

Cogito

COG170 Cogito

Fundamentals (With Answers)

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Introduction

Welcome to Cogito Fundamentals!

Step into the world of analytics with a thorough introduction to Epic's Cogito Ergo Sum suite of reporting tools. Learn how to build dashboards that host real-time actionable data as well as compare long-term trends in your Key Performance Indicators. Empower your end-users with outcomes-driven reporting through self-service tools, and unlock the potential in your data.

Prerequisites and Assumptions

Before undertaking the course of study within this class, you must have completed the following tasks:

- View the following E-Learning modules:
 - [MD100 Overview of Hyperspace](#)
 - [GEN601a Introduction to Chronicles](#)
 - [GEN601b Chronicles Item Attributes](#)
 - [TEC605B Using the Hyperspace Record Viewer](#)
 - [RDR101 Introduction to Radar](#)
 - [COG001 Overview of Reporting](#)

Download Course Materials

Course materials are available on Galaxy, the Course Catalog, and linked through EpicU.

To find all of the materials for this course using EpicU, complete the following steps:

1. Go to the [Training Home](#).
2. Find the section titled **Your In-Progress Certificates**.
3. Click the link for the relevant course of study.
4. In EpicU, expand the various sections to find links to course materials.
5. Click the links to open the documents in Galaxy.
6. Download the materials.

Alternatively, you can find the materials on the Course Catalog. Use the appropriate application and/or role filters to locate your training track. Materials for each course are listed in the corresponding course card.

How to Use This Training Companion

This training companion is for use in conjunction with other course materials.

Note that new training materials are released regularly throughout the year. If you downloaded this companion even a few weeks or months ago, there may be a new version that you should use instead. At

At the beginning of this companion, look at the version and dates listed. If you'll complete a task after its listed date, be sure to check the [All Training Companion Change Log](#) to see if there are significant changes to the new materials. If there are, be sure to download the new materials when they're released.

You'll find informative text boxes and do-now steps throughout the lessons to draw your attention to specific content. There are a few different types of text boxes you might encounter. Each has a different purpose as defined below:

-  A "Critical Box" means that information shared here is critical.
-  An "Example Box" gives a scenario for the content that follows.
-  A "Beyond the Basics" box means you are being provided additional information that may be helpful to enhance understanding, but is not critical. You do not need to know this information for this course's assessment(s).
-  A "Write-It-Down" box allows you to write down information or answer a question.
-  A "Foundation System FYI" shares information about how the Foundation System handles the workflow you are seeing or other Foundation considerations.
-  A "Setup" box gives you more information about system configuration.
-  A "Real World Context" box will clarify industry-standard terminology or practice for those who are new to the industry.

View a Training Companion With and Without Answers

During class, you will use the training companion without answers. It would be inefficient to print out the version of the training companion that includes answers. Instead, refer to it on Galaxy or download it as a PDF.

In Galaxy, you can view a training companion with and without answers using a toggle on the menu on the right:



You can also download either version from the toolbar:

1. Click **Download Options**.
2. Select **(Without Answers)** or **(With Answers)**.



Contact Information

The table below provides contact information you may need during your cert process:

Contact	Used For
CogitoTrainingSubmissions@epic.com	The majority of your questions should be directed to this email address. This address connects you with our team of Cogito trainers who can answer your questions on anything related to reporting training. All class-related questions should be directed to this email address and not to the Cert Environments or UserWeb addresses listed below. If you aren't sure about whom to contact, use this email address.
UserWebAccounts@epic.com	Use this email address only if your access specifically to the UserWeb is broken or lost. If you have a question regarding Cogito training contact CogitoTrainingSubmissions@epic.com .
Direct email for your Epic representative (either the implementers or your technical services representative)	For all exam reviews, contact your Epic representative. You can find this information by asking a member of your own project team or by asking CogitoTrainingSubmissions@epic.com .
Exams@epic.com	Use this email address to ask questions about requesting, submitting, or taking exams, as well as proctors for those exams.
Registrations@epic.com	Use this email address to ask questions about registering for classes at Epic.
TrainingAdminTeamSubmissions@epic.com	Use this email address to inquire about the status of your paper certification or NVT stickers.

After-Class Practice

After class, you will likely want to practice in the system and complete additional in-class or if-you-have-time exercises. Please reference the following document available on Galaxy for information on how to log in and use our practice system:

Document	Used For
An Introduction to Epic's Certification Environments	General access information, Hyperspace, Classic, and Text login information, and FAQs.

Epic Resources

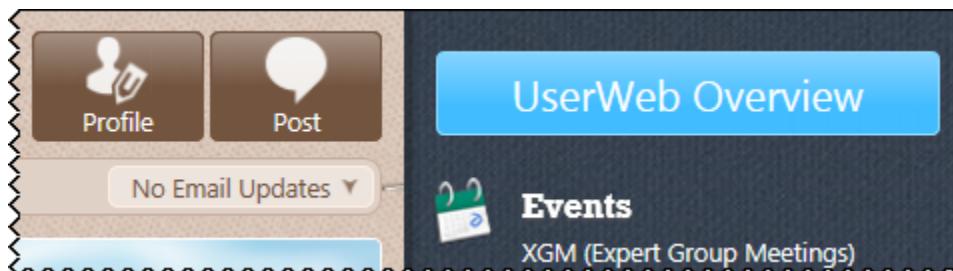
After leaving training at Epic, you will likely get asked questions that you do not know the answers to. This table outlines supplemental resources that are available to you that will help you find the information that you need. Here is a list of the tools available and how they should be used:

	Epic's online documentation portal. Contains training materials, setup and support guides, and a variety of other useful documents. https://galaxy.epic.com
	Epic provided platform for E-Learning content. Hosts e-learnings created by Epic as well as customer built modules. https://welearning.epic.com
	Online collection of tools and information about Epic and our software. On your front page you can favorite discussions to read/participate in. https://userweb.epic.com
	The Community Library is Epic's content sharing program. Technical Services routinely extract content data from customers' systems, which Epic then hosts on the UserWeb for customer review and use. https://comlib.epic.com

	Epic's web-based issue tracking tool. Use Sherlock to have direct access to create and update Support Logs (SLGs), Release Authorizations, and Reportable Issues. https://sherlock.epic.com
	Epic's training website encompassing a variety of training-related tools used by our organizations. Contains Certification Tracking, Course Catalog, Exam Requests, training announcements, and Training Wheels materials. https://training.epic.com
	The Data Handbook provides reference information to access data within your enterprise production database. https://datahandbook.epic.com
	Nova is an Epic-developed web program for release note management. You can use Nova to assign and review release notes, select which enhancements to implement, and report on release note progress. https://nova.epic.com

Looking for more guidance through these tools?

Check out the UserWeb Overview document which can be found by clicking the blue button in the top right of your screen as soon as you log into the <https://userweb.epic.com> site:

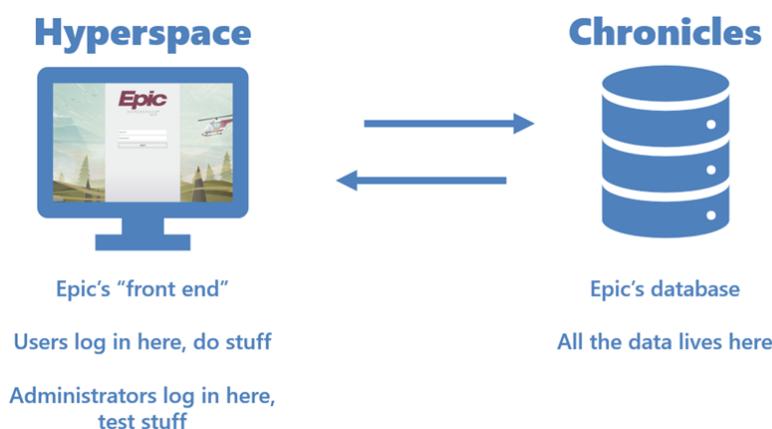


UserWeb Overview

Hyperspace and Chronicles

Hyperspace is Epic's front-end user interface. It's what most users think of as "Epic" and what you used in your Fundamentals class. End users log in to Hyperspace to complete their workflows and do their jobs. Administrators and builders also log in to Hyperspace to test and troubleshoot build.

Chronicles is Epic's database management system, often referred to as "the database." All the data that users access in Hyperspace actually lives in Chronicles. When a user logs in to Hyperspace and opens a patient's chart, Hyperspace is requesting data from Chronicles. When a user documents in a patient's chart, they are saving data to Chronicles.



Beyond the Basics: Hyperspace Web and Hyperdrive

Technically, Hyperspace is a web-based application. It runs on a web server, called **Hyperspace Web** launching a specialized web browser called **Hyperdrive**. The Hyperdrive client presents the Hyperspace available browser (Chrome, Edge, Firefox, etc.) presents your favorite web sites.

With that said, "Hyperdrive" isn't a term your end users are likely to see or know. They launch an icon for "Hyperspace," and see "Hyperspace" in their computer's task bar.

Classic

The **Classic client** is the original Hyperspace client. As of Epic's May 2022 release, all end-user facing activities are available in the new, web-based Hyperspace. However, many administrative activities have not yet been migrated and are available only in the Classic client.

If you need to build, configure records, or use utilities, do so in Classic (or Text, see below). Some admin activities are already available in Hyperspace, and more will be migrated over time. However, it's not worth memorizing which activities are in Hyperspace and which ones must be accessed via Classic.

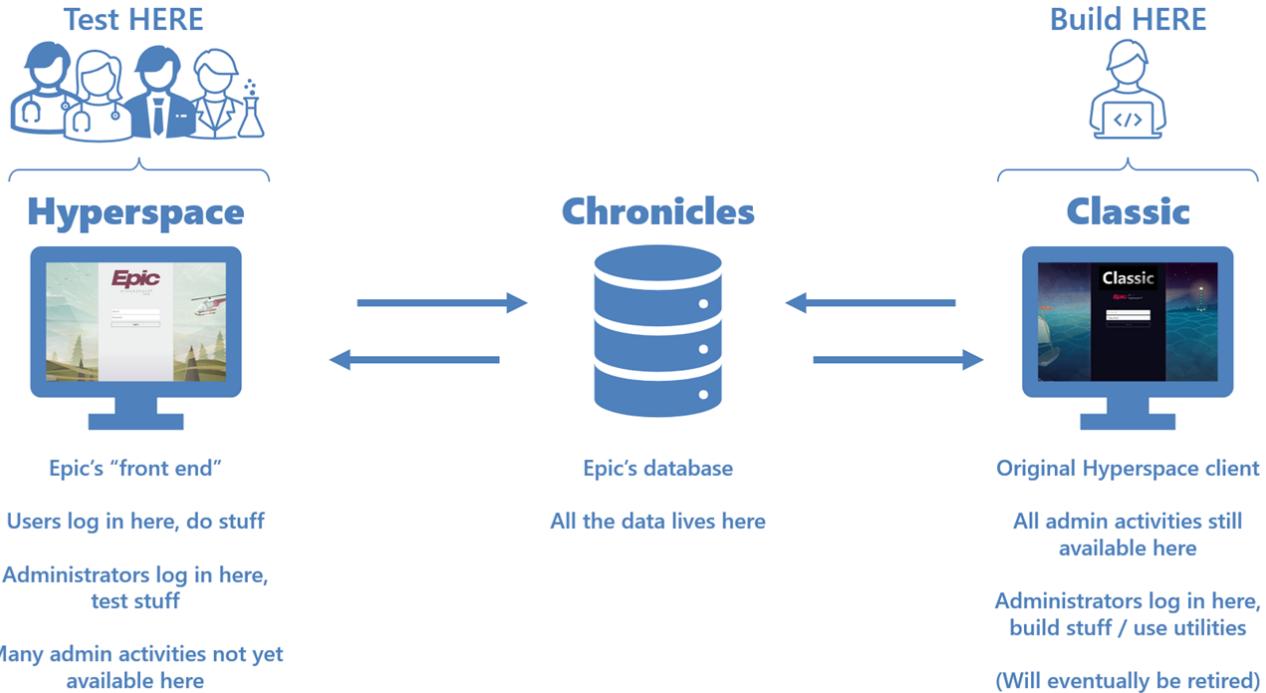
You should, however, test your build/configuration in Hyperspace. Log in to Hyperspace as an appropriate test user, one who represents users affected by your build. For example, if you build an Order Set, log in to Hyperspace as a test physician to confirm that the Order Set works as expected.

Beware! You *can* access most end-user activities via the Classic client, which makes it tempting to test your build in Classic. Don't do that. Some activities behave differently in Classic, and you should test your build in the client that users actually use: Hyperspace.

Epic plans to eventually migrate all administrative activities from Classic to the new web-based Hyperspace. When that migration is complete, the Classic client will be retired.



- **Build in Classic.** Many admin activities are not available in Hyperspace.
- **Test in Hyperspace.** Some end-user activities behave differently in Classic, and Hyperspace is





If your organization is already live on Epic, it's possible that your users are still using the Classic client. In this case, you may want to refer to the "Hyperspace" to them.

In addition, Dorothy and Comfort have not yet been fully migrated to the new web-based Hyperspace. They will continue to use the Classic client to do their jobs until at least the May 2023 release of Epic.

If you support users who still use the Classic client, you should build *and test* in the Classic client. (This means we will need to build and test our work in Hyperspace.)

Radar Dashboards

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Introduction

Radar dashboards are often the first thing users see when they log into Epic every day. Dashboards are the hub of reporting and analytics in Epic, and consolidate data from all corners of your healthcare system. In this lesson, you will learn to how to design and build the dashboards at the heart of your Cogito team.

By the End of This Lesson, You Will Be Able To...

- Build dashboards from existing components
- Build message board components
- Customize dashboard views

Scenario Questions/Notes

Page numbers

Lorena builds a new dashboard.

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.



It is Tuesday morning at Epic Health Systems. Violet, a Clinical Administrator, is hard at work building a new dashboard for our inpatient physicians. This "Learning Home" will help new physicians get up to speed on common tasks and tip sheets. Our Cogito Tools Administrator, Lorena, has already built a few components, so Violet just needs to put those on a dashboard.

- 1 Log in to Hyperspace as Violet, the Cogito Tools Administrator

Upon login, you land on the Cogito Analytics Usage and Monitoring Dashboard. To get started, you will create a new empty dashboard to work with.

Create a Dashboard

- 2 Click the **Dashboard Options** menu
- 3 Click **Create Dashboard**
- 4 Name it *COG170 IP Physician Learning Home*

Adding content to the dashboard

Now we need to find those components that Lorena built for us, and add them to the dashboard.

- 5 Click **Search the Catalog**.
- 6 Add the **COG170** tag
- 7 Add the following components:
 - What's New for Inpatient
 - Inpatient Guides

- Time Savers
- Web References

8 Rearrange the components into columns

Distribute your dashboard

Before this dashboard goes live, it will need a description and a tag to help users find it and use it appropriately. We also need to make sure that our Clinical users have access to it.

- 9 Click the **Dashboard Options** menu
- 10 Click **About Dashboard**
- 11 Add a tag of COG170
- 12 Add a short description
- 13 Add **Report Groups** of *Clinical* and *IT Staff*
- 14 Save your settings
- 15 Close the **About Dashboard** window.
- 16 Click **Accept** to exit the Designer UI.

