Check Table Semantics command 5-13
 - Clear All Breakpoints command, Define Filter dialog 8-32
 - Clear Breakpoint command, Define Filter dialog 8-32
 - Clear Browser command 9-5, 9-12
 - Clear Diagram command 4-10, 4-54
 - Close command, Object Annotation Editor 6-7, 6-19
 - Code menu 3-10
 - columns in tables
 - Column 0 5-4
 - deleting 5-35
 - described 5-3
 - inserting 5-34
 - labels 5-4, 5-30
 - numbering 5-4
 - scaling 5-30
 - selecting 5-23
 - width specification 5-37
 - command prompt, printing from 10-3
 - commands
 - cancelling 2-12
 - invoking 2-10, 3-6
 - comments, inserting in diagrams 4-32
 - context-sensitive menus, *See* shortcut menus 2-7
 - Continue command, Define Filter dialog 8-32
 - Copy Cell Text command 12-8, 12-21
 - Copy command
 - Define Filter dialog 8-12
 - diagram editors 4-10, 4-15, 4-41
 - Object Annotation Editor 6-8, 6-17
 - table editors 5-9, 5-14, 5-28
 - Copy Diagram command 3-9
 - Copy Diagram dialog box 3-25
 - Copy Diagram/Table command 3-25
 - Copy Diagram/Table toolbar button 3-7, 3-25
 - Copy System command 3-9, 3-22
 - Copy Table command 3-9
 - Copy toolbar button
 - diagram editors 4-4
 - Object Annotation Editor 6-6, 6-17
 - table editors 5-6
 - Create command 12-7, 12-14
 - Create New System toolbar button 3-7, 3-19
 - Create System dialog box 3-19
 - Ctrl key 2-17, 3-5, 4-42, 5-21, 7-18
 - Ctrl+Enter keyboard shortcut 4-29, 4-32, 5-25
 - Ctrl+Tab keyboard shortcut 4-30, 5-27
 - Ctrl+V keyboard shortcut 4-30, 5-29
 - Current Symbol Options command 4-11, 4-15, 4-39
 - Current Symbol Options dialog box 4-34, 4-37
 - Current System command 3-13
 - customizing StP 1-4
 - Cut command
 - Define Filter dialog 8-12
 - diagram editors 4-10, 4-15, 4-41
 - Object Annotation Editor 6-8, 6-17
 - table editors 5-9, 5-14, 5-28
 - Cut toolbar button
 - diagram editors 4-4
 - Object Annotation Editor 6-6, 6-17
 - table editors 5-5
 - Cycles in Requirements command 12-10, 12-30
- ## D
- database devices, showing space on 3-14
 - database types 3-19
 - Deallocate Any Allocations
 - command 12-10, 12-28
 - Deallocate command 12-9, 12-27

-
- Default Arc tab, Options dialog box 7-9, 7-11
 - Default Scale command 5-12, 5-14, 5-30
 - Define Filter command 4-12, 8-13
 - Define Filter dialog box
 - command descriptions 8-10 to 8-13
 - description 8-6 to 8-8
 - Run menu 8-31
 - using 8-13 to 8-14
 - Delete All command 8-12
 - Delete All Messages command 2-18
 - Delete Cells command 5-35
 - Repository Browser 9-12
 - table editors 5-12
 - Delete Cells dialog box 5-35
 - Delete command
 - Define Filter dialog 8-11, 8-12, 8-18
 - diagram editors 4-10, 4-15, 4-43
 - Object Annotation Editor 6-8, 6-18
 - Requirements Table Editor 12-8, 12-22
 - table editors 5-9, 5-14, 5-29
 - Delete Diagram command 3-9, 3-26
 - Delete Diagram/Table toolbar
 - button 3-7, 3-26
 - Delete Filter dialog box 8-17
 - Delete Informational Messages
 - command 2-18
 - Delete key 4-29, 5-25
 - Delete Lock command 11-8
 - Delete Repository Data in Current System
 - command 3-12
 - Delete Selected Messages command 2-18
 - Delete Spline Points command 4-14, 4-27
 - Delete Sybase User(s) command 3-13
 - Delete Table command 3-9, 3-26
 - Delete toolbar button, Object Annotation Editor 6-6, 6-18
 - Delete Undo command 12-8, 12-23
 - Delete Unreferenced Objects in Current System Repository
 - command 3-12
 - design phase, requirements for 12-24
 - Desktop *See* StP Desktop
 - Destroy System command 3-9, 3-22
 - Destroy System Repository
 - command 3-12
 - Diagram Annotation command 4-11, 4-16, 6-3
 - diagram editors
 - See also* diagrams
 - adjusting diagram display
 - in 4-50 to 4-54
 - cancelling an operation 4-19
 - clearing drawing area 4-54
 - command descriptions 4-8 to 4-16
 - diagram shortcut menu 4-14
 - drawing area 4-3
 - Edit menu 4-10
 - exiting 2-19
 - File menu 4-9
 - filters 4-54, 8-1 to 8-38
 - GoTo menu 4-13
 - grid 4-45, 7-15, 7-16
 - object shortcut menu 4-14
 - opening diagrams 3-23, 4-16, 4-18
 - Panner 4-52
 - pointer shapes 4-6
 - quick summary 4-61
 - recent files list 4-9, 4-17, 4-18
 - shortcut menus 4-14
 - starting 3-23
 - starting multiple instances of 4-18, 4-59
 - toolbars 4-4
 - Tools menu 4-13
 - View menu 4-11
 - window 4-3 to 4-8
 - diagram shortcut menu 4-14
 - diagrams
 - See also* diagram editors
 - aligning symbols and arcs 4-45 to 4-48
 - attaching symbols to arcs 4-31
 - centering 4-50
 - checking semantics 4-58
 - checking syntax 4-58
 - copying 3-25
 - cutting, copying and pasting elements
 - in 4-41 to 4-43
 - deleting 3-26
-