Troubleshoot your message board

As we test out our dashboard, we realize that we're unable to post any messages to the message board. We notify Lorena of the issue.



Lorena, the components look great, but I can't add any posts to the message board. Help!
~Violet

Lorena will take over from here.

- 17 Log in to Classic as Lorena, your Cogito Tools Administrator
- 18 From the **Analytics Catalog**, filter by a tag of *Cog170* to find the COG170 IP Physician Learning Home dashboard and open it

- 19 Click the **Component Options** menu in the message board component
- 20 Click **Edit Component**
- 21 Go to the **Data Source** form
- 22 Add *Violet [6003##]* and *Lorena [6001##]* as authors
- 23 Save changes
- 24 Switch to Hyperspace as Violet
- 25 Return to your dashboard and refresh it by pressing **ALT + =**
- 26 Post a message to test the component changes.

Add a link to another dashboard

Right before you finalize the dashboard, one of your colleagues, Hannah, stops by your desk.



"I heard you're building a dashboard the IP physicians. Me too! They needed a data-rich dashboard for inpatient KPI tracking. I was thinking that it would be helpful for the MDs to have a quick link from your Learning Home to my metrics dashboard, so I built a link component to do just that. Would you like to put it on your dashboard?"

You think that's a great idea.

- 27 Click the **View Manager**
- 28 Enter **Designer UI**
- 29 Click **Add Component**
- 30 Search for *COG170 00 Links to other dashboards*
- 31 Add the component
- 32 Accept your dashboard
- 33 Click the link to check out Hannah's dashboard

Both dashboards are up and running. Once they pass validation, we will move them into production and get them in front of our end users.

Dashboard Build

Exercise 1: Radar Exploration

This first exercise will introduce you to a few crucial navigation tools as well as the elements of a Radar dashboard.

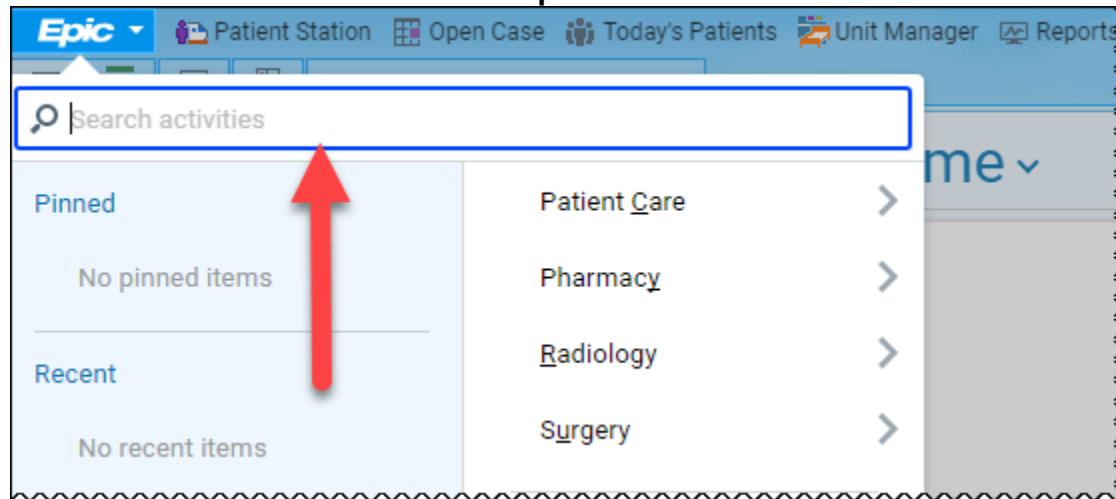
The Epic Menu and the Analytics Catalog

The easiest way to access an activity in Hyperspace is to search in the **Epic Menu**. The **Epic Menu** allows you to type the name of a Hyperspace activity into a search bar, and jump to that activity.

You can search the **Epic Menu** by pressing **ALT** on your keyboard.

The **Analytics Catalog** is a central repository of all reporting content. Everything you build in this class can be found in the **Analytics Catalog**; we will be returning to it many times throughout the course.

1. Log in to Hyperspace as Violet, your Clinical Administrator.
2. Press **ALT** to access the search bar in the **Epic Menu**.



3. Search for the "Analytics Catalog" and open it.
4. You're now seeing all of the reporting content available to you. In the upper left corner, you can see a filter for **My Catalog**, Clear that filter.
5. Your Catalog now shows all content in the entire system, including content you don't have the security to use. While this can be helpful to explore at times, for most of this class we will only need content we have access to. Click **My Catalog** again.
6. In the upper right corner of the catalog, click **List** to toggle the format of the Catalog.
7. Using **List view** or **Card view**, you are going to find and open a dashboard. On the left side of the Catalog, under **Content Type**, select **Dashboards**.
8. You want to find a dashboard that will help you understand how full your hospital is. Below

Content Type, use the **Tags** field to find all dashboards tagged for "Census" reporting.

9. The **Admissions Supervisor Patient Access Dashboard** is what you want. Hover your cursor over it and click the star icon to add it to your favorite dashboards . This will make it easier to find again later.
10. Clear the box next to the **Census** tag to remove the filter.
11. Use the **Tags** field to find a dashboard built just for this class, with the tag "COG170".
12. Click the star to make the **COG170 Starter Dashboard** one of your favorites as well.
13. Now click the dashboard icon (in Card view) or the play button on the right (in List view) to open the **COG170 Starter Dashboard** for yourself.

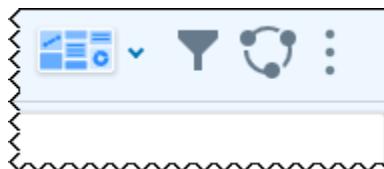
Viewing dashboards as an end-user

Now that you have found a couple of dashboards in the Catalog, you should explore them and find out what you can do. Dashboards are the primary means of pushing reporting content out to specific users in your system. These users will receive similar training on how to find, view, and customize their own dashboards.

One dashboard can be arranged into multiple regions. Regions can group components vertically or horizontally, and they can be labeled to help group together similar content. Each region can contain many components. A component is a single graph or table or other piece of functionality that your users will interact with on the dashboard. Components are the building blocks of a dashboard, and are the primary way you will add new content or remove content from a dashboard.

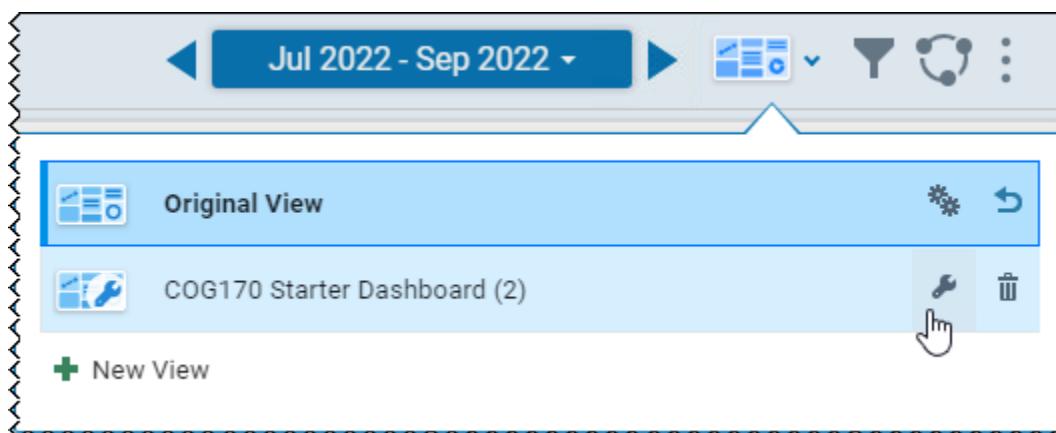
14. You are looking at the **COG170 Starter Dashboard**. This one dashboard has 3 regions. Each region has only a single component in it right now. Can you find the names of each piece of your dashboard?
 - A. The display title of the dashboard: COG170 Starter Dashboard
 - B. The names of the regions: Message Boards, Epic, Custom
 - C. The names of the components: Classwide Message Board, Cogito Security Metrics, MyChart Graph Component.
15. As an end-user, you can add components to your view of this dashboard. Use **the Epic Menu** to go back to the **Analytics Catalog**.
16. Remove the **Content Type** and **Tags** filters from your catalog, and filter to a **Content Type** of "Components".
17. In addition to searching by tags, we can search by keywords in the Catalog. Use the keyword search bar at the top of the Catalog to search for the keyword "Recent".
18. One of the components found should be the **Recent Report Results** component. Add it to your dashboard.

- A. Adding a component from the catalog like this only adds it to your currently active dashboard. If you regularly use more than one dashboard, make sure that you're on the right one before jumping to the catalog to add new components to it.
19. You are brought back to your starter dashboard. Find the **Recent Report Results** Component. What region was the component added to?
Message Boards
20. This component belongs in the **Epic** region. To move it, first click on the blue dashboard icon in the upper right of your screen with a wrench icon in it. This is the **View Manager**.



The View Manager

21. Now, to enter **Designer UI**, click the wrench icon.



Enter **Designer UI** mode to edit your View

22. In this mode you can freely move components as well as change their height or name. Drag your **Recent Report Results** component into the **Epic** region.



From this mode you can also add additional components using the **Add Component** button on the bottom left. This brings you back to the Catalog more quickly, filtered to only SlicerDicer and Components. This otherwise works the same as chart searching for the Analytics Catalog.

23. To exit **Designer UI**, click the **Accept** button on the bottom right of your screen.
24. Let's compare your starter dashboard with a fully built Epic-released dashboard. Click the name of your dashboard to switch between recent and favorite dashboards.

25. From the list of your favorite dashboards, click the **Admissions Supervisor Patient Access Dashboard** to open it.
 - A. Because we are in a training environment, and not a real hospital, our census data may not look realistic during class, but the structure of the dashboard here is the same as in a real customer environment.
26. Look through the components on this dashboard. Is the **Recent Report Results** component on this dashboard?
No. Each dashboard has its own set of components. Adding a component to one dashboard view does not add it to your other dashboard views.
27. Click on the name of your dashboard to see your recent and favorite dashboards.
28. Return to your **COG170 Starter Dashboard**.

Dashboard Parameters

29. Click the **Edit Parameters** button next to your **View Manager** in your dashboard header.



The Edit Parameters button

30. By updating dashboard parameters, a user can update reports displayed on a dashboard. Click on the **Patient Portal Status** parameter.
31. Add a parameter value of **Activated**.
32. Add another parameter value of **Inactivated**.
33. Click **Accept**.
34. To confirm your parameter selections, click outside of the **Edit Parameters** box.
35. Run the report in the **Mychart Graph** component.
 - A. **Hint:** Click the 'play' icon on the component.
36. Your new parameter values changed which patients were returned by this specific component, but you did not actually edit the underlying report. Dashboard parameters give end users the ability to customize the results of reports on their own dashboards. The dashboard date range works similarly. Click **Select a Date**.
37. In the Months field, type 4.
38. Click **Accept**.
39. Which component changed?

Cogito Security Metrics

40. Click the arrows on either side of your new date range multiple times. What do they do?

Slide the date range of affected components into the past or future.

41. Click the **View Manager**.
 42. Click **Original View**.
 43. Do you think your changes to the parameters or date range affected any other users?
No.
-

This is the end of the exercise.

In this exercise, you learned how to find and open dashboards, add components, and customize parameters and date ranges. These features are mostly intended for end users consuming dashboards built by administrators. Most additional features are found under one of two menus.

- **Dashboard Options:** accessed by clicking the three dots in the upper right corner of the dashboard.
- **Component Options:** accessed by clicking the three dots in the upper right corner of any component.

Some of the features in these menus are only available to users with administrator-level security, so not everything you see in this class is available to all users. More on security will be covered in [Chapter 15: Security](#).

Building a Dashboard

Dashboards can house visualizations of the financial and clinical health of an organization, clinic, hospital, department, or even an individual user. They are often used as the first screen users see when they log in. If any part of the dashboards does not work or is not relevant, the user may lose engagement and trust in reporting. Therefore, all dashboards should be tailored to their audience and thoroughly tested to ensure they work for that audience. Respect the following guiding principles when creating or editing a dashboard:

- Any dashboard available to a user must work
- Each component on a dashboard must work
- All dashboards should have a defined target audience
- Each user in that audience must have the security to use every component on the dashboard

Dashboard Views

In your first exercise, you customized your view of an existing dashboard. These changes are only visible to one user: you. As an administrator, if you want to make changes to a dashboard that affect all users, you can create and edit a source dashboard. Source dashboards and views are very similar. Most users will not know if they are looking at one or the other.

Users with the security to customize their own views have access to a number of personalization features.

These features include, but are not limited to:

- Adding new components from the Catalog
- Rearranging your components using the **Designer UI**
- Changing the displayed name of your components
- Removing components from your view

Most end users will have the security to customize their view of any dashboard. This gives them a feeling of ownership and control. It also helps improve adoption of, and trust in, dashboards.

Reconciliation

Reconciliation happens whenever a user creates or launches a view. Reconciliation checks the associated source dashboard and components underlying the view to determine what has changed. In general, any added, removed, or modified components on the Source dashboard will affect all views of that Source dashboard. Components added to the View will not be affected by changes made to the Source.

Source Dashboards

Building a source dashboard is not something most users will be able to do. Source dashboards can be distributed through the Analytics Catalog to large groups of users at a time. They should always go through a validation and testing process before becoming available to the community.

You can create a new empty source dashboard quite easily.

- 34 Log in to Hyperspace as Violet, the Clinical Administrator
- 35 Click the **Dashboard Options** menu
- 36 Click **Create Dashboard**
- 37 Name your dashboard <Your Initials> *training demo*

You are given the option to either find existing components available in the Analytics Catalog, or to create a new component using SlicerDicer. We will learn more about SlicerDicer components in Chapter 3: SlicerDicer Populations.

- 38 Click Search the Catalog

When building a source dashboard, the Analytics Catalog is quite a different place. The two main differences you'll experience here are:

1. Limited content types: You can only see Content Types of SlicerDicer and Component.
2. Unlimited access. Whether you have "My Catalog" checked or unchecked, you will always see a list

of every Enabled component or SlicerDicer session in your entire database.



When building a source dashboard, a user is not limited to a certain set of relevant content. They can add content here that they would NOT be able to add to their own views as a user.

If you are trying to add a component to your dashboard and you see a padlock icon, this means you are *not* adding components to your source dashboard. You are instead trying to add a component to your view.

The screenshot shows a dashboard interface with two components. Both components feature a grid icon with a lock symbol in the center. The first component is titled "# Chronic Opioid Patients" and describes it as "The number of patients on the Chronic Opioid Use registry." The second component is titled "% of Errors Unresolved" and describes it as "Tracks what percent of errors are unresolved, sliced by severity." Below each component are two buttons: "Medications" and "Interfaces".

This means you are trying to add components to your view instead of your source dashboard.

To correctly add components to a source dashboard, follow the steps in the [Designer UI](#) section of this chapter.