-
- deleting symbols 4-43
 - display marks, using 4-33, 7-12
 - drag and drop between editors 4-42
 - drawing 4-1 to 4-65
 - filtering contents 1-4, 4-54, 8-1 to 8-38
 - inserting notes or comments in 4-32
 - inserting one diagram into
 - another 4-55
 - inserting symbols in 4-19
 - labeling symbols in 4-28 to 4-31
 - moving symbols 4-41
 - naming conventions 4-57
 - navigating to object references 4-13
 - opening 3-23, 4-16, 4-18
 - panning to reposition 4-52
 - printing 3-24, 10-1 to 10-35
 - renaming 3-26
 - replacing arcs in 4-44
 - replacing symbols in 4-43, 4-44
 - resizing display of 4-50, 4-52
 - saving 4-56 to 4-57
 - scaling symbols 4-38, 4-40
 - searching for objects in 4-48
 - selecting an area 4-22
 - selecting symbols in 4-21
 - starting new 4-17
 - ViewPoints, designating 4-39
 - dialog box features
 - Apply button 2-14
 - Ask for Confirmation option 2-14
 - Cancel button 2-14
 - check boxes 2-13
 - Match button 2-14
 - OK button 2-14
 - pattern field 2-14
 - radio buttons 2-13
 - using 2-12 to 2-14
 - dialog boxes
 - Align 4-46
 - Apply Filter 8-2 to 8-5
 - Cell Content 5-25
 - Check Semantics 3-29
 - Copy Diagram 3-25
 - Create System 3-19
 - Current Symbol Options 4-34, 4-37
 - Define Filter 8-6
 - Delete Cells 5-35
 - Delete Filter 8-17
 - Execute Query 9-7
 - Find 4-48, 5-18
 - Format Current Selection 5-36
 - Go To Cell 5-17
 - Hide/Show 5-20
 - Hide/Show Sections 12-12
 - Insert 4-55
 - Insert Cells 5-35
 - List Labels 4-30, 5-27
 - List Locks 11-6
 - Manage Locks 11-7
 - Open 4-17, 5-16
 - Open Filter 8-17
 - Open System 3-20
 - Options 7-1 to 7-22
 - Output File 10-11
 - Page Setup 10-13
 - Print 10-5
 - Print As (diagram editors) 10-10
 - Print As (StP Desktop) 10-9
 - Print As (table editor) 10-10
 - Print Table 10-7
 - Replace Arc Type 4-44
 - Run Environment 8-33
 - Save As 4-56, 5-40
 - Save Filter 8-15
 - Save Message Log 2-18
 - display marks
 - updating 7-9, 7-12
 - using 4-33
 - Display Marks tab, Options dialog
 - box 4-33, 7-9, 7-12
 - documentation, online 3-16
 - DOORS, linking StP with 3-15
 - dprint command 10-3
 - drag and drop
 - between diagram editors 4-42
 - requirements allocation 12-24
 - drawing area
 - centering diagrams in 4-50
 - clearing 4-54
 - described 4-3

- description 2-4
- fitting diagram into 4-52
- grid 4-45, 7-15, 7-16
- options 7-9, 7-14
- positioning diagrams in 4-52
- zooming 4-50, 4-51
- Drawing Area tab, Options dialog box 7-9, 7-14
- Dump Current System Repository to Files command 3-12

E

- Edit Annotation command 3-15
- Edit command, Define Filter dialog 8-12
- Edit Diagram/Table toolbar button 3-7, 3-24, 4-17, 5-15
- Edit menu
 - Define Filter dialog 8-11
 - diagram editors 4-10
 - Object Annotation Editor 6-8
 - Repository Browser 9-5
 - Requirements Table Editor 12-7
 - table editors 5-9
- editor window
 - menu bar 2-4
 - message area 2-5
 - pane 2-4
 - parts of 2-2 to 2-5
 - scroll bars 2-4
 - Standard toolbar 2-4
 - title bar 2-3
- editors
 - basic features quick summary 2-20
 - basic features, using 2-1 to 2-21
 - exiting 2-19
 - opening diagrams and tables 3-23
 - starting 3-23
- End key 4-29, 5-25
- Enhanced Metafile file format 10-8, 10-28, 10-32
- environment variables
 - SIZE 3-19
 - StP default options and 7-1
- error messages 2-15

- errors
 - semantic 3-28, 3-29
 - syntax 3-15, 3-27, 4-57, 5-41
- Esc key 4-23, 4-24, 4-25, 4-27, 4-29, 4-40, 5-23, 5-25
- Evaluation Stack, filters 8-34
- Execute Query command 9-5, 9-6
- Execute Query dialog box 9-7
- Exit command
 - diagram editors 4-9
 - Exit Desktop 3-9, 3-16
 - Exit StP 3-9, 3-17
 - Object Annotation Editor 6-7, 6-19
 - table editors 5-9
- Expand Current System Repository command 3-11, 3-19

F

- file locking, *See* locking
- File menu
 - Define Filter dialog box 8-11
 - diagram editors 4-9
 - Object Annotation Editor 6-7
 - Requirements Table Editor 12-7
 - StP Desktop 3-8
 - table editors 5-8
- files
 - .prso* 10-23
 - adding/copying to systems 3-12
 - ASCII format 3-28
 - .auto* 2-14
 - autosave backup 7-11
 - Enhanced Metafile format 10-32
 - for multipage diagram output 10-28
 - for named print settings 10-23
 - history 3-12
 - HTML format 3-28, 10-32
 - IDE.ini* 7-4
 - importing MIF files into documents 10-33
 - importing requirements from 12-14
 - Interleaf-ASCII format 10-8, 10-32
 - locks 3-14, 11-1 to 11-9
 - Message Log file 2-17

-
- MIF (FrameMaker) format 3-28, 10-8, 10-32
 - Postscript format 10-8, 10-32
 - reports 3-11
 - restoring repository from 3-12
 - RTF (Microsoft Word) format 3-28, 10-8, 10-32, 10-33
 - saving repository to 3-12
 - system 1-10
 - with syntax errors, finding 3-15
 - filter operations
 - Apply Filter operations 8-18
 - Assert operation 8-19
 - Execute Command operation 8-20
 - Find Annotation for Context operation 8-22
 - Find Annotation for Link operation 8-22
 - Find Annotation for Node operation 8-22
 - Find Annotation operation 8-21
 - Find Links with Type operation 8-22
 - Find operations 8-21 to 8-23
 - Find Symbols in Typeset operation 8-22
 - Find Symbols with Application Type operation 8-23
 - Find Symbols with Label operation 8-23
 - Find Symbols with Type operation 8-23
 - Get User Input operation 8-23
 - Include Connecting Links operation 8-25
 - Include in Links operation 8-25
 - Include In/Out Links operation 8-25
 - Include Link Sources operation 8-25
 - Include Link Targets operation 8-25
 - Include operations 8-24 to 8-26
 - Include out Links operation 8-25
 - Include Symbols Connected by operation 8-26
 - Load Specific Segments operation 8-26
 - Operations on Diagram operations 8-26
 - Operator on Set operations 8-29
 - Operator operations 8-27
 - Replace Links operation 8-30
 - Replace Nodes operation 8-31
 - filters
 - applying 8-2 to 8-5
 - creating 8-6 to 8-14
 - current system 8-3, 8-16
 - debugging 8-31 to 8-34
 - deleting filters 8-17
 - description 1-4, 4-54, 8-1
 - editing filter criteria 8-11, 8-14
 - editor-specific 8-3, 8-16
 - evaluation stack 8-9, 8-34
 - examples 8-35 to 8-38
 - execution environment 8-33
 - filter definition language 8-8 to 8-10, 8-18 to 8-31
 - global variables 8-10, 8-34
 - inserting filter criteria 8-12, 8-13
 - local variables 8-10, 8-34
 - opening for editing 8-17
 - operations 8-18 to 8-31
 - pre-defined 8-3
 - saving 8-15 to 8-16
 - saving filter results 8-5
 - showing unfiltered diagram 8-5
 - StP installation 8-3, 8-16
 - UserInput variable 8-10, 8-34
 - variables in 8-10, 8-34
 - Find Backward button, Find dialog 5-19
 - Find command
 - diagram editors 4-10, 4-48
 - table editors 5-9, 5-20
 - Find dialog box
 - diagram editors 4-48
 - table editors 5-18
 - Find Forward button, Find dialog 5-19
 - Find toolbar button
 - diagram editors 4-4
 - table editors 5-5
 - Fit Cell to Label toolbar button 5-6
 - Fit Diagram in Drawing Area
 - command 4-13, 4-51, 4-52
-

Fit Selection in Drawing Area
 command 4-13, 4-51
Fit Selection in Window command 4-52
Format Current Selection command 5-10,
 5-36
Format Current Selection dialog box 5-36
FrameMaker (MIF) file format 3-28, 10-8,
 10-32, 10-33

G

General tab, Options dialog box 7-5, 7-9,
 7-20, 7-21
Get Current button 5-18, 5-36, 5-39
global variables, filters 8-10, 8-34
Go To Cell command 5-11, 5-18
Go To Cell dialog box 5-17
Go To Error Origin button 2-17
Go to Next Query Result
 command 12-11, 12-30
GoTo menu
 diagram editors 4-13
 table editors 5-12
Grant User(s) Sybase System Creation
 Privileges command 3-13
grid, drawing area 4-45, 7-15, 7-16

H

Help menu
 Object Annotation Editor 6-9
 StP Desktop 3-16
Hide Message Log command 4-12, 5-11
Hide Standard Toolbar command 3-10,
 4-12, 5-11, 6-9
Hide Symbol Toolbar command 4-12
Hide/Show command 5-11, 5-20, 5-21,
 12-12
Hide/Show dialog box 5-20
Hide/Show Groups command 9-5, 9-13
Hide/Show Sections dialog box 12-12
Hide/Show toolbar button 5-6
HideAll filter 8-3
HideAllLinks filter 8-3

HideCommentLinks filter 8-3
HideComments filter 8-3
HideSelectedSymbols filter 8-4
HideUnconnectedAnchors filter 8-4
HideUnselectedSymbols filter 8-4
history files 3-12
Home key 4-29, 5-25
hostnames in file lock lists 11-3
HTML file format 3-28, 10-32

I

IDE.ini file 7-4
implementation phase, requirements
 for 12-24
Import Requirements from ASCII File
 command 12-7, 12-15
Information Modeling models 1-8
Inherit command 12-10, 12-27
Initialize Run command, Define Filter
 dialog 8-32
Inquire for Lock Set command 11-8
Insert After command, Define Filter
 dialog 8-12
Insert Before command, Define Filter
 dialog 8-12
Insert Cells command 5-12, 5-34
Insert Cells dialog box 5-35
Insert Columns After command 5-12,
 5-34
Insert Columns Before command 5-12,
 5-34
Insert command, diagram editors 4-9,
 4-55
Insert dialog box 4-55
Insert First command, Define Filter
 dialog 8-13
Insert Last command, Define Filter
 dialog 8-13
Insert menu, Define Filter dialog 8-12
Insert Rows After command 5-11, 5-34
Insert Rows Before command 5-11, 5-34
Interleaf-ASCII file format 10-8, 10-32