In-Class Activity: Different Catalogs for Source and View

You're currently seeing a list of all components alphabetically sorted.

1. Write down the names of the first 3 components you see:

Answers may vary as new components are built. # Chronic Opioid Patients, % Errors Unresolved, and (Your Initials) Bar Graph are the first three as of publication.

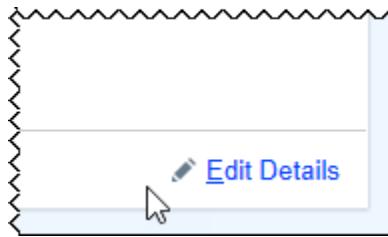
2. Add one of them
3. Accept your dashboard
4. Return to the Analytics Catalog to try add more components to your view.
5. Filter by component.
6. What are the first 3 components you see listed?

Answers may vary as new components are built. Access Counts - Total, Access Counts by Data Model, and Actionable Findings Tracking Turnaround Times are the first three as of publication.

Once you have added your first component to a new dashboard, you can continue adding more or rearranging them just as you did in the Designer UI when modifying a dashboard view. In the same way, you can click Accept when you are done adding components to your dashboard.

About Dashboard

Inside or outside of Designer UI mode, you can click the **Dashboard Options** menu and find **About Dashboard**. This opens a window containing some information about your dashboard, like its name and ID. But it also has a button in the bottom right that allows you to **Edit Details**.



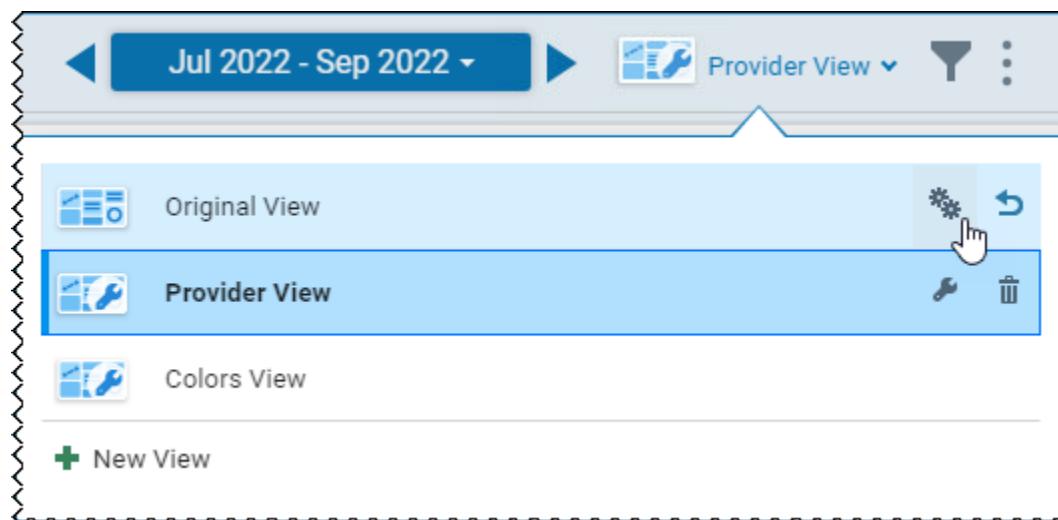
The **Edit Details** button in **About Dashboard**

This button opens an activity called the Metadata Editor which we will discuss at length in the [Analytics Catalog](#) chapter. For now, it's enough to know that you can add tags and descriptions to your dashboard from this activity. You can also use it to make your dashboard available to large groups of users by adding Report Groups to it. We will learn more about these in chapter 15.

- 39 From the <your initials> training demo dashboard, click **Dashboard Options**
- 40 Click **About Dashboard**
- 41 Click **Edit Details**
- 42 Add the COG170 tag and the *IT Staff* and *Clinical Report Groups*
- 43 **Accept** and close the Metadata Editor

Designer UI

Even after you've created a dashboard, you may want to make edits to it. To add, remove, or rearrange components on your source dashboard, you can re-enter the Designer UI mode by clicking the **View Manager**. If your dashboard has any views on it, you will see a wrench icon to edit the view, or cogwheels to edit the source.



The cogwheel icon enters Designer UI for the source dashboard. The wrench enters Designer UI for the view.

The Dashboard Editor

Most dashboard editing can be done with in the Designer UI, but there is an older activity called the **Dashboard Editor** which still has a few features that haven't yet been added to the Designer UI.



The **Dashboard Editor** is only available in Classic, not in Hyperspace. In order to use any features exclusive to this activity, you will need to log into the Classic client.

- 44 Switch to Classic
- 45 From the <your initials> training demo dashboard, open the **Dashboard Options** menu
- 46 Select **Edit Dashboard**

If you wish to edit a dashboard you're currently viewing, you can use the **Edit Dashboard** button under the **Dashboard Options** menu. You can also access the **Dashboard Editor** with **Chart Search** or by editing a dashboard from the **Analytics Catalog**.

*The pencil icon in the **Analytics Catalog** allows you to open the **Dashboard Editor**.*

The **Dashboard Editor** has up to six forms that control the dashboard's content and its metadata. You would typically only come to the **Dashboard Editor** when you need to modify something that can't be edited through the Designer UI.

- Basic Information
- Layout

- Content
- Resource Settings
- Parameters
- Access

Most of your dashboard build can be completed exclusively using the Designer UI. However, there are still a handful of settings you will need to set in the Dashboard Editor. Below, we will only document the fields that are exclusive to the Dashboard Editor.

Basic Information

The Basic Information form records the purpose, ownership, and general information of a dashboard.

Owning application

The application responsible for maintaining this dashboard.

Layout

The Layout form controls the number and position of regions that present the components in your dashboard. If you don't like the default 1-4 columns available when creating a new dashboard, here you can choose a different layout, specify the width of each region, whether its name is displayed, and its color.

Name

These names are used when you add components in the Content section of the Dashboard Editor.

The name will appear at the top of the region only if the "Group components" checkbox is selected and "Show Name" is set to Yes.

Group components

Group components by their region and allow the region to display a label above the components it contains. If this is not selected, users will never see the region names.

Orientation

Orientation determines how new components are stacked. If you are using a column view or the Three Pane View, orientation is vertical. If you are using a row view, orientation is horizontal.

Region Color

The background color will only take effect if the layout is set to group components.

Content

The Content form lists the components that are on your dashboard. You can use the Designer UI to add and rearrange components more intuitively, so there is little reason to use this form.



For easier management of your component list, press **F4** to insert a blank line in your table of components. To remove a line, select the line and press **SHIFT+F4**. This tip works in many other tables in Hyperspace.

To move a selected component higher or lower in the component list, use the up and down arrows to the right of the component.

Resource Settings

There is no reason to use this form. It is used to enable summary level parameters for metric-based components, but that can now be done through the **Designer UI** in the **Edit Parameters** menu. This is explained in detail in the [Dashboard Summary Level Parameters](#) section of this companion.

Parameters

There is no reason to use this form. It is used to enable or disable dashboard level parameters, but this can be done through the **Designer UI** in the **Edit Parameters** menu.

Access

The Access form controls the set of users that can access this dashboard and lists the dashboard's type(s). This form also records whether the dashboard is ready for use. This check box must be selected before any end user can use it.

Ready for use	<i>This must be selected for any user, even the dashboard builder, to open and view the dashboard. In addition, all components on a dashboard must be marked as Ready for use before the dashboard can be marked as Ready for use.</i>
Enabled for user selection	<i>Select this when you want the dashboard to be available in the Analytics Catalog.</i>



Nobody can see your dashboard from the Analytics Catalog unless both the **Ready for use** and **Enabled for user selection** checkboxes are selected.



To view a dashboard as you are making changes to it, you will need to:

1. Save your settings in the **Dashboard Editor**
 - The easiest way to save your settings is to navigate to another form in the **Dashboard Editor**.
 - Settings are also saved when you click Accept to close the **Dashboard Editor**, but doing so means it will take longer to return to this record if you wish to make further edits.
2. Hard refresh your dashboard.
 - While viewing your dashboard, use the keyboard shortcut of **ALT + =** (Mac users: **Option + Command + =**).

When you create a dashboard using the Designer UI, you will always have access to that dashboard. The same cannot be said of the Dashboard Editor. It is possible to build a dashboard here that is not available in your Analytics Catalog.

Component Build

There are seven types of component records available. They are:

- Graph
- Link
- Message Board
- Native HTML
- Report Listing
- Table
- Tranche (This type is not currently used)

Graphs and tables are the most common ways to display data, but we will see many of the others throughout this class. Components are managed in the **Component Editor** activity in Classic.

The Component Editor

 **47** In Classic, from the **COG170 Starter Dashboard**, select **Edit Component** from the Component options menu of the **Classwide message board** component.

Every component can have different forms depending on its type:

- Basic Information
- Data Source
- Output Format
- Distribution

Like the Dashboard Editor, each form controls your component's content and its metadata. The Basic Information and Distribution forms are the same for all component types, while the Data Source and Output Format fields may vary. In this lesson, we'll focus on the content that is the same across all components.

Basic Information

The fields in the Basic Information form are the same for all components, although the options available for the Data source field depend on the component type that you select. The component type is controlled by the Display format field. Some of the less intuitive fields are described in more detail below.

Display format *The component type.*

Data source	<i>Choose what data to use as the content for this component. Data source options vary by component type.</i>
Owning application	<i>The application team responsible for maintenance of this component. This field is purely informational and has no impact on user access.</i>
Launch activity	<i>Enter the activity descriptor for the Hyperspace activity that launches if a user clicks the component header. Finding an activity descriptor is described in Reference: Activity Links.</i>
Source record	<i>If the component was copied from another component, the read-only original component displays here.</i>

Data Source

The Data Source section controls what is used to populate your component record.

Refresh interval (minutes)	<i>Enter how often, in minutes, you want the component to refresh its data. If there is no value set in this field, the component will never refresh automatically.</i>
Allow users to refresh	<i>Select this check box if you want to include a button that users can click to refresh the component's data.</i>
Show last refresh time	<i>Select this check box if you want to display the last time the component's data was refreshed.</i>

Output Format

The Output Format form will vary depending on which component type you are editing. There are no general settings that apply to all component types.

Distribution

The **Distribution** form is where you specify if this component is ready for use and control which users can add the component to their dashboards.

Report groups	<i>End users with a report group listed here can add this component to their dashboards.</i>
User types	<i>End users with a user type listed here can add this component to their dashboards.</i>
Enabled	<i>Set to Yes if the component is ready for use.</i>

! If your component is not marked **Enabled**, then you won't be able to find it in the **Analytics Catalog** to add it to a view or source dashboard.

Exercise 2: Build a Dashboard and a Message Board Component

In this exercise, you will build your own custom component and add it to your starter dashboard.

Exploratory Method – Try this if you have experience building dashboards. Otherwise, skip to the Guided Method below.

- Create a new dashboard named "<your initials> Starter Dashboard"
- Add the following components to your dashboard:
 - Classwide Message Board
 - MyChart Graph Component
 - Cogito Security Metrics
- Arrange them however you like.
- Create a new component named "<your initials> Message Board Component"
- Fill out the appropriate **Display format** and **Data Source** for a message board component.
- Give your component a display title of your choice.
 - Give your component the "COG170" tag.
 - Add your Cogito Tools Administrator as an author. Also add Violet ("6003##")as an author. If you are taking this class in person, also add your neighbor's Cogito Tools Administrator as an author.
 - Show the last 5 posts
 - Add the "IT Staff" Report Group to the list of **Report Groups**.
 - **Enable** your component.

- Add your message board component to your <your initials> Starter Dashboard.
- Add the **Recent Report Results** component to your Starter Dashboard.
- If you are taking this class in person, also add your neighbor's message board component to your Starter Dashboard.

Guided Method

1. Log in to Hyperspace as Violet, your Clinical Administrator.
2. Click the **Dashboard Options** menu.
3. Click **Create Dashboard**.
4. Name your dashboard "<your initials> Starter Dashboard".
5. Search the **Analytics Catalog** for the "Classwide Message Board" component and add it to your dashboard.
6. Click the **Add Component** button in the bottom left of the **Designer UI**.
7. Find and add the "MyChart Graph Component."
8. Repeat these steps to add the "Cogito Security Metrics" component.
9. Move the MyChart Graph Component to the right side of your dashboard.
10. Click **Accept**.
11. Log in to Classic as Lorena, your Cogito Tools Adminsitrator
12. Now build your own new message board component. Use the **Epic Menu** to open the **Component Editor**.
13. Click **Create**
14. Give your new component the name "<Your Initials> Message Board Component".
15. Leave the rest of the fields as they are and click **Accept**.
16. Choose a **Display format** of "Message Board".
17. Choose a **Data source** of "User Posts".
18. Give your component help text. This will be visible to end users in the **Analytics Catalog**.
19. In the **Tags** field, add "COG170" to your component's tags to make it easy to find in the **Analytics Catalog**.
20. Navigate to the **Data Source** form.
21. In the **Authors** field, add the following authors:
 - Yourself (the 6001## user ID logged in to Classic)
 - Violet (the 6003## user ID logged in to Hyperspace)
 - If you have a neighbor, ask them for their Violet's user ID as well and add them as an author
22. Navigate to the **Distribution** form.

23. Add "IT Staff" to the **Report groups**. We will learn more about this setting in the [Security](#) chapter.
24. Make sure your component is **Enabled**.
25. Leave the **Distribution** form to save your changes to this record.
26. Switch to Hyperspace.
27. As Violet, make sure you're on the <your initials> Starter Dashboard and click the **View Manager**.
28. To enter the Designer UI, click the cogwheel icon.
29. Click **Add Component**.
30. Search for <your initials> to find the message board component you just created.
31. Add your component to the dashboard.
32. Feeling friendly? Also add your neighbor's message board component to your Starter Dashboard.

This is the end of the exercise.

If You Have Time: Creating a link post in a Message Board component

1. In the upper right corner of your message board component, click **Create Post**.
 - The icon looks like a speech bubble with a plus sign overlapping it.
2. Title your post "<your initials> Related dashboard"
3. Type out the message "Patient Access dashboard"
4. Select the message text
5. Press **CTRL+K** to turn this text into a hyperlink
 - EpicAct:WM_DASHBOARD_LAUNCHER,RunParams:31010000004
6. Enter the following as your **Link Address**. It may be easiest to copy and paste the text if you have a digital copy of the companion open.
 - EpicAct:WM_DASHBOARD_LAUNCHER,RunParams:31010000004
7. Publish your post.
8. Click the **Patient Access dashboard** link in your message board.
9. You should be taken to the **Admission Supervisor Patient Access Dashboard**
 - Message board posts can be used to maintain links to other common dashboards, Hyperspace activities, reports, or anything your users need. Department leadership can be added as authors to the component so they can maintain their own links or resources without needing the Cogito team to edit the dashboard itself. For a more hands-on method of maintaining links to other resources, watch the [Create a Basic Radar Component \[RDR702\]](#) e-learning.

This is the end of the exercise.