K

keyboard

- access keys 2-11
- label editing keys 4-29, 5-25
- mnemonics 2-11

keyboard shortcuts

- fit diagram in drawing area 4-51, 4-52
- fit selection in drawing area 4-51, 4-52
- line break 4-29, 4-32, 5-25
- name completion 4-29, 5-26
- name selection 4-30, 5-27
- paste clipboard contents 4-30, 5-29
- using 2-11
- zoom in 4-51
- zoom out 4-51

L

labels

- alignment 4-36, 5-38
- cancelling edits 4-29, 5-25
- copying 4-41, 5-27, 5-28
- cutting 4-41, 5-27, 5-28
- deleting 5-29
- editing cell content 5-24 to 5-29
- editing in Cell Content dialog 5-25
- editing in Current Symbol Options dialog 4-36
- editing keys 4-29, 5-25
- editing symbol 4-28 to 4-31
- entering text from other sources 4-30, 5-29
- font 5-38
- name completion 4-29, 5-26
- name selection 4-30, 5-26
- pasting 4-41, 5-27, 5-28
- placement options 4-37
- table cell, described 5-24
- typing manually 4-28, 5-25
- valid cell values list 5-27

links, *See arcs*

List All Users command

- current system 3-13
- repository 3-13

List Current Sybase Users command 3-13

List Current Users command 3-13

List Files with Syntax Errors command 3-15, 3-27

List Labels command

- diagram editors 4-11, 4-15, 4-30
- table editors 5-10, 5-14, 5-27

List Labels dialog box 4-30, 5-27

List Locks command 3-14, 11-3, 11-5, 11-8

List Locks dialog box 11-6

List Repositories command 3-13

Load Current System Repository from Files command 3-12

local variables, filters 8-10, 8-34

locking

- access lists 11-2, 11-4
- automatic locks 11-2
- commands 11-3, 11-8
- delete list 11-4
- deleting locks 11-8
- described 11-1
- dialog options 11-4
- listing locks 3-14, 11-5, 11-8
- lock administrators 3-14, 11-4, 11-5
- lock status 11-8
- lock types 11-2, 11-4
- managing locks 3-14, 11-7
- owner list 11-4
- permanent locks 11-2, 11-8
- permissions 11-8
- viewing a locked file 11-9

Locks command 3-14, 11-3

M

Maintain Systems command 3-11, 3-12

Manage Locks command 3-14, 11-3, 11-7

Manage Locks dialog box 11-7

Manage Users command 3-13

Match button on dialog boxes 2-14

menu bar 2-4

menus

- cancelling commands 2-12
- closing 2-8
- customizing 2-8
- Desktop 3-8 to 3-16

- diagram editor 4-8 to 4-16
- ellipsis (...) window marks 2-9
- invoking commands 2-10
- Object Annotation Editor 6-7 to 6-9
- opening 2-8
- Repository Browser 9-4 to 9-6
- Requirements Table
 - Editor 12-6 to 12-11
- shortcut menus 2-9, 4-14, 5-13
- standard 2-7, 2-7 to 2-9
- submenus 2-9
- table editor 5-7 to 5-14
- using 2-7 to 2-10
- message area 2-5, 2-15
- Message Log
 - deleting messages 2-18
 - displaying 2-16
 - displaying errors only 7-8
 - displaying on error 7-7
 - Go To Error Origin button 2-17
 - maximum number of messages 7-7
 - options, changing 2-19, 7-6
 - printing 2-17
 - saving to a file 2-17
 - tracing errors 2-17
 - using 2-15 to 2-19
- Message Log tab, Options dialog box 7-5, 7-6, 7-9, 7-20, 7-21
- Microsoft Jet databases 3-18
- Microsoft Word RTF file format 3-28, 10-8, 10-32, 10-33
- MIF (FrameMaker) file format 3-28, 10-8, 10-32
- Migrate System command 3-12
- mnemonics (keyboard) 2-11
- models
 - analyzing concepts 1-6
 - Information Modeling 1-8
 - notation methods 1-6
 - Structured Environment 1-7
 - Unified Modeling Language 1-6
 - validating 3-28, 4-58, 5-41
- mouse button functions 2-5

N

- name completion 4-29, 5-26
- name selection 4-30, 5-26
- naming conventions
 - diagrams 4-57
 - tables 5-40
- navigation
 - in diagram editors 4-13
 - in table editors 5-12
 - to Requirements Table Editor 12-3, 12-26
- New command 3-9, 3-23, 4-17, 5-15
- Next command, Define Filter dialog 8-32
- Normal command 4-12
- notation methods 1-6
- Note Description command 6-8
- Notepad text editor 6-13
- notes, inserting in diagrams 4-32
- Numerically by Selected Column
 - command 12-11, 12-20, 12-21

O

- Object Annotation command 4-11, 4-15, 6-3
- Object Annotation Editor
 - accessing from Repository Browser 9-16
 - Add Item menu 6-14
 - Add Note menu 6-11
 - closing annotation files 6-19
 - command descriptions 6-7 to 6-9
 - creating annotations 6-10 to 6-18
 - deleting annotations 6-18
 - description 1-2, 2-15
 - Edit menu 6-8
 - exiting 6-19
 - external text editor 6-13, 7-21
 - File menu 6-7
 - Help menu 6-9
 - input text box 6-5, 6-12, 6-15
 - notes and items selection list 6-5, 6-10, 6-14
 - options 7-20 to 7-22