Reference: Activity Links

When a user needs to jump to a new activity in Hyperspace, they will usually use Chart Search. However, some components allow users to jump to other activities in Hyperspace with a click of the mouse instead of using Chart Search. This is usually done in one of two ways:

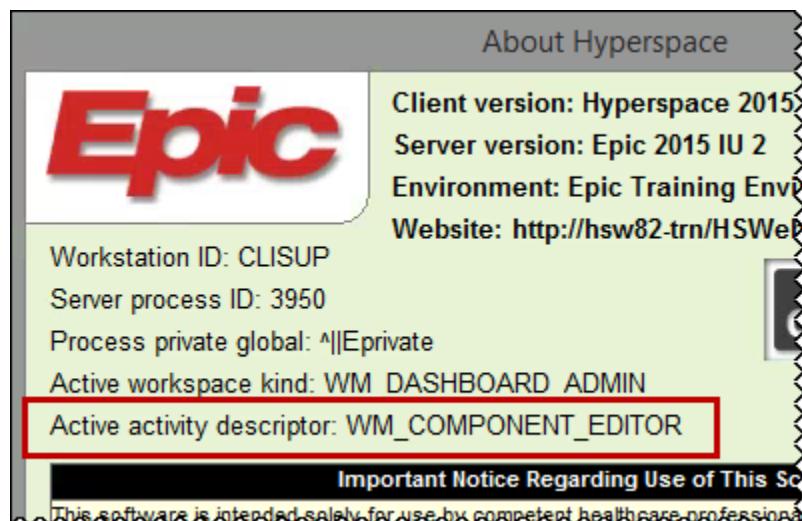
- The header of a component is a link to a Hyperspace activity
- Multiple Hyperspace activities are listed in a Link component

In order to build a link to a Hyperspace activity, you need to identify the activity descriptor, the unique identifier, of that activity. There are two workflows you can use to find the activity descriptor for a given activity.

Activity Descriptor of an Active Hyperspace Activity

To obtain the activity descriptor for an activity you are currently accessing, use the About Hyperspace information window.

- 48 Access the About Hyperspace window by navigating to Epic button > Help > About Hyperspace.



About Hyperspace information window

The Active activity descriptor field displays for your currently active Hyperspace activity.

Activity Descriptor in the Menu Summary

End users often request links to activities that you lack the security to access. The following workflow allows you to obtain the activity descriptor in these cases.

- 49 Search in the **Epic Menu** to launch the **Menu Summary** activity.

When this activity launches, it defaults to showing you a summary of your own available menu activities.

You can change the user or their login context to see activities available to other users in other places. Click the **Epic Menu and Toolbars** link to show a list of all the menu activities that user has access to. By expanding the menu tree, you can logically follow the menu hierarchy just as that user would see it.



Activity descriptor from the Menu Summary activity

Information for the activity displays on the right-hand side of the window. The Activity Descriptor is located in the Activity Information section. For example, the Activity Descriptor for User Security is **E_EMP_EMPGUI**.

Designer UI vs Dashboard Editor

The Designer UI is the preferred way to create and modify dashboards, but there are still some features that have not yet been migrated to it. For these tasks, you will still need to use the **Dashboard Editor**.



Some of the tasks listed have not been covered in this chapter. They will be covered later in the course, but are listed here for ease of reference while studying.

Task	Designer UI	Dashboard Editor
Create a new, empty dashboard	Yes	Yes
Add a component to a dashboard	Yes, and you can find it by tag, keyword, name, or ID	Yes, but you have to know the name or ID
Rename your dashboard	Yes	Yes - in the Basic Information form
Drag and drop component to rearrange them	Yes	No
Set an Owning Application	No	Yes - in the Basic Information form
Change the layout and name your regions	No	Yes - in the Layout form
Customize Resource Settings	Yes, Using the Edit Parameters button	Yes - in the Resource Settings form
Customize Dashboard Parameters	Yes, Using the Edit Parameters button	Yes - in the Parameters form
Toggle dashboard as not "ready for use"	No	Yes - in Access form
Add tags and description to a dashboard	Yes - in Dashboard Options > About Dashboard > Edit Details	Yes - in Basic Information

Reviewing the Chapter

Review Questions

1. What is the fastest way to create a new dashboard?

2. Which of the following do you need to create a link from a dashboard to a given Hyperspace activity?
 - A. The activity descriptor for the activity
 - B. The menu descriptor of the activity
 - C. The user-facing name of the activity
 - D. The parent menu of the activity record

3. You have built a component record. Now, in the Designer UI, you click **Add Component** but can't find your component in the catalog. Why not?
 - A. You are trying to add the component to a view instead of to the source. You can only add components to the source from the Designer UI.
 - B. Your component isn't enabled.
 - C. You haven't refreshed the dashboard! Click ALT + = to refresh.
 - D. You must not have access to the component. You can only add components to a dashboard if you have access to them.

4. True or False. Every source dashboard has exactly one view.

Review Key

1. What is the fastest way to create a new dashboard?

Dashboard Options > Create Dashboard

2. Which of the following do you need to create a link from a dashboard to a given Hyperspace activity?

- A. The activity descriptor for the activity
- B. The menu descriptor of the activity
- C. The user-facing name of the activity
- D. The parent menu of the activity record

a

3. You have built a component record. Now, in the Designer UI, you click **Add Component** but can't find your component in the catalog. Why not?

- A. You are trying to add the component to a view instead of to the source. You can only add components to the source from the Designer UI.
- B. Your component isn't enabled.
- C. You haven't refreshed the dashboard! Click ALT + = to refresh.
- D. You must not have access to the component. You can only add components to a dashboard if you have access to them.

B - your component isn't enabled.

4. True or False. Every source dashboard has exactly one view.

False - Each user can create one or more views of a single source dashboard.

Study Checklist

Make sure you can define the following key terms:

- Dashboard
- Component
- Dashboard view
- Source dashboard
- Designer UI
- Dashboard Editor
- Component Editor
- View Manager

Make sure you can perform the following tasks:

- Create a dashboard
- Add components to a dashboard
- Create a message board component
- Hard refresh a dashboard to update it with new build
- Edit a source dashboard in the Designer UI
- Edit a view in the Designer UI
- Edit dashboard parameters and date range

Make sure you fully understand and can explain the following concepts:

- What will happen if a component is not enabled
- What will happen if a dashboard is not marked as ready for use
- Types of components available in Radar
- Data Source of a component
- Reconciliation of dashboard views and source dashboards

SlicerDicer Populations

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Introduction

SlicerDicer is Epic's primary self-service reporting tool. Using SlicerDicer, your report consumers are empowered to investigate data, confirm and disprove their hunches, and generate sophisticated visualizations without waiting on busy business intelligence developers to write or modify reports for them. As released by Epic, SlicerDicer uses a number of data models to report on patient data, surgical cases, professional and hospital accounts, medication orders, and more. However, the true power of this tool is in its flexibility. Your organization can build its own data models to expand this functionality to any data you store in your Caboodle data warehouse, whether from Epic or non-Epic sources.

By the End of This Lesson, You Will Be Able To...

- Identify the advantages and limitations of SlicerDicer
- Create and define your own SlicerDicer populations
- Change the slices and measures to group and summarize your data
- Drill down to record detail in the Detail Table

Scenario Questions/Notes

Page numbers

Lorena shows a group of OR staff how to use SlicerDicer

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.



Every other Tuesday you lead a workshop on reporting tools for a different group of users. This week you're working with SlicerDicer, and targeting your surgeons and OR staff. SlicerDicer is intended to be as user-friendly as possible, and has its own tutorial for users to learn the basics of the tool. You always start your class by giving the trainees some time to walk through the tutorial and ask questions as they go.

- 1 Log in to Hyperspace as Violet, your Clinical Administrator
- 2 Use the **Epic Menu** to open **SlicerDicer**.

After the tutorial, your class takes some time to discuss the features of SlicerDicer, and you ask the users for some ideas on how they could use this tool in their roles. One user, an OR manager, says that they submitted a ticket some time ago for a report on "late starts" in the OR. You decide to see how long it would take to get this data using SlicerDicer.

The user says that she noticed some late starts in March of 2018, so you start your investigation with that data.

- 3 Open a new population in the **Surgeries and Invasive Procedures** data model.
- 4 Using the date card, change the date range to "3/1/2018 - 3/31/2018".
- 5 Add the **Percentage with On Time?** measure.
- 6 Slice your population by **Primary Surgeon** and look at your bottom 10 surgeons.

The OR manager is delighted to quickly see which surgeons have the lowest percentage of on time starts. However, another user in the class brings up a good point.



Just because a surgeon has a low percentage of on time starts, that doesn't mean that they are having a big impact on your OR as a whole. Don't we need to see how busy those surgeons are? And even if there are a large total number of cases that are not on time starts, this doesn't tell me how to fix it.

After some discussion, the users agree that we need more information. They ask to see:

- The surgeons on this list with the largest total numbers of cases
- The reasons for delay

You show them how SlicerDicer can dig deeper into the population.

- 7 Remove the **Percentage of On Time?** measure to change your bars back to **Number of Surgeries**.

Once you identify which of these surgeons has the most cases, the users are curious to see if SlicerDicer can help us find a cause.

- 8 Right click on the surgeon's bar and slice by **On Time?**

- 9 Right click the bar of **Not On Time** cases and slice by **Primary Delay Reason**. Grab the top 10 reasons.

- 10 Right click on the bar for the cases which were not on time due to a reason of **Surgeon Late**. Slice these cases by **All Tasks Complete?**

- 11 Switch to **Detail Table** view and click on the summary for cases with not all tasks complete.

- 12 Click the header to add a column for **Delay Minutes** and sort by it.

We have narrowed down this broad data set to a specific list of late cases where not all tasks were completed, and can even show one of our busiest surgeons how completing their tasks, like writing notes or completing required documentation before the day of surgery will help with bottlenecks in the OR. Your class is over and the users head out chatting about the populations they want to build when they get back to their offices.

The OR manager stops on the way out to ask if they could have access to the population you just built together in class so they don't need to re-build it later.

- 13 Click **Share**

- 14 Using **Secure Chat**, share this population with Hunter Timely.

- 15 Write a short message and press **Enter** to send it to Hunter.
- 16 Click the SlicerDicer link in the sent message to return to your session.
- 17 Save your session as "<your initials> On-Time Starts" in case someone asks you about it later.

Your newly empowered users can now use SlicerDicer to take ownership of their own data, and reduce their reliance on formal report requests.

SlicerDicer Tutorial

There is a tutorial within the application that is the primary resource for new users learning how to navigate SlicerDicer. The tutorial can be customized by each organization if needed.

The tutorial can take two forms. A user can always view a generic tutorial explaining the main features of SlicerDicer. In some data models, Epic includes a more detailed walkthrough to actually help a user build their first session click by click.

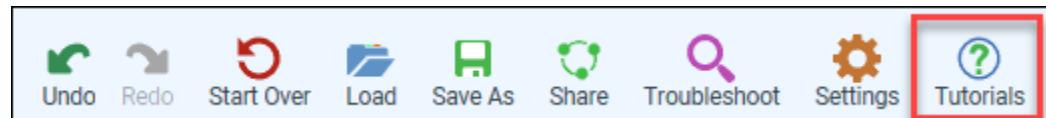
Exercise 1: SlicerDicer Tutorial

1. As Violet, in Hyperspace, use the **Epic Menu** to open **SlicerDicer**.
2. Click the **Patients** Data Model.



First-time users of SlicerDicer may be required to view the tutorial before using the tool.

3. If you are prompted to choose a type of tutorial, choose the "Story" tutorial.
 - A. If you are not given the tutorial prompt, this just means your user has already viewed it at least once before. To view it again, click the Tutorials icon in the upper right.
 - B. Then click the Story Tutorials menu option and start the "Introduction to Patients" tutorial.



Clicking the Tutorials icon opens the tutorial

4. Work through the tutorial. Write down any notes or questions you may have.
 - A. For each of the steps, if you can't figure out what to click next, click Help me to be given a callout telling you where to click next.
 - B. When picking filters, don't be surprised if your population goes to 0 (the training environment has some sparse data).

This is the end of the exercise.

What is SlicerDicer?

It is easy to walk through a scenario and imagine a single, specific case for SlicerDicer, but it can be harder to broadly generalize the function of such a unique tool. To successfully encourage adoption of SlicerDicer, it is crucial to understand the scope of its abilities and its intended use.

SlicerDicer is a self-service reporting tool

The greatest benefit of SlicerDicer is realized by putting it in the hands of as many users as possible. SlicerDicer requires no specialized knowledge to pick up and can meet the needs of many report requests before they end up in a long queue waiting for a report writer to build. Each of SlicerDicer's data models is designed for certain end users.



SlicerDicer respects user security in several ways:

1. Users will not have access to every data model in the system. Each data model is available to only a subset of users.
2. When a user builds and slices populations, all of the data retrieved is implicitly filtered by Service Area security.
3. Most users will not be able to view data about individual members of a population.

For more information, see the [Security](#) chapter.

SlicerDicer is for large data sets

SlicerDicer retrieves its data from the Caboodle database. This means it can filter and display large data sets without affecting your production database, Chronicles. With the ability to modify your date range and aggregate over weeks, months, or even years, SlicerDicer can be the primary resource for discerning long-term trends across your organization.



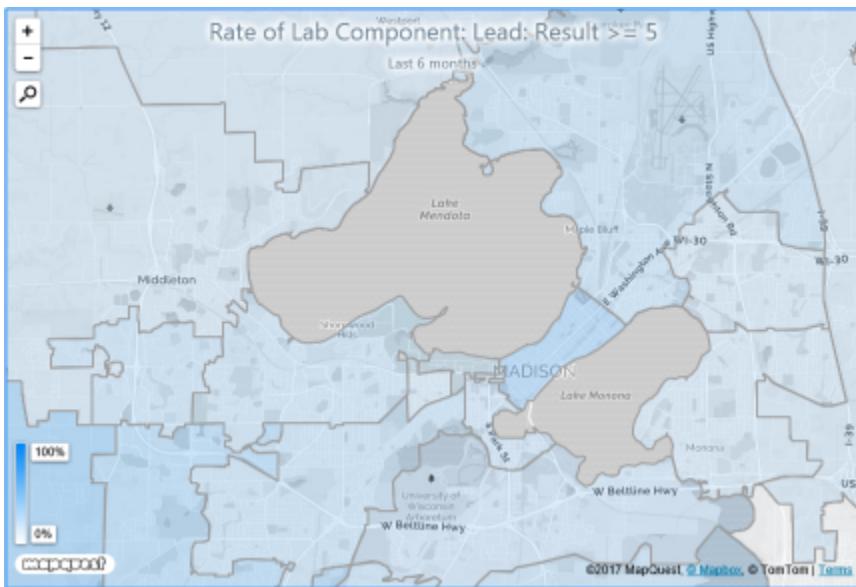
For more information about the different reporting databases, consult the [Data Lineage](#) chapter.

SlicerDicer is for small data sets

SlicerDicer can also be a powerful tool for following up on specific, small sets of records. After a user narrows down their population to the records they need, they can view the data at the line level or export the data to Reporting Workbench where the population can be acted on directly.

SlicerDicer is for visualizing data

SlicerDicer presents data in a beautiful yet meaningful way. In addition to bar and line graphs, SlicerDicer's geographic visualizations plot results on a regional map. For population health and risk factor analysis, this can be more intuitive than a list of ZIP Codes or addresses.



Before you enable geographic visualizations in SlicerDicer, you will need to do some additional setup. This is covered in the [Geodata Setup and Support Guide](#).

SlicerDicer is customizable

SlicerDicer can report off of any data in Caboodle, and your organization can develop custom content for Caboodle. If your developers extract custom data to Caboodle, then SlicerDicer can access that data. That means SlicerDicer can use custom Caboodle tables built off of Epic data as well as non-Epic data from payroll, questionnaires, external claims or any other data source.



To learn custom SlicerDicer Filter and Data Model build, attend [CDW110v Caboodle Data Model](#) and [COG2020v SlicerDicer Custom Build](#). This is an additional two days of virtual training.

The [CDW250 Caboodle Development](#) and [CDW260 Caboodle-Clarity Development](#) courses teach how to bring additional Epic and non-Epic data into Caboodle. This track comprises five days of training.

See the [SlicerDicer Setup and Support Guide](#) and the [Custom SlicerDicer Filter and Data Model Setup Guide](#) for more documentation on incorporating custom build.

What isn't SlicerDicer?

SlicerDicer cannot meet every analytics need; for the best outcomes, be aware of its limitations.

SlicerDicer does not look at data entered today

The process that moves data into Caboodle is not instantaneous. Therefore, SlicerDicer does not know about any data entered into the system today.



Write in Workbook

A scheduler wants a population that shows how many appointments there are today with a status of 'Scheduled.' They want to reference this throughout the day to keep track of how many appointments are left to check in. Could this be done in SlicerDicer? Why?

No, SlicerDicer does not contain today's data, so a list of scheduled appointments wouldn't change throughout the day.



Write in Workbook

A user wants a list of surgical cases scheduled in the next week grouped by procedure. They will reference this list at the start of each week to audit room and staff usage. Could SlicerDicer meet this need? Why?

Yes. Even though the list has to include future cases, these cases were scheduled in advance, and all such surgeries scheduled at least a day earlier will be displayed.

SlicerDicer sessions are not for KPI reporting

KPIs (Key Performance Indicators) need to be standardized for all consumers. Since SlicerDicer is designed to let every user adjust and manipulate their visualization of the underlying data, it is not ideal for this type of report. Instead, we use Dashboard Metrics as our primary tool for distributing KPIs to consumers. These are covered in [Dashboard Metrics](#).

SlicerDicer Vocabulary

- 18 As Violet, in Hyperspace open the Analytics Catalog.
- 19 Filter to SlicerDicer
- 20 Open the Patients data model

Data Model

One SlicerDicer Data Model consists of a set of data that has been curated with a pre-built set of available filters. Epic releases many data models, but an organization can create their own unique data models as well.

Filters

SlicerDicer Filters, records in the FDS master file, have many uses. You may sometimes hear SlicerDicer Filters referred to as simply "filters", but that can be misleading given the use of the word in everyday English. SlicerDicer Filters can indeed be used to refine a set of data, but they have other uses in SlicerDicer as well. In this section, we will see all of those uses. Another way to think about a SlicerDicer Filter is as a data point. One SlicerDicer Filter contains one data point that can be used for many purposes.

Populations

SlicerDicer is a data-first reporting tool. This means that when you first open a data model, you start with the entire population and then add appropriate criteria to hone in on the most important data. Your population starts with a *base* and is refined using *criteria*.

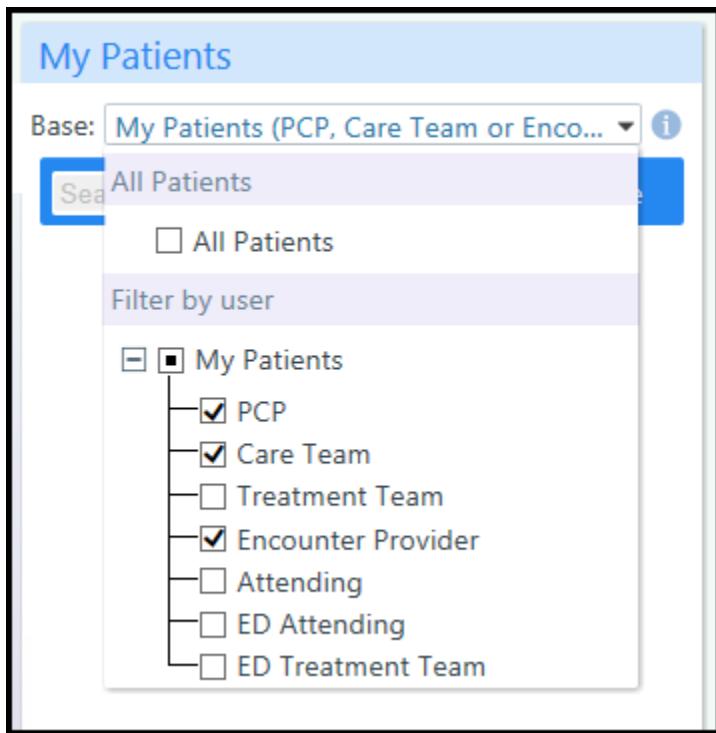
Base

Depending on which data model you are working with, SlicerDicer will use a different base to define your population. For example:

Data Model	Base
Admissions	All Admissions
IP Pharmacy Medication Orders	All Inpatient Medication Orders
Imaging Studies	All Imaging Studies

In addition to this base, some data models may include a specific "My Records" base. The most obvious

use of this feature is in the Patients data model. Users can narrow down the population to only include patients with specific relationships to them:



My Patients base selection



Not all data models have a "My Records" base. To see which bases are available for a data model, open a new session with that data model and check the "base" entry in the population.

Criteria

Criteria are often the first pieces of a population that a user modifies. Criteria refine a population to only the desired records. A user will usually add new criteria by clicking **Browse** in their Population to select from the available criteria. The list of available criteria for a data model is defined by SlicerDicer Filters.

- Favorites: each user can add criteria to their list of favorites by clicking the star that appears when they hover over an option.
- All: a list of every available criterion in this data model.

To access more powerful and complex ways to use a criterion, click on its customization button. The button appears as a cogwheel on the criterion (⚙️). Options include:

- Add sequential criteria, which returns records where one criterion precedes another

- Add overlapping criteria, which returns records where all criteria are met simultaneously
- Specify date range, which allows each criterion to use its own date range
- Specify age at time of event, which allows the addition of an associated age in years tied to a single event criterion



Using sequential criteria, you could find all patients with a knee replacement followed by a physical therapy encounter, or find all office visits followed by an ED encounter.

Using overlapping criteria, you could find all patients who were diagnosed with influenza on the same day that Walt Whitecoat was their provider, instead of finding all patients who had influenza in the past year and also had Walt Whitecoat as their provider in the past year.

Using criteria-specific date ranges, you could find all patients with a cancer diagnosis in the last year who have a visit scheduled in the next month.

Inclusive vs Exclusive criteria

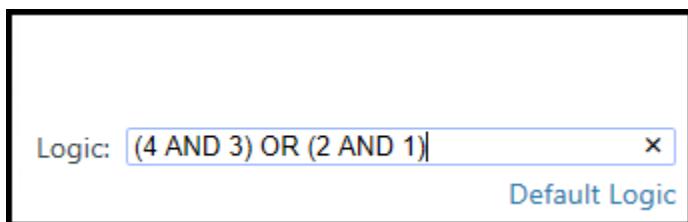
Criteria default to being *inclusive*. This means they only include results for whom the criterion is true. If you wish to instead create a population for whom the criterion is false, you can change from inclusive to *exclusive* either when adding the criterion initially, or by clicking the customization button (⚙️).

The screenshot shows the 'Criteria' tab selected in a purple header. Below it is a toolbar with 'Include' and 'Exclude' buttons. A search bar labeled 'Search for criteria' is present. Two blue selection boxes are shown: 'Chief Complaint' and 'Diagnosis', each with a yellow star icon at the bottom right corner.

Select inclusive or exclusive when adding criteria

Logical operators

Clicking the logical operators between criteria can flip them between AND and OR to change how they are evaluated. In addition, a user can use the Advanced Logic button to write their own logical expression combining the different criteria.



Logic: (4 AND 3) OR (2 AND 1) x

Default Logic

Advanced Logic

Slices

Slicing a population is one of the easiest ways to look for patterns within a population. Healthcare data is full of long lists of categories and records such as diagnoses, statuses, classes, modes, and other characteristics. Instead of using these as criteria and removing records from your population entirely, a slice divides up the population into the appropriate buckets so you can view and compare populations quickly.

Users select slices from the list of SlicerDicer Filters. Much like the list of available criteria, the list of available slices for a data model is defined by SlicerDicer Filters. In fact, these are the same. For a given data model, the list of criteria and the list of data points on which users can slice are identical. After selecting a SlicerDicer Filter to slice on, the user can:

- Specify what values for the SlicerDicer Filter should each get their own slice
- Grab the top 10
- Grab the bottom 10
- Grab the top or bottom N records (where N is user specified)

Since slicing is usually done to find outliers within the data set, grabbing the top or bottom records is a great way to see meaningful data without cluttering the screen with an excessive number of slices. Slicing meets report requests that include some variation of:

- Group this data by <data point> or
- Show me the records with the most/fewest <data point>



Slicing a population meets needs such as:

- I want to see these pediatric patients grouped by their smoking status
- Which 5 payers are responsible for the most outstanding debt?



By default, slicing will always include a slice for "none of the above" comparing your sliced portion of the population to the rest of the population. To disable this, click **Settings** and clear the box for **Add "none of the above" or "no value" to slices by default**.

Measures

All populations begin as a simple count of results, but SlicerDicer can do much more. **Measures** determine what function aggregates the data. This can be thought of as the number at the top of the bar in a vertical bar graph. Once again, the SlicerDicer Filters used when building criteria or slices are the same as those available when choosing a measure. Any time a user wants to see their data expressed as:

- a function of a data point

they can accomplish this by changing the measure of the population. The functions available depend on the measure.



For category or record-based SlicerDicer Filters, the most common measures will be counts or percentages.

- How many different procedures do each of these doctors perform in a month?
- What percentage of my heavy smokers suffer from COPD?



For numeric SlicerDicer Filters like lab values, age, or dollar amounts, common measures might look like:

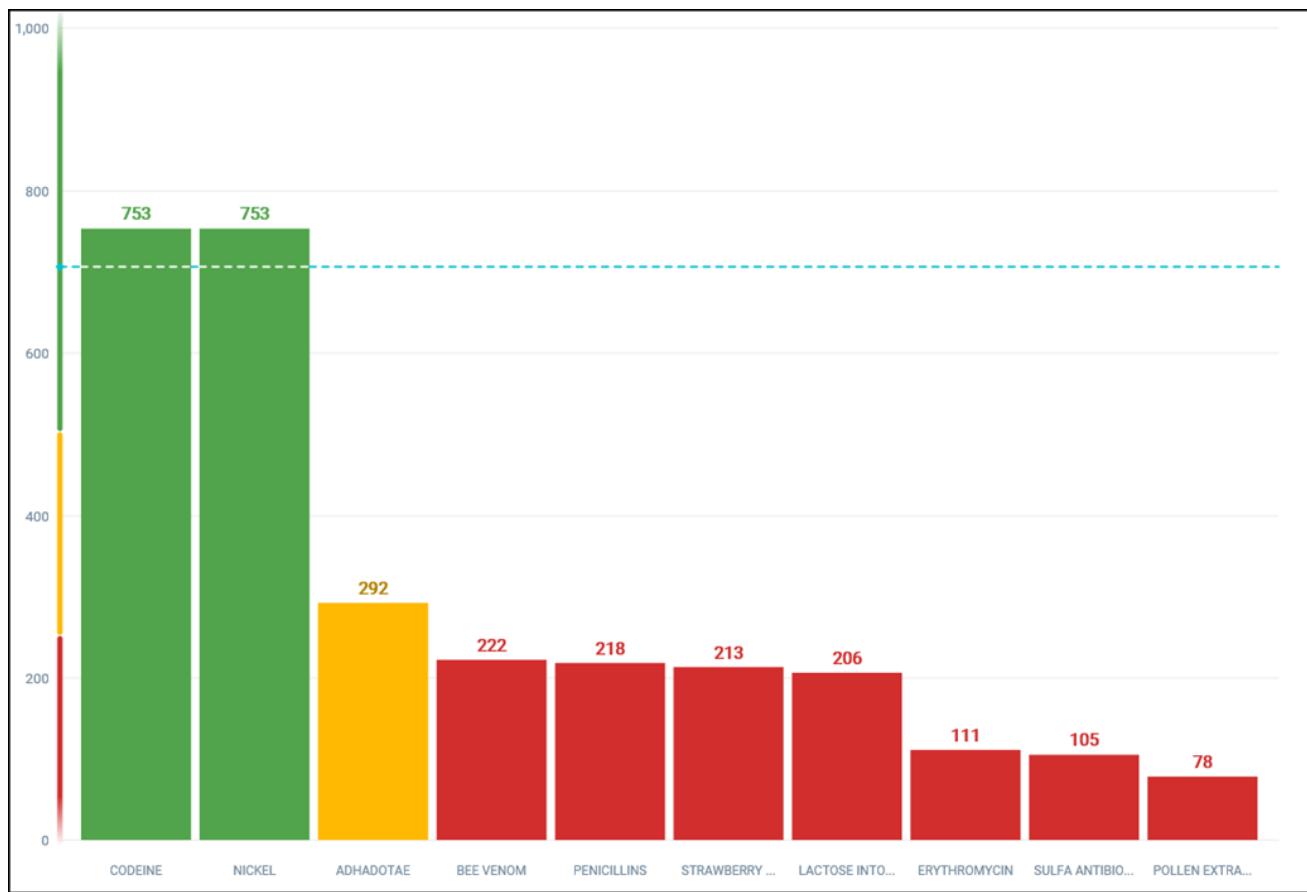
- What is the average age of this patient population?
- What are the maximum and minimum results for these lab test components?
- What is the sum of outstanding balances on these hospital accounts?

Goals and Thresholds

While building/changing your measures, you can add both **Thresholds** and **Goals** to your session.

Use **Thresholds** to assign ranges of values to a certain color. Bars whose value for that measure fall within the range will be the chosen color. One session can contain up to 15 thresholds ranges.

Use **Goals** to assign a single value to your measure. Your visualization will display a line at that value. One session can contain up to 15 goal values.



A session with 3 threshold ranges and one goal.



- Goals will appear as a line for bar graph and line graph visualizations. In a pie or ring chart, a goal appears as its own separate wedge.
- Thresholds only appear in bar and line graph visualizations.
- Neither appear in stacked bar graph visualizations.

Custom Measures

By default, the first new measure you add to a session will be used to determine the height of the bars on your bar graph (or points on your line, or size of blocks in a tree map).

If you create multiple measures, you can choose which of them to use in your **Visual Options**, or you can combine them into a new custom measure.



Mean Arterial Pressure (MAP) is defined as:

$$(\text{Systolic BP} + (2 * \text{Diastolic BP})) / 3$$

This measure is often considered a surrogate indicator of blood flow and accounts for the fact that two thirds of the cardiac cycle are spent in diastole.