-
- printing annotations 6-19
 - quick summary 6-20
 - starting 3-15, 6-3
 - values selection list 6-15
 - View menu 6-9
 - viewing annotations 6-12, 6-14
 - window 6-3 to 6-6
 - Object Management System 1-3
 - object shortcut menu 4-14
 - objects
 - deleting unreferenced 3-12
 - references to 1-9, 9-16
 - searching diagrams for 4-48
 - Objects that Satisfy Selected Requirements
 - command 12-10, 12-27, 12-29
 - OK button on dialog boxes 2-14
 - On Selection command 6-9
 - Online Manuals command 3-16
 - Open command
 - Define Filter dialog 8-11, 8-17
 - diagram editors 4-9, 4-17
 - table editors 5-8, 5-15
 - Open Diagram command 3-9, 3-24, 4-17
 - Open Diagram toolbar button 4-4, 4-17
 - Open dialog box 4-17, 5-16
 - Open Filter dialog box 8-17
 - Open Report command 3-11
 - Open System command 3-9, 3-20
 - Open System dialog box 3-20
 - Open System toolbar button 3-7, 3-20
 - Open Table command 3-9, 3-24, 5-15, 12-2
 - Open Table toolbar button 5-5, 5-15
 - options
 - autosave 7-5, 7-9, 7-11, 7-20, 7-21
 - changing 7-2 to 7-4
 - default arc types 7-9
 - diagram editor 7-8 to 7-19
 - display marks 7-9, 7-12
 - drawing area 7-9, 7-14
 - duration of changes 7-1
 - Message Log 7-6
 - OAE external text editor 7-21
 - Object Annotation Editor 7-20 to 7-22
 - quick summary 7-23
 - saving modifications 7-4, 7-6
 - StP defaults 7-1
 - StP Desktop 7-4
 - symbol types, default size 7-9, 7-16
 - Symbols toolbar content 7-9, 7-18
 - table editor 7-19
 - Options command 7-3
 - diagram editors 4-14
 - Object Annotation Editor 6-8
 - StP Desktop 3-15
 - table editors 5-13
 - Options dialog box
 - accessing 7-2
 - Annotation tab 7-21
 - Default Arc tab 7-9, 7-11
 - diagram editors 7-8 to 7-19
 - Display Marks tab 4-33, 7-9, 7-12
 - Drawing Area tab 7-9, 7-14
 - General tab 7-5, 7-9, 7-20, 7-21
 - Message Log tab 7-5, 7-6, 7-9, 7-20, 7-21
 - Object Annotation Editor 7-20 to 7-22
 - Save Now button 7-4, 7-11
 - Save On Exit option 7-4, 7-11
 - StP Desktop 7-4
 - Symbol Type tab 7-9, 7-16
 - Symbols Toolbar tab 7-9, 7-18
 - table editors 7-19 to 7-20
 - using 7-3 to 7-4
 - orthogonal arcs 4-26, 7-16
 - Orthogonal Arcs drawing area
 - option 7-16
 - Output File dialog box 10-11
- ## P
- Page Layout command 4-12, 10-3, 10-29
 - Page Layout drawing area option 7-16
 - Page Setup command
 - diagram editors 4-9, 10-3
 - table editors 10-3
 - using 10-13
 - Page Setup dialog box
 - Appearance tab 10-13
 - Contents tab (diagram editors) 10-15
-

-
- Contents Tab (table editors) 10-21
 - Display Marks tab 10-19
 - Named Settings tab 10-20,
10-23 to 10-26
 - Paper tab 10-17
 - using 10-13 to 10-26
 - Panner 4-52
 - passwords, user 3-13
 - Paste Cell Text command 12-8, 12-21
 - Paste command
 - Define Filter dialog 8-12
 - diagram editors 4-10, 4-15, 4-16, 4-42
 - Object Annotation Editor 6-8, 6-18
 - table editors 5-9, 5-14, 5-28, 5-29
 - Paste toolbar button
 - diagram editors 4-5
 - Object Annotation Editor 6-6, 6-18
 - table editors 5-6
 - pattern field on dialog boxes 2-14
 - Perform Manager Maintenance
 - command 3-14
 - permanent file locks 11-2, 11-8
 - Persistent Data Model application
 - types 1-9
 - pointer shapes
 - diagram editors 4-6
 - table editors 5-6
 - Postscript file format 10-8, 10-32
 - Print As command
 - described 10-8
 - diagram editors 4-9, 10-3, 10-9
 - table editors 5-8, 10-3, 10-10
 - Print As dialog box
 - diagram editors 10-10
 - StP Desktop 10-9
 - table editors 10-10
 - Print command
 - diagram editors 4-9, 10-3, 10-5
 - Object Annotation Editor 6-7, 6-19
 - table editors 5-8, 10-3, 10-6
 - Print Diagram As command 3-24, 10-2,
10-9
 - Print Diagram command 3-9, 3-24, 10-2,
10-4
 - Print Diagram/Table toolbar button 3-7,
3-24, 10-4
 - Print dialog box 10-5
 - print settings
 - customizing 10-23 to 10-25
 - saved 10-25
 - Print Table As command 3-24, 10-2, 10-9
 - Print Table command 3-9, 3-24, 10-2, 10-4
 - Print Table dialog box 10-7
 - Print toolbar button
 - diagram editors 4-4
 - Object Annotation Editor 6-6
 - table editors 5-5
 - print_mif_importable* ToolInfo
 - variable 10-33
 - printing
 - annotations 6-19
 - capabilities described 1-3, 3-24, 10-1
 - commands 10-2
 - customized settings 10-23 to 10-26
 - cut lines 10-28
 - default settings, user-defined 10-24
 - file output formats 10-8
 - file size restrictions 10-28
 - from command prompt 10-3
 - from diagram editor to file 10-9
 - from diagram editor to printer 10-5
 - from StP Desktop to file 10-8
 - from StP Desktop to printer 10-4
 - from supported publishing
 - products 10-31
 - from table editor to file 10-10
 - from table editor to printer 10-6
 - multipage output 10-27
 - named setting files 10-23
 - named settings, creating 10-25
 - named settings, deleting 10-26
 - named settings, using 10-25
 - page grid, fitting diagrams into 10-29
 - page numbering 10-28
 - page setup options 10-12 to 10-22
 - pagination, previewing 10-29
 - quick summary 10-34
 - selected diagram elements 10-27
 - specified table rows and columns 10-7
-