- 21 Create a new session in the **Patients** data model
- 22 Slice by **Age in Years**
- 23 Add a new measure for Average BP (Systolic)
- 24 Add a new measure for Average BP (Diastolic)
- 25 Add a new measure and click **Create New Formula**.
- 26 Use the definition of Mean Arterial Pressure to create a formula called Mean Arterial Pressure with units of mmHg. Round to the first decimal place.

Because this custom measure is based off of aggregate functions like sum, count, and average, it can not be shown at the detail level. If you view this population in the Detail view, you will not see Mean Arterial Pressure for each patient, only for each slice.

Date Range

SlicerDicer always considers data within a date range specified in the population header . Users can change the start and end dates of this range in the **Dates** card. They can also slice the date range into sections like day, month, and year to trend their data over time.

The date range does not affect certain SlicerDicer Filters. These only reflect on the most recent value stored in an item and are labeled as **Last Stored**. Users will see the following message when they use these so they understand how the date range won't change their results.

The screenshot shows the SlicerDicer interface with a card titled "State". The card has a yellow header bar with the title "State". Below the header, the text "Patients whose current permanent address is in the specified state or province." is displayed. To the left of the main text, there is a blue section labeled "State" with an information icon ("i"). A callout box with a blue border and white background contains the text "Last Stored - This filter only includes the last stored value or values. It does not track historical changes." Another callout box below it contains the text "No Lineage Information".

Last Stored criterion in SlicerDicer



SlicerDicer Filters with the **Last Stored** modifier will not be affected by the date range in SlicerDicer.

Some Data Models will also allow users to choose what date the date range applies to. For example, in the Admissions data model, the date range could mean:

1. Find all admissions where the Admission Date is within the range
2. Find all admissions where the Discharge Date is within the range
3. Or Find all admissions where the Encounter Date is within the range

This flexibility lets you match the date range to the appropriate definition for any reporting need.

Visual Options

SlicerDicer can easily switch from vertical and horizontal bar graphs to stacked bar graph, tree map, line graph, and even geographical map summaries of the data. The [Summaries](#) section has more information on how these stack up to other summaries. Use the **Visual Options** to determine the size and color of your populations. Consider the options for a vertical bar graph:

- Bar Height: choose a measure that will define the size of each population. This is usually the measure you're using to compare, rate, or rank your population.
- Bar Color: choose a measure and a color range to have the color of each population represent the output of that measure.
- Y-Axis Range: By default, the axis automatically resizes, but users can set a specific range to standardize the display.



Using bar color as a measure is powerful but can confuse people. It is most effective when used simply on a red-green or dark-light scale to indicate values that are either bad or good. Complex or nonstandard color schemes can obfuscate the data.

Detail Table

SlicerDicer can render the results at a detailed level in the Detail Table. Users with the appropriate security can drill down to the record-level data. Users can add new columns to the table, sort and group results, and even jump right into a Hyperspace activity. For users who need the details of the data set outside of Hyperspace, SlicerDicer can also export it to Excel.



The Detail Table is the only place users get to see identified health information in SlicerDicer. As such, there are security points that can limit a user's access to this feature. For more information, see the [Security](#) lesson.

Columns in Detail Table

Users can sort columns by clicking the column headers. They can also add new columns by clicking the **Add** icon in the column headers. The columns available to add come from the same list of SlicerDicer Filters used when adding a criterion, slice, or measure.

MRN	Patient Name		Age in Years ▲	Legal Sex
9/5/2017 - 3/5/2018				
ABDOMINAL PAIN				

Adding a column to the Detail Table

Exercise 2: Build a Session

In this exercise, you will build a SlicerDicer session to explore transactions.



You work in a billing office and are investigating some financial data. You need to isolate transactions tied to commercial insurance coverages and compare them across payers. Some of the SlicerDicer Filters you will be using include:

Financial Class: The type of coverage a patient has. Common examples include Medicare, Medicaid, managed care, or commercial. You are only interested in private, commercial insurers.

Guarantor Type: A way of categorizing who is responsible for paying for care. Research guarantor accounts are created for patients involved in research studies. You don't want to include those accounts.

System Transaction Type: Charges represent the money you charge to patients who receive treatment. Payments represent money sent to your organization. Adjustments are used for any other changes to your finances due to write offs, reversals, or other events not handled by charges or payments.

1. As Violet, in Hyperspace, open the **Analytics Catalog**.
2. Filter to **SlicerDicer**.

3. Open the **Transactions (HB & PB)** data model.
 - A. There are three data models containing the word 'transactions,' make sure you are opening the correct one.
 4. Click into the **Dates** card.
 5. Change your **Start Date** to 1/1/2019.
 6. Add the following criteria:
 - A. **Primary Financial Class** = "Commercial"
 - B. **Guarantor Type** = "Research"
 7. To make **Guarantor Type** an exclusive criterion, hover over it and click the customization button ().
 8. Click **Exclude**
- Your population now includes only the transactions that interest you, but it is still lumping together all charges, payments, and adjustments into one bucket, and just counting the number instead of summing the amount.
9. Slice by **System Transaction Type** and grab the top 5.
 - There are only a few transaction types, so you should only see a few bars.
 - If you see a slice for "None of the above" you can remove it. You can disable this slice by default in your **Settings** menu.
 10. **System Adjustments** aren't relevant to your exploration, so you can remove them from the population by hovering over the slice and clicking the trash icon.
 11. Add a new measure for **Total Posted Amount (Positive)**.

You are primarily interested in the charges you have posted. Next you will drill into the charges and investigate which payers are sent the largest dollar amounts. Of those, you wish to see which still have the highest balances outstanding.

12. Right click on the slice displaying your charge transactions and click the option that starts with the word "Slice."
13. Slice by **Primary Payer**.
14. Grab the top 5 payers.
 - Once again, if you have a slice for "None of the above" you can remove it.
15. Using the **Visual Options**, change the graph into a tree map.
16. Add a new measure for **Total Outstanding Insurance Amount** for each payer.
17. Using the **Visual Options**, change your **Block Color** to **Total Outstanding Insurance Amount**.
18. Save your session as "<your initials> Exercise 2: Build a Session".

- A. Choose or create any group you like in which to save your session.

Now you can compare not only which payers received the most charges, but also which of those still have the largest debt outstanding.

This is the end of the exercise.

If You Have Time - Exercise 3: Explore a Session

In this exercise, you will explore a shared SlicerDicer session.

1. Open **Analytics Catalog**.
2. Filter for **SlicerDicer**.
3. Find the session names **Exercise 3: Explore a Session**.
4. Click the session.

Population

Investigate the Base and Criteria used in this population

1. In the Patients data model, the allowed Bases are "My Patients" or "All Patients." What are the allowed Bases in this data model?

All Transactions, Service Areas HB&PB, Service Areas HB only, and Service Areas PB only



The allowed Bases vary between data models.

2. Which of your criteria is an exclusive criterion?

Guarantor Type

3. Which of the following transactions would be included in this population?

Primary Financial Class	Guarantor Type	Transaction included in population?
Commercial	Personal/Family	Yes
Medicare	Research	No
Commercial	Research	No
NULL	NULL	No
Commercial	NULL	Yes

Slices

Investigate the Slices of this population.

1. What is the name of the SlicerDicer Filter that this population is being sliced by?
Transaction Type
2. How many slices are being displayed?
4
3. Does this mean there are only 4 transaction types in the database?
No
4. Which transaction type(s) are not being displayed in this population?
 - Hint: Click the selection button (magnifying glass) under Slice by Transaction Type to see the list of possible categories in this SlicerDicer Filter.
System Adjustment
5. Add a slice for this Transaction Type. Why do you think it was excluded from the population?
The total dollar amount of all System Adjustments was \$0
6. Remove the System Adjustment slice.

Visual Options

Investigate the Measures and visualization of this population.

1. Which of your two measures is being used as the bar height in each slice?
Total Posted Amount
2. Hover over the **Number of Transactions (HB & PB)** measure and click the eye icon to unhide the measure
3. What happened to your session?
Each slice got a new bar representing number of transactions.
4. Click on the **Bar Color** in the Visual Options menu.
5. Change the **Bar Color** to use the **Number of Transactions (HB & PB)** measure.
6. How can you tell which slice had the most transactions posted in this date range?
It is colored red.

Transactions have several dates stamped on them.

- Post date: when the transaction record was created
 - Service date: when a service was performed to generate a charge, usually happens before the post date
 - Deposit date: when a payment was actually deposited
7. If a patient received care on 12/30/2017 and a charge for that visit was posted on 1/3/2018, would that charge be included in this population? Why or why not?
 - A. Hint: Look at the **Date Range** card as well as the date range at the top of your population.
Yes, the Post Date of the charge was in the date range of our population.

This is the end of the exercise.

Using Populations in Other Data Models

Data models are designed to answer most questions about a given reporting topic. However, users can also use the results of a SlicerDicer query in one data model as the starting point in a *different* data model to investigate other aspects of the results.

- 27 As Violet, in Hyperspace, open the **Analytics Catalog**.
- 28 Select the **Patients** data model.
- 29 Add a criteria for **Diagnosis** = "Chronic Pain" and make it exclusive.

Our query now shows patients who do not have a chronic pain diagnosis. We will use these results to link to the Opioid Outpatient Prescriptions data model.

- 30 Open the data model selection window. There are two ways to do this:
 - Right-click on the bar in the bar graph and choose **Link from Not Chronic pain**
 - In the Population card, click the link button (

- 31 Select the **Opioid Outpatient Prescriptions** data model.

Our query now shows opioid outpatient prescriptions for patients who do not have a chronic pain diagnosis. The query can be modified in all the same ways that a normal query can.

- 32 Change the **Start Date** to 1/1/2018.
- 33 Slice by **Authorizing Provider** and grab the top 10.
- 34 Using the **Visual Options**, change to a horizontal bar graph.

We can modify the original Patient data model query without clearing the modifications we have made in the Opioid Outpatient Prescriptions data model.

- 35 Select your patient population by clicking **Patients** in the Population card.
- 36 Add a criteria for **Age in Years** ≥ 16

Users can link between data models indefinitely, linking from data model to data model to data model.

- 37 Right-click on the bar for any provider and choose **Link from <Provider's name>**.

Notice that the list of available Data Models is much smaller now.



Each data model can link only to a subset of available data models. When a data model is built, the list of related models is determined by the builder based on the logical relationships in the database. For example, a list of medication orders may easily translate into a list of charges, but a not into a list of BPAs.

Reviewing the Chapter

Review Questions

1. True or False: SlicerDicer can be used to report on any data that has ever been entered into Epic.

2. A SlicerDicer population is showing all smokers with PCPs in your clinic. You would like to see these patients grouped by their different PCPs, with one bar per provider. How would you do this? Choose only ONE answer.
 - A. Add a criterion
 - B. Change your measure
 - C. Add a slice
 - D. Change your visualization

Review Key

1. True or False: SlicerDicer can be used to report on any data that has ever been entered into Epic.
False. SlicerDicer can only be used to report on data that has been extracted to Caboodle.
2. A SlicerDicer population is showing all smokers with PCPs in your clinic. You would like to see these patients grouped by their different PCPs, with one bar per provider. How would you do this?
Choose only ONE answer.
 - A. Add a criterion
 - B. Change your measure
 - C. Add a slice
 - D. Change your visualization

c) *Add a slice*

Study Checklist

Make sure you can define the following key terms:

- Data Model
- SlicerDicer Filter
- Population
- Base
- Criteria
- Measures
- Slices
- Exclusive criteria
- Session

Make sure you can perform the following tasks:

- Create a SlicerDicer population
- Share a SlicerDicer session
- Apply advanced settings to criteria
- Add goals and thresholds to a session
- Create a custom measure
- Change which dates a population is based on using the Dates card

Make sure you fully understand and can explain the following concepts:

- What is SlicerDicer for?
- What is SlicerDicer not used for?
- What are overlapping criteria?
- What are sequential criteria?
- Requirements for SlicerDicer to use custom data

Data Lineage

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Introduction

Using Cogito's reporting tools, users can retrieve and analyze data from several different sources. In order to retrieve the appropriate data for any given task, they must use the correct database, and understand the differences between them.

In this chapter, you will explore the path of Epic data through three databases: Chronicles, Clarity, and Caboodle. Data lineage refers to the origin of a piece of data as well as how and when it has moved or changed since being created.

By the End of This Lesson, You Will Be Able To...

- Define basic terms related to data lineage
- Identify advantages and limitations of Chronicles, Clarity and Caboodle
- Use Record Viewer to open a record in Chronicles

Databases

All Epic data is stored in one of three databases: Chronicles, Clarity and Caboodle.

Basic Definitions

A database is an organized collection of data. In many reporting tools, databases are also called data sources. The purpose of a database defines its structure. Chronicles, Clarity and Caboodle each have different purposes, so each has a different structure, and each is separate from the others.

Data lineage refers to the origin of data as it flows from one database to another. Epic data lineage starts with Chronicles. This is where nurses, registrars, doctors, billers, and other users enter data.

- First, Epic users enter data into Chronicles, usually through Hyperspace or Classic.
- Then, every night, Clarity ETL (Extract, Transform, and Load) transfers data from Chronicles to Clarity.
- Last, Caboodle ETL transfers data from Clarity to Caboodle the same night as Clarity ETL.

Chronicles

Chronicles is designed to be efficient for daily healthcare operations. When healthcare staff want information from a patient's medical record, they typically want a lot of data about that patient. Chronicles meets this need by storing a patient's entire medical record in a single location, making retrieval of one patient's information very efficient.

The structure of Chronicles is tree-like.

- Chronicles is first divided into *master files*.
 - Master files contain information about a broad subject.
 - For example, the patient master file contains all patients' medical records in Epic. Other examples include master files for medications, procedures, orders, notes, and departments.
- Each master file contains *records*.
 - Records contain information about individual entities within a master file.
 - For example, a record in the patient master file contains information about a single patient. A record in the orders master file contains information about a single order.
- Records contain *contacts*.
 - Contacts contain information about points in time for a record.
 - For example, the patient master file uses contacts for patient encounters.
- Individual data points within a record or contact are stored in *items*.
 - For example, the patient master file has an item that stores social security number and an item that stores admission date.

- Items that store multiple pieces of information at a time have multiple *lines*.
 - For example, there is an item for diagnoses that has one line for each diagnosis entered.

Clarity

Clarity is designed to be efficient and flexible for reporting on large amounts of data over long periods of time. Clarity stores data in tables that look like a two dimensional grid with rows and columns. Each row represents an entity in the table, its columns each holds a piece of information about the row. For example, there is a table that has one row for every patient, and each column has information about patients.

Clarity data is accessed using *SQL* or tools that use SQL. SQL stands for Structured Query Language. It is a coding language used to generate sets of data from relational databases such as Clarity. It is not specific to Epic's software.

Since data is extracted nightly to Clarity, it does not contain data entered today.

Caboodle

Caboodle is similar to Clarity in that it is a relational database consisting of tables with rows and columns, is accessed using SQL, and does not contain data entered today. Like Clarity, Caboodle is also efficient and flexible for reporting on large amounts of data over long periods of time.

Caboodle is designed to make reporting simpler and more efficient than it is in Clarity. For example, Clarity stores provider information in a table called CLARITY_SER, while Caboodle uses a more intuitively named table, ProviderDim. Many columns in ProviderDim provide information directly, while the equivalent CLARITY_SER columns require additional work or processing time.

Caboodle is a data warehouse, which means it can hold data from multiple sources, in this case both Epic and non-Epic data. Not all Epic data is in Caboodle, and Clarity holds much more Epic data than Caboodle. Epic adds more information to Caboodle with every release, but some reports that can be written using Epic's other databases can't be written using Caboodle.



Write in Workbook

When you can, write reports using Caboodle rather than Clarity. Use Clarity if the information you're looking for is not in Caboodle.

Data Lineage in SlicerDicer

SlicerDicer is the last stop for Epic data that has been through all three databases. As such, it allows us to get a great perspective on how data moves through them.

- 1 As Violet, in Hyperspace, open the **Analytics Catalog**.

- 2 Create a new SlicerDicer session in the Visits data model.
- 3 Add a new criterion for **Time Waiting for Physician**.
- 4 Click the information bubble on the criterion, then select **Show Lineage Information**.

Since SlicerDicer pulls from Caboodle, and Caboodle tracks where all of its data came from, we can see not only the Caboodle table and column, but also the Clarity and Chronicles identifiers for this data.

Some lineage can be very simple, but some can get extremely complex as the ETL processes look at many different items to create a simple data point.

Investigating Data

Chronicles has hundreds of master files, and Clarity and Caboodle have thousands of tables. Once you've chosen a database, you'll need a way to find the data points you're looking for. Each database has a tool that allows report authors to find the right data for a report:



While some of these tools will function in Hyperspace, most data investigation is done as part of building new content, and will be done in Classic.

Database	How to Investigate
Chronicles	<p>Use CTRL+click to find where an item is stored in Hyperspace</p> <p>Use Record Viewer to view the contents of items from a record in Chronicles</p>
Clarity	Use the Analytics Catalog to find Clarity tables and columns
Caboodle	Use the Analytics Catalog to find Caboodle tables and columns

CTRL+Click

Fields in Hyperspace are used to input data which is stored in items in Chronicles. A user can **CTRL+click** into these fields to find the INI and Item number where this data is stored.

- 5 As Lorena, in Classic, open any component in the **Component Editor**
- 6 Hold down the **CTRL** key and click in the **Data Source** field

The item information window which appears shows the INI and item number where this field stores its data. The window can also be expanded to explore other characteristics of this item.

CTRL + Click does not work for every Hyperspace field. You still need to know how to use other Chronicles investigation tools like Record Viewer and Item Editor to find item numbers.

Record Viewer

Use Record Viewer to view data from a record in Chronicles. You can use Record Viewer to:

- Find test data to check which item it's stored in
- Search for items based on a key word

- Investigate relationships between master files

Encounter department is stored in item EPT 7070. A user can open any patient's visit in the Record Viewer and see that visit's department by looking at EPT 7070.

7 In Classic, the search bar appears in the top-right, not under the Epic Menu. Search for and open the **Record Viewer**

8 Next to INI, enter the three letter initials of the relevant master file

- Patient records are stored in EPT, the patient master file

9 We are currently searching by the external ID. For patients that could be an MRN or a name. In the Record field, search for the following patient:

- Ruth Batgirl

10 In the Contact field, you can click the magnifying glass to see all available contacts on this patient record.

- Select the contact for Ruth's 1/5/2017 office visit and click **Accept**

11 Click **View Record**

Record Viewer displays all items that are populated on the contact you selected. The items' names and numbers are displayed in blue text with a blue background. The values stored in the items have a white background.

12 Click **Jump To Item** (or hold **ALT** and press **J**)

13 In the window that appears, type 7070



Write in Workbook

In which department was Ruth's visit?

EMC FAMILY MEDICINE [10501101]

Data Dictionary

Suppose you've found an item you want to include in a report, and you plan to use Clarity or Caboodle as a data source. Report writers use the Data Dictionary in the Analytics Catalog to find where the item is

extracted to in Clarity or Caboodle. More information on how to access and search through the Data Dictionary is found in the training companions for [CLR110 Clarity Data Model Fundamentals](#) and [CDW110v Caboodle Data Model Fundamentals](#).

Exercise 1: Investigate a Record in Chronicles

One of the most common uses of the **Record Viewer** is to locate a data point for use in a report. In this exercise, you will explore the record viewer to find a patient's reason for cancelling an appointment.



You are told that the patient Henry Catwoman cancelled their January 18 appointment because they were "unhappy with their provider." Use this information and the **Record Viewer** to find out where we store the reason for cancellation in Chronicles.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Open the **Record Viewer** activity from the user toolbar.
3. In the **Record Viewer**, open Henry Catwoman's 1/18/2017 Appointment.
 - In the **INI** field, enter "EPT"
 - In the **Record** field, enter "Henry Catwoman"
 - In the **Contact** field, click the magnifying glass to see all contacts. Make sure you select the **Appointment** on 1/18/2017.
4. Click **View Record**.
5. On what street does Henry Catwoman live?
Rainbow Ln
6. What does item 75 represent?
County of Residence
7. Henry canceled his appointment because he was unhappy with the provider assigned. Hold **CTRL** and press the **F** key to open the **Find** window in the **Record Viewer**.
8. Keyword search for "Unhappy".
9. What item stores the reason a patient canceled an appointment?
Item 7300 - Reason for Cancellation
10. Look at the names of some of the items around I EPT 7300. Can you find any other items related to this appointment cancellation? List some of them:

I EPT 7220 - Appt Cancel Person

I EPT 7222 - Appt Cancel Date

I EPT 7315 - Is Late Cancel

other answers may vary

This is the end of the exercise

Item Characteristics

An item's characteristics fundamentally define how it stores data. The key characteristics are:

- Item number
- Data type
- Add type
- Response type
- Networking
- Indexing

Item Number

The INI and item number uniquely identify a data element in Chronicles.

Although most item numbers do not carry meaning in different INIs, there are two items that do preserve their meaning across all master files: the "dot one" and the "dot two":

- Item .1 - Record ID

Every record in Chronicles has a unique identifier held in item .1. A record ID is guaranteed to be unique within a master file, though not necessarily across master files. There may be a patient with the EPT Record ID 1000 and a provider with the SER Record ID 1000.

- Item .2 - Record Name

For master files where a name makes sense, item .2 stores the name of the record. Unlike its record ID, a record's name does not have to be unique.



Multiple patients could each store the name "John Smith" in item .2. However, each would have a uniquely identifiable record ID in item .1.



In Epic shorthand, an item may be referenced as "I EPT 110" ("I" stands for "item," "EPT" is the master file, and "110" is the item number). A record may be referenced as "R SER 21800" ("R" stands for "record," "SER" is the master file, and 21800 is the record ID).

Data Type

Each item has a data type that limits the type and format of data it can store. There are six data types in Chronicles:

String	Any combination of characters. The format of string items is often restricted in the user entry interface in Hyperspace.
Number	Any number - can be an integer, decimal or use scientific notation.
Date	A date without a time. The date is actually stored as the number of days since 12/31/1840. "4/1/2019" would actually be stored as "65104". This number is converted back into standard format for display and entry.
Time	A time without a date. The time is actually stored as the number of seconds since midnight. "12:00 pm" would actually be stored as "43200". This number is converted back into standard format for display and entry.
Instant	A date and a time. Instants are actually stored as the number of seconds since midnight on 12/31/1840. "12:00 pm on 4/1/2019" would actually be stored as "5625028800". This number is converted back into standard format for display and entry.
Category	A pre-defined list of choices. Each defined category in a category list has a <i>value</i> (also known as an <i>ID</i>), a <i>name</i> (also known as a <i>title</i>), and an <i>abbreviation</i> . For example, category value "1" might be named "Female" and abbreviated "F". End users will usually enter a category's name or abbreviation, but the item actually stores the value.

Viewing Category Lists

The **Item Editor** activity can return the category list for an item by entering the INI and Item number of the category item. Particularly long category lists, like the one for I EPT 30: Contact Type, may only be viewed in full in the **Category List Maintenance** activity. The Item Editor also displays some additional information about category lists.

Each category list has a **Release range**, which are the values reserved by Epic. Everything outside the release range is open to customization at your organization.

Category lists are reusable. When multiple items share the same category list, only the first item will store the list. In the Item Editor, all other items that share the list will refer to the original item in the **Where found** field. You can try this with I HSB 35413: Delivery Method.

Add Type

Add type determines whether item values are specific to one contact, or whether values apply to all of the record's contacts. In terms of the Chronicles filing cabinet, there are some items that need to be written on each sheet of paper (contact) within a patient's folder (record); other items can be written on the folder (record) itself. There are three add types:

No-add	No-add items store record-level data. The value of a no-add item is considered true for all contacts on that record. For example, a patient's date of birth is a no-add item, and is the same value on all contacts. If a no-add item is changed, the old value is replaced on all contacts.
Response each time (Overtime)	Response each time items store values separately on each contact. If such an item is blank for a certain contact, the value is considered unknown. For example, if a patient's blood pressure is not collected during a visit, you cannot assume that it is the same as the previous measurement.
Lookback (Overtime)	Lookback items store values separately on each contact, much like response each time items. The only difference is that if a lookback item is not populated, the system 'looks back' to the most recent contact in which the item had a value, and treats that value as valid.

The response each time and lookback add types are known as the *overtime* add types.



Many master files do not attach meaning to contacts. For a new point in time, a new record is created with specific time information. Examples include the EAR, ADT, and HAR master files.

Response Type

Response type determines how many values an item can hold at once. For example, at any one time, a patient has only one date of birth, but can have multiple symptoms.

Single response	Only one line of data can be stored at once.
Multiple response (Multiple)	Multiple lines of data can be stored at once. These lines might be discrete pieces of data, such as multiple symptoms, or they might be multiple lines of a large block of text, such as an address.
Related group (Multiple)	Multiple lines of data can be stored at once, and each one of these lines is related to a line in another item.

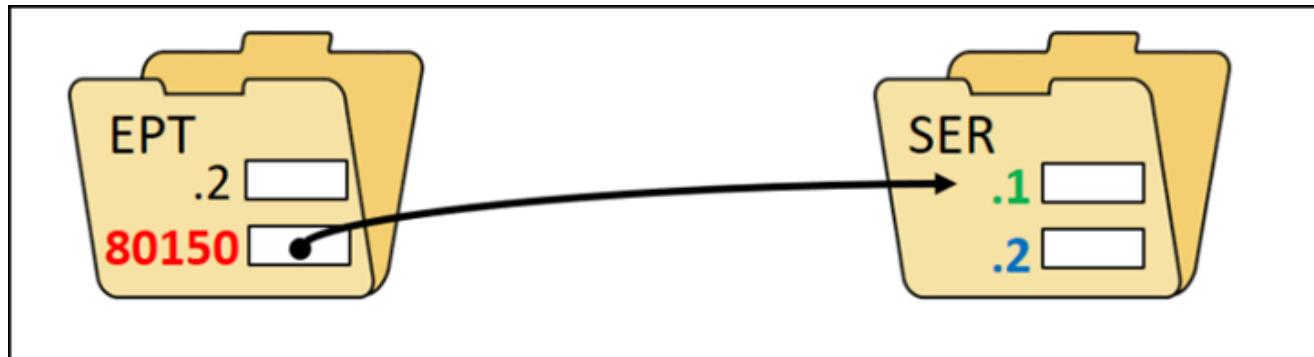
Since both multiple response and related group items store multiple lines of data, these response types may collectively be referred to as *multiple response*.

Networking

Some Chronicles items are *networked items*. Networked items define relationships between master files by storing a unique identifier that references a record or contact somewhere in Chronicles.

- Most networked items point to records by storing that record's ID, the value stored in item .1
- Other networked items point to contacts by that contact's CSN, or Contact Serial Number

On a patient's hospital encounter in Hyperspace we see the name of the providers, the name of the unit, and the name of the insurance coverage. In truth, none of these names are directly stored on the patient's record. Instead, networked items that store the record ID of each of the associated records (the record ID of the unit, the record ID of the attending provider, etc.) provide a path to retrieve the names.



Networked items can be used to pull information from the networked record. For example, on the **Provider Info** form of your patient's hospital admission, the attending provider item EPT 18864 networks to SER. The record ID stored in this field allows Hyperspace to find the patient's attending provider and display their name, but it could just as easily be used to display their specialty, their pager number, or anything else stored in the SER record.



Only some items are networked items. You can identify an item as networked if:

- The Item Information window for that item contains a "Network INI" field
- The item's definition in Item Editor contains a "Network" category
 - If there is a Contact pointer? field in this section, the item points to a contact
- The Record Viewer value for that item contains a hyperlink

Each of these locations will also tell you the INI of the networked master file.

Indexing

Some Chronicles items are *indexed*, which means that they pre-sort their data, which improves the performance of reports based on these items.



Only some items are indexed. You can identify an item as indexed if:

- The Item Information window for that item contains a "Indexed" field, set to true.
- The item's definition in Item Editor contains a "Indexing" category.
- Hovering over the item in the Record Viewer shows "Has Index" in the help text.



Only Epic can create indexes for Chronicles items, which only affects searching Chronicles data. An indexed Chronicles item may or may not be indexed in Caboodle or Clarity.

Reviewing the Chapter

Review Questions

1. Which of Epic's databases contains real-time data?
 - A. Chronicles
 - B. Clarity
 - C. Caboodle

2. Which of Epic's databases are relational databases?
 - A. Chronicles
 - B. Clarity
 - C. Caboodle

3. True or False. You can use the Record Viewer to look up a list of columns in a Clarity Table.

Review Key

1. Which of Epic's databases contains real-time data?

- A. Chronicles
- B. Clarity
- C. Caboodle

a

2. Which of Epic's databases are relational databases?

- A. Chronicles
- B. Clarity
- C. Caboodle

b,c

3. True or False. You can use the Record Viewer to look up a list of columns in a Clarity Table.

False. Use the Record Viewer to view data from a record in Chronicles. Use the Data Dictionary in the Analytics Catalog to look up the columns in a Clarity table.

Study Checklist

Make sure you can define the following key terms:

- Database
- Chronicles
- Master file
- Record
- Contact
- Item
- Clarity
- Caboodle
- ETL
- SQL

Make sure you can perform the following tasks:

- Find a Chronicles INI and Item number using the Record Viewer
- Use Chronicles shorthand to differentiate between a record ID and an item number
- View data lineage through SlicerDicer

Make sure you fully understand and can explain the following concepts:

- What makes each Epic database unique
- Advantages and limitations of each Epic database
- When does data move from Chronicles into Clarity or Caboodle?