- to files 10-8 to 10-12
- to printer 10-4 to 10-7
- privileges, system creation (Sybase) 3-13
- projdir* ToolInfo variable 3-19, 3-20
- project phases in requirement tables 12-23
- projects
 - changing directories 3-20
 - creating 3-18
 - described 3-17
 - directory 7-6, 7-10
 - searching 3-21
- Properties command
 - diagram editors 4-11, 4-15
- publishing products
 - opening files in 10-32
 - supported 10-31

Q

- Query and Reporting System 1-4
- Query command, Requirements Table Editor 12-9
- Query menu, Requirements Table Editor 12-10, 12-29
- Query Results to Top command 12-11, 12-20

R

- radio buttons on dialog boxes 2-13
- recent files list
 - diagram editors 4-9, 4-17, 4-18
 - table editors 5-9, 5-15, 5-16
- Recover System Repository command 3-12
- Redo command
 - diagram editors 4-10, 4-19
 - table editors 5-9, 5-14, 5-23
- Redo toolbar button
 - diagram editors 4-5
 - table editors 5-6
- Refine command 12-7, 12-17
- Refresh Display Marks command 4-13, 4-15, 4-16, 7-12

- Refresh Display Marks toolbar button 4-5
- Reject Remote Access command
 - diagram editors 4-14, 4-18, 4-60
 - table editors 5-13, 5-17, 5-43
- remote messages
 - diagram editors 4-59
 - table editors 5-43
- Rename Diagram command 3-9, 3-26
- Rename Object Systemwide command 4-11, 5-10
- Rename Table command 3-9, 3-26
- Replace Arc Type dialog box 4-44
- Replace command
 - Define Filter dialog 8-12
 - diagram editors 4-10, 4-15, 4-43
- Report menu 3-11
- reports, customized 3-11
- repositories
 - deleting data 3-12
 - description 1-9
 - destroying 3-12
 - history files, removing 3-12
 - listing 3-13
 - restoring 3-12
 - saving to dump files 3-12
 - size 3-11, 3-19
 - unreferenced objects, deleting 3-12
 - verifying existence of 3-12
- Repository Browser
 - adding annotations from 9-16
 - browsing for related objects 9-8
 - command descriptions 9-4 to 9-6
 - described 1-3, 9-1
 - hiding/showing groups 9-12
 - navigating to object references 9-16
 - QRL scripts and 9-3
 - queries 9-6 to 9-8
 - removing query results 9-12
 - sections 9-3
 - sorting query results 9-14 to 9-16
 - starting 3-15, 9-2
 - window 9-3 to 9-4

- repository manager
 - adding users 3-13
 - deleting users 3-13
 - listing users 3-13
 - maintenance 3-14
 - users, current 3-13
- Repository Manager command 3-13
- Repository menu 3-11
- REQ_unique_id_terminus* ToolInfo variable 12-5
- Requirement Allocation annotation
 - note 12-26
- requirement subsystem 12-5
- requirements
 - allocated, showing 12-28
 - allocating 12-23 to 12-26
 - allocation commands 12-9
 - allocation satisfaction list 12-29
 - analysis phase 12-24
 - checking 12-29
 - copying 12-21
 - copying/pasting cell text 12-21
 - creating 12-14 to 12-16
 - current 12-6
 - deallocating 12-27
 - deleting 12-22
 - design phase 12-24
 - drag and drop allocation method 12-24
 - hiding/showing superseded 12-20
 - implementation phase 12-24
 - importing from file 12-14
 - inheriting allocations 12-27
 - navigation allocation method 12-26
 - OAE allocation annotations 12-26
 - project phases 12-23
 - query commands 12-10, 12-29
 - query results, displaying 12-30
 - recalculating 12-20
 - refining 12-17 to 12-18
 - Requirement Allocation annotation
 - note 12-26
 - requirement definition 12-6
 - sort commands 12-11
 - sorting 12-20
 - superseded 12-6, 12-20, 12-30
 - superseded definition, showing 12-30
 - target object 12-3, 12-5, 12-19
 - test phase 12-24
 - unallocated 12-29
 - undoing deletions 12-23
 - unique identifier 12-5
- Requirements Table Editor
 - Allocate submenu 12-9
 - command descriptions 12-6 to 12-11
 - description 1-5, 12-1 to 12-6
 - Edit menu 12-7
 - File menu 12-7
 - hiding/showing sections 12-12
 - navigating to 12-3
 - Query submenu 12-10
 - Sort submenu 12-11
 - starting from the Desktop 12-2
 - Tools menu 12-9
 - View menu 12-8
 - window 12-3 to 12-6
- Reverse Engineering command 3-10
- Revoke User(s) Sybase System Creation
 - Privileges command 3-13
- rows in tables
 - deleting 5-35
 - described 5-3
 - height specification 5-37
 - inserting 5-34
 - labels 5-4
 - numbering 5-4
 - Row 0 5-4
 - scaling 5-30
 - selecting 5-23
- RTF (Microsoft Word) file format 3-28, 10-8, 10-32, 10-33
- rules files for StP defaults 7-1
- Run command, Define Filter dialog 8-31
- Run Environment dialog box 8-33
- Run Selected command, Define Filter dialog 8-32