Day 1 Lab: Chronicles and the Record Viewer

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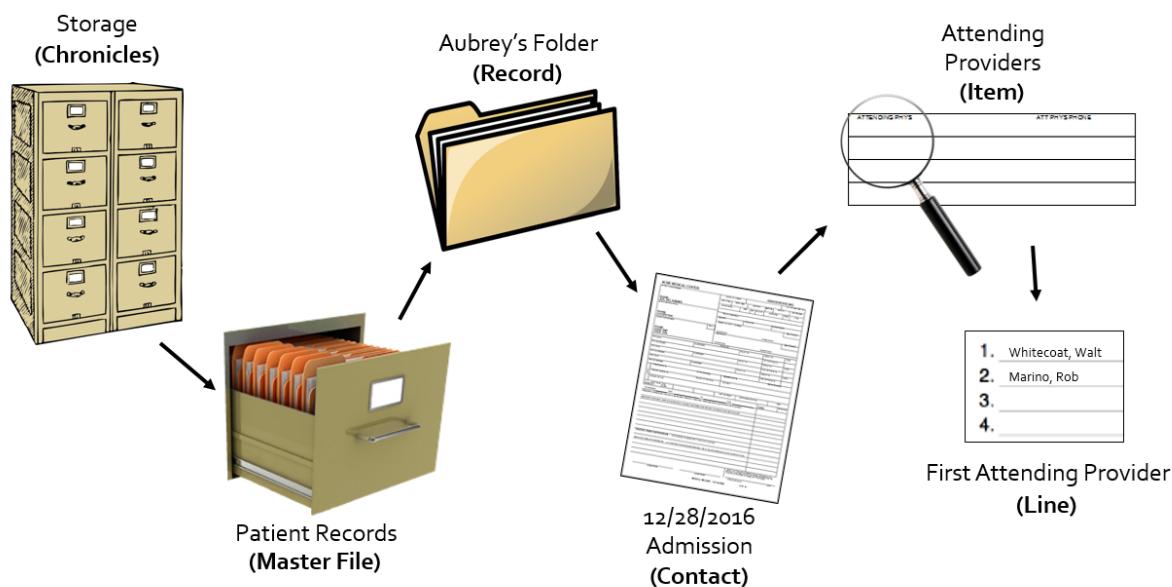
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Chronicles Vocabulary Review

The Chronicles hierarchy contains the following levels:



Master File	A master file, abbreviated with an INI, contains information about a single subject.
Record	A record contains information about individual entities within a master file.
Contact	A contact stores a snapshot of data at one point of time in a record.
Item	An item stores individual data within a record or contact.
Line	Lines are used for items that store multiple pieces of information.

Using the Record Viewer

The Record Viewer is a tool in Hyperspace that shows a read-only view of raw data in Chronicles. The Record Viewer helps you see the values stored for each item, and can be used to find specific items in a master file.

Opening a Record

In order to see data in the Record Viewer, you must specify a master file, record, and contact. You can optionally open all contacts at once for the same record.



Activity 1 - Opening a Record

In this activity, you will open Noah Shehulk's patient record to investigate the Record Viewer.

1. Log in to Classic as Lorena, your Cogito Tools Administrator and open the Record Viewer.
2. To see Noah's office visit, enter the following information into the Record viewer:
 - A. INI: EPT
 - B. ID: Noah Shehulk
 - C. Contact: Choose the Office Visit on 11/22/2016.
3. Click **View Record**.

Record Viewer Formatting

Once you have chosen to view a record, the Record Viewer populates with information.

The blue boxes on the left-hand side of the Record Viewer data contain items numbers and names. An item is an identification label for a piece of information as defined by the master file. Item numbers and names *will not change* across records and contacts in the same master file.

The text on the right shows you the values stored in each item for this specific record and on any specific contacts.

EPT Items	SHEHULK,NOAH [Z7636] - 2		
• 1 - PATIENT ID	No-Add	1	Z7636 [Z7636]
• 2 - PATIENT NAME	No-Add	1	SHEHULK,NOAH
• 8 - CONTACT SERIAL NUMBER	Contact 2	1	37286
• 10 - CONTACT NUMBER	Contact 2	1	2
• 13 - TEMPORARY NAME EDIT	No-Add	1	SHEHULK,NOAH
• 20 - CONTACT DATE	Contact 2	1	11/22/2016 [64244]
• 30 - CONTACT TYPE	Contact 2	1	101-Office Visit
• 50 - ADDRESS	No-Add	0	1 1 1432 Marigold Circle
• 60 - CITY	No-Add	1	Middleton
• 70 - STATE	No-Add	1	50-Wisconsin

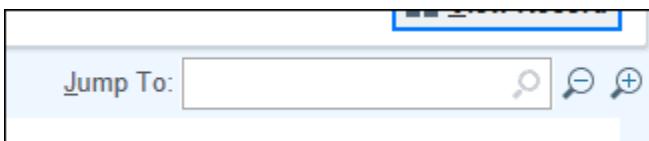
Record Viewer Items and Values

Viewing an Item Value

An item is a discrete kind of data that can be documented in the system.

There are two main ways to find an item in the Record Viewer:

- Jump to Item - Used if you already know the item number you're looking for. The button is pictured below.
- CTRL + F search - Used to find all matches for a portion of text.



Jump to Item

Activity 2 - Viewing an Item Value

In this activity, you will explore the two ways to find an item in the Record Viewer.

If you already know the item number you're looking for, use the Jump to Item tool.

1. **Jump to** item 18040 to see the height recorded for Noah Shehulk's visit.

If you're looking for a particular item but do not know the number, you can search through the raw data by using "Ctrl + F".

2. Press Ctrl + F to open the page search.
3. Type "state" to find where state was recorded on Noah's patient record.
 - Note that keyword searching may return many items with similar names.

Display vs. Raw Data

I EPT 70: State displays "50 - Wisconsin" in the Record Viewer. However, the raw data stored in Chronicles is just the number 50. The name of the state has been filled in for you by the Record Viewer activity, and will not be stored as part of the item value in the database.

In the screenshot below, the Chronicles items 70, 75, and 78 store only "50", "467", and "1", respectively. The names of these values--"Wisconsin", "Dane", and "United States of America"--are stored separately.

• 70 - STATE	No-Add	1	50-Wisconsin
• 75 - COUNTY OF RESIDENCE	No-Add	1	467-DANE
• 78 - COUNTRY	No-Add	1	1-United States of America

What is displayed vs. what is stored

Check for Understanding

Answer the following questions to review using the Record Viewer.

1. Use the Record Viewer to see data stored for your Aubrey patient's hospital encounter on 4/2/2019.

- Aubrey is the patient listed on your classroom information sheet.

2. What value is stored in I EPT 10595?

2

3. What type of phone number is 608-271-9000?

Home Phone

4. Is Aubrey a transplant patient?

No

5. What is the raw value stored in I EPT 5615?

10999

Finding an Item Number

An INI + Item Number is the address for a piece of data in Chronicles.

Opening Item Editor

The Item Editor shows the definitions of a Chronicles item. Note that it does not show what value is stored in an item. Instead, it shows information about how the item behaves for all values. The Item Editor is useful for investigating properties and reading descriptions about a particular item.

Activity 3 - Opening Item Editor

In this activity, you will explore two ways to open item definitions in the Item Editor.

Option 1: Open the Item Editor from Record Viewer

If you are already in the Record Viewer, click on the item hyperlink to see the item in the Item Editor.

1. Open the Record Viewer for Aubrey's Hospital Encounter on 4/2/2019.
2. Click **Jump to Item** to see I EPT 70: State.
3. Click on the item number and name to open it in the Item Editor.

Option 2: Open the Item Editor Separately

If you are not already in the Record Viewer, open the Item Editor activity separately and specify which INI and item number you would like to see.

1. Search for and open the **Item Editor** activity.
2. Indicate a Database: EPT.
 - A. "Database" in this case means "Master File".
3. Indicate an item by typing in the name or the item number: 70.

Check for Understanding

Answer the following questions using the **Item Editor**.

1. Hospital discharge date is stored in I EPT 18855. What is the data type of this item? What is its response type?
Date
2. Open your patient's hospital encounter in the Record Viewer. Find the item that stores a value that represents "Inpatient". What is the add type of this item?
Response each time

Understanding Item Characteristics

Investigate Chronicles items to solidify your understanding of the item characteristics.

Add Type

Add type defines whether data is stored for each record or for each contact.

Document Your Findings - Add Type

In this exploration, you will observe trends about add types.

Part 1: Initial research

1. Consider a patient's last name.

A. Would you expect a patient's last name to change from one encounter to another?

No

B. What is the add type of I EPT 117: Last Name?

No-Add

C. Can a patient's last name ever change?

Yes

D. If a patient's last name changed, would a contact from prior to the name change store the old last name or the new last name in I EPT 117?

The new last name

2. Consider the reasons a patient may cancel an appointment.

A. Would you expect a patient's reason to cancel to change from one encounter to another?

Yes

B. What is the add type of I EPT 7300: Reason for Cancellation?

Response each time

Part 2: Comparing two contacts

3. Open Noah Shehulk's record and view all contacts.

4. In the Item Filters sidebar, select **Max Contacts** = All.

5. Click **View Record** to load all values for all contacts and items.

6. Using **CTRL+F** or **Jump to Item**, fill in the table below:

	I EPT 117 Value	I EPT 7300 Value
Noah Shehulk's 1/25/2017 appointment	<i>Shehulk</i>	<i>Other: Weather [6]</i>
Noah Shehulk's 2/8/2017 appointment	<i>Shehulk</i>	<i>Patient: Lack of Transportation [5]</i>

Networked Items

Networked items act as pointers to other records/contacts in Chronicles.

Document Your Findings - Networking

In this exploration, you will observe trends about items that are networked.

1. Open your Aubrey patient's 4/2/2019 hospital encounter in the Record Viewer.
2. Consider I EPT 18867: Hospital Admitting Provider.
 - A. What is its raw value?
TRN080
 - B. Is the provider's name stored as part of the EPT record?
No
 - C. What SER item stores the value TRN080?
I SER .1
 - D. Within the Record Viewer, if you click on the networked value for I EPT 18867, what record do you open?
R SER TRN080
 - E. If this provider's name changed, would this networked item continue to function? Why or Why not?
Yes. The networked item relies only on the record ID, not the record name

Item Number

Each item in a Chronicles master file has a unique item number.



Write it Down

Use the Item Editor to look up Item EPT 60 and Item ORD 60. Do item numbers necessarily carry meaning across master files?

EPT: City. ORD: Order Class. No, item numbers do not necessarily carry meaning across master files.

Document Your Findings - Item Number

In this exploration, you will observe trends about item numbers.

Part 1: EPT Items

Using Record Viewer, open patient Maria Abate's 5/31/2016 office visit.

1. Which item in EPT stores the internal ID of the patient?

1

2. Which item in EPT stores the name of the patient?

2

3. Which item in EPT stores the patient's county of residence?

75

Part 2: SER Items

Using Record Viewer, open Pat Shackelford's provider record in the SER master file. Choose the most recent contact.

1. Which item in SER stores the internal ID of the provider?

1

2. Which item in SER stores the name of the provider?

2

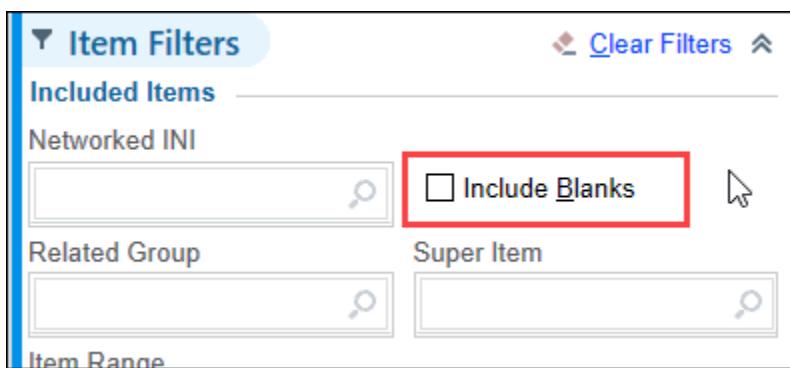
3. Does SER 75 represent the provider's county of residence?

No

Part 3: Comparing EPT and SER

Refer to the records opened in Part 1 and Part 2 in order to answer the following questions.

In order to see items that do not have a value documented, select the **Include blanks** checkbox and click **View Record**.



Include Blanks Checkbox

4. Which item in SER stores the county of the provider's office?

1265

5. Does the item number for county in EPT match the item number for county in SER?

No

6. To stop showing blanks, deselect the **Include blanks** checkbox and click **View Record**.

Response Type

Response type determines how many lines of data an item can store at a time.

Document Your Findings - Response Type

In this exploration, you will observe trends about response types.

1. Open patient Sara Moran's 11/26/2015 appointment in the Record Viewer.

2. Consider a patient's social security number.

A. Can a patient have more than one social security number?

No

B. What is the response type of I EPT 160: Social Security Number?

Single

3. Consider a list of patient phone numbers.

A. Can a patient have more than one contact phone number?

Yes

B. What is the response type of I EPT 98: Other Communication Numbers?

Related

C. What is Sara's home phone number? How do you know?

608-271-9000. It is the value in I EPT 98 that shares the same line with the line in I EPT 94 that means Home Phone.

4. Consider a patient's written languages.

- A. Can a patient write in more than one language?
Yes
- B. What is the response type of I EPT 148: Language-Written (MR)?
Multiple

Data Type

Data type controls what kind of data can be stored in a given item. Of the data types, only category requires more investigation.

Document Your Findings - Data Type

In this exploration, you will practice interpreting items with a data type of category.

1. Open patient Sara Moran's 11/26/2015 appointment in the Record Viewer.
2. Consider I EPT 130: Legal Sex.
 - A. What is its raw value?
1
 - B. What legal sex does the raw value represent?
Female
3. Open I EPT 130 in the Item Editor.
 - A. What value represents Other?
999
 - B. What is the category list's release range?
From 1 to 3 and from 950 to 999
 - C. What value will represent Other at any organization that uses Epic?
999
4. Return to Sara's appointment in the Record Viewer. Consider I EPT 70: State.
5. Open I EPT 70 in the Item Editor.
6. This item shares a category list with I EZP 50. Click the link to EZP-50.
 - A. What value represents Alabama?
1
 - B. What is the item's release range?
All Customer Owned
 - C. Is a value of 50 guaranteed to represent Wisconsin at your organization?

No

- D. The Item Editor does not list all the possible values. What activity would you use to find the full list of values?

Category List Maintenance

Indexed Items

Indexed items can be searched faster than non-indexed items.

Document Your Findings - Indexing

In this exploration, you will observe trends about items that are indexed.

1. Is I EPT 60: City an indexed item?

No

2. Is I EPT 80: ZIP Code an indexed item?

Yes

3. Which item would be faster to filter on within a report: I EPT 60 or I EPT 80?

I EPT 80

Check for Understanding

Add Types

1. Consider a visit diagnosis.

- A. What is the add type of I EPT 18400: Diagnosis This Visit?

Response each time

- B. What was the diagnosis this visit for Henry Batgirl's 5/31/2017 office visit?

Ear itch [706619]

- C. If a provider creates a new encounter and adds a diagnosis of influenza, will the value update on Henry's 5/31/2017 office visit?

No

2. Consider a patient's emergency contact.

- A. What is the add type for I EPT 700: Emergency Notification Name?

No-