S

- Satisfied Requirements to Top
 - command 12-21

-
- Save All Annotations toolbar button 6-6
 - Save All command, Object Annotation Editor 6-18
 - Save Annotation toolbar button 6-6
 - Save As command
 - Define Filter dialog 8-11, 8-15, 8-16
 - diagram editors 4-9, 4-56
 - table editors 5-8, 5-39
 - Save As dialog box 4-56, 5-40
 - Save command
 - Define Filter dialog 8-11, 8-15
 - diagram editors 4-9, 4-56
 - Object Annotation Editor 6-7, 6-18
 - table editors 5-8, 5-39
 - Save Diagram toolbar button 4-4
 - Save Filter dialog box 8-15
 - Save Message Log dialog box 2-18
 - Save Table toolbar button 5-5
 - Script Manager 3-11, 10-31
 - scroll bars
 - options 7-16
 - using 2-4
 - selecting
 - arcs 4-22
 - cancelling selections 4-23
 - diagram area 4-22
 - multiple symbols 4-22
 - symbols 4-21
 - table cells 5-21 to 5-23
 - selection handles 4-21
 - semantic checking
 - diagram editors 4-58
 - models 3-14, 3-28
 - table editors 5-42
 - Semantics for Diagram's Objects
 - commands 3-29
 - Semantics for Whole Model
 - command 3-29
 - Set Breakpoint command, Define Filter dialog 8-32
 - Set button, Object Annotation Editor 6-5
 - Set Label command 5-10, 5-14, 5-27
 - Set Lock Administrators command 3-14, 11-3, 11-5
 - Set Lock command 11-8
 - Set Program Counter command, Define Filter dialog 8-32
 - Shift key 2-17, 3-5, 4-22, 5-21, 7-18
 - shortcut keys, *See* keyboard shortcuts
 - shortcut menus 2-7, 2-9, 4-14
 - Show Desktop command 3-2, 5-11, 6-9
 - Show Message Log command 2-16, 4-12, 5-11, 6-9
 - Show Panner command 4-12, 4-53
 - Show Run Environment command, Define Filter dialog 8-31, 8-33
 - Show Standard Toolbar command 3-10, 4-12, 5-11, 6-9
 - Show Sybase Server Space command 3-14
 - Show Symbol Toolbar command 4-12
 - Show System Space command 3-11, 3-22
 - Show ToolInfo Variable command 3-15
 - Show/Hide Message Log toolbar button 2-16, 3-7, 4-5, 5-6, 6-6
 - Show/Hide Standard Toolbar command 2-7
 - Show/Hide Symbol Toolbar command 2-7
 - ShowAll filter 8-4, 8-5
 - ShowHidden filter 8-4
 - SIZE environment variable 3-19
 - Sort command
 - Repository Browser 9-6
 - Requirements Table Editor 12-9
 - Sort menu
 - Repository Browser 9-14
 - Requirements Table Editor 12-11, 12-20
 - Span command 5-12, 5-33
 - Spline symbol 4-27
 - splines
 - cancelling drawing of 4-27
 - deleting spline points 4-27
 - described 4-23
 - drawing 4-26
 - reshaping 4-27
-

-
- Standard toolbar
 - described 2-5
 - Desktop 3-6
 - diagram editors 4-4
 - Object Annotation Editor 6-5
 - table editors 5-5
 - Start New Editor toolbar button 3-7, 3-23, 4-17, 5-15
 - Start Script Manager command 3-11
 - Start Script Manager toolbar button 3-7
 - StP
 - applications 1-5
 - basic features quick summary 2-20
 - basic features, using 2-1 to 2-21
 - components of 1-2, 1-5
 - creating models with 1-6
 - customizing 1-4
 - displaying information about 3-16
 - exiting 3-17
 - files, system 1-10
 - options 7-1 to 7-24
 - overview 1-1 to 1-11
 - printing capabilities 10-1
 - repository 1-9
 - summary, graphic 1-11
 - windows 2-2 to 2-5
 - StP Desktop
 - basic procedures 3-23 to 3-29
 - categories 3-5
 - Code menu 3-10
 - components 3-4
 - description 1-2, 3-1
 - exiting 3-16
 - exiting StP 3-17
 - File menu 3-8
 - filtering objects pane contents 3-5
 - Help menu 3-16
 - menu bar 3-4
 - menus 3-8 to 3-16
 - message area 3-4
 - Model pane 3-4, 3-5
 - Name field 3-4
 - objects pane 3-4, 3-5
 - Open button 3-4
 - options 3-15, 7-4
 - printing from 10-4
 - reopening from editors 3-2
 - Report menu 3-11
 - Repository menu 3-11
 - selecting objects 3-5
 - standard toolbar 3-4
 - starting 3-2
 - Tools menu 3-14
 - View menu 3-10
 - window 3-2
 - StP Utility command 3-15
 - Structured Environment models 1-7
 - Superseded Requirement Definition command 12-11, 12-30
 - Switch Project Phase command 12-8, 12-24
 - Sybase databases 3-18
 - Symbol Type tab, Options dialog box 7-9, 7-16
 - symbols
 - aligning 4-45, 4-46
 - as references to objects 1-9
 - attaching to arcs 4-31
 - cancelling selection of 4-23
 - copying 4-41
 - cutting 4-41
 - default size option 7-9, 7-16
 - deleting 4-43
 - display marks 4-33
 - inserting 4-19
 - label placement options 4-31, 4-37
 - labeling 4-28
 - moving 4-41
 - multiple insertion of 4-20
 - multiple selection of 4-22
 - pasting 4-41
 - replacing 4-44
 - scaling 4-38, 4-40, 7-16
 - searching diagrams for 4-48
 - selecting 4-21, 4-22
 - ViewPoints 4-39
 - Symbols toolbar
 - contents option 7-9, 7-18
 - described 2-5, 4-6
 - inserting symbols 4-20
-

- Symbols Toolbar tab, Options dialog box 7-9, 7-18
- Synchronize DOORS with StP command 3-15
- syntax errors
 - checking for 4-58, 5-42
 - saving diagrams with 4-57
 - saving tables with 5-41
 - searching for 3-27
- syscreate_size* ToolInfo variable 3-19
- System command (New menu) 3-19
- system* ToolInfo variable 3-20
- systems
 - backing up repository 3-12
 - copying 3-21
 - creating 3-18, 3-19
 - creation privileges (Sybase) 3-13
 - default 3-20
 - described 3-17
 - destroying 3-22
 - destroying repository 3-12
 - directory 7-6, 7-10
 - files, adding/copying 3-12
 - migrating 3-12
 - opening 3-20
 - ownership, changing 3-13
 - recovering repository 3-12
 - restoring from backup 3-12
 - searching 3-21
 - showing space 3-22
 - storage space, expanding 3-11
 - storage space, showing 3-11
 - user group read/write privileges 3-13
 - users, adding 3-13
 - users, deleting 3-13
 - users, listing 3-13
 - using 3-17 to 3-22
 - verifying repository exists 3-12

T

- Tab key 4-29, 5-26
- Table Annotation command 5-10, 5-14, 6-3
- table areas, selecting 5-22

- table cells, *See* cells
- table editors
 - See also* tables
 - cancelling operations 5-23
 - command descriptions 5-7 to 5-14
 - Edit menu 5-9
 - exiting 2-19
 - File menu 5-8
 - GoTo menu 5-12
 - hiding/showing table sections 5-20
 - opening tables 3-23, 5-15, 5-16
 - options 5-42, 7-19 to 7-20
 - pointer shapes 5-6
 - quick summary 5-44
 - recent files list 5-9, 5-15, 5-16
 - starting 3-23
 - starting multiple instances of 5-16, 5-43
 - Table menu 5-11
 - table shortcut menu 5-13
 - toolbars 5-5
 - Tools menu 5-13
 - View menu 5-10
 - window 5-2 to 5-7
- Table menu 5-11
- Table Refresh command 12-8, 12-20
- table shortcut menu 5-13
- tables
 - See also* table editors
 - cancelling cell labeling 5-23
 - cell content, editing 5-24 to 5-29
 - cells, described 5-3
 - checking semantics 5-42
 - checking syntax 5-42
 - column width, fitting to label 5-30
 - columns, described 5-3
 - copying 3-25
 - deleting 3-26
 - deleting cell contents 5-29
 - deleting cells 5-35
 - described 5-1
 - displaying/hiding parts of 5-17 to 5-21
 - formatting cells 5-36 to 5-39
 - inserting cells, rows, columns 5-34
 - locating cells by label 5-18

- locating cells by row/column 5-17
- naming conventions 5-40
- navigating to object references 5-12
- opening 3-23, 5-15, 5-16
- printing 3-24, 10-1 to 10-34
- renaming 3-26
- rows, described 5-3
- saving 5-39 to 5-41
- scaling rows, columns, and sections 5-30 to 5-32
- searching contents of 5-18
- sections, described 5-4
- sections, hiding/showing 5-20
- sections, scaling 5-31
- selecting cells, rows, columns 5-21 to 5-23
- selections, cancelling 5-23
- spanning cells 5-33
- Technical Support xxi
- test phase, requirements for 12-24
- title bar 2-3
- Toggle Superseded Requirements command 12-8, 12-20
- toolbars
 - buttons 2-6
 - hiding/displaying 2-7, 3-10
 - resizing 2-7
 - Standard toolbar, described 2-4, 2-5
 - Standard toolbar, Desktop 3-6
 - Standard toolbar, diagram editor 4-4
 - Standard toolbar, table editor 5-5
 - Symbols toolbar 2-5, 4-6, 7-9, 7-18
 - undocking/docking 2-7
 - using 2-5 to 2-7
- ToolInfo variables
 - displaying current value of 3-15
 - print_mif_importable* 10-33
 - projdir* 3-19, 3-20
 - REQ_unique_id_terminus* 12-5
 - StP default options and 7-1
 - syscreate_size* 3-19
 - system* 3-20
- Tools menu
 - diagram editors 4-13
 - Repository Browser 9-6

- Requirements Table Editor 12-9
- StP Desktop 3-14
- table editors 5-13
- tprint command 10-3
- Truncate History for Current System command 3-12

U

- Unallocated Requirements command 12-10, 12-29
- Undo command
 - diagram editors 4-10, 4-19
 - table editors 5-9, 5-14, 5-23
- Undo toolbar button
 - diagram editors 4-5
 - table editors 5-6
- Unified Modeling Language models 1-6
- unreferenced objects, deleting 3-12
- Unspan command 5-12, 5-33
- users
 - adding to repository manager 3-13
 - adding to systems 3-13
 - deleting from repository manager 3-13
 - file lock lists 11-3, 11-4
 - listing for current system 3-13
 - listing for repository manager 3-13
 - passwords 3-13
 - revoking system access 3-13
 - Sybase system creation privileges 3-13
 - system read/write privileges 3-13

V

- validating models
 - from Desktop 3-28
 - from diagram editors 4-58
 - from table editors 5-41
- variables
 - \$UserInput in diagram filters 8-10, 8-34
 - in diagram filters, using 8-9, 8-34
 - ToolInfo, *See* ToolInfo variables
- vertices, inserting in arcs 4-25
- View menu
 - diagram editors 4-11
 - Object Annotation Editor 6-9

- Repository Browser 9-5
- Requirements Table Editor 12-8
- StP Desktop 3-10
- table editors 5-10
- ViewPoints 4-39

W

wild cards

- Apply Filter dialog 8-4
- List Labels dialog 5-27
- Open dialog 4-17, 5-16
- Open Filter dialog 8-17
- Print Table dialog 10-7
- Save As dialog 4-56, 5-40
- Save Filter dialog 8-16

- window pane, in StP editors 2-4
- windows in StP 2-2 to 2-5

Z

- Zoom command 4-12, 4-51
- Zoom In command 4-12, 4-16, 4-51
- Zoom In toolbar button 4-5, 4-51
- zoom level options 7-15
- Zoom Out command 4-12, 4-16, 4-51
- Zoom Out toolbar button 4-5, 4-51
- Zoom to Fit toolbar button 4-5, 4-51, 4-52

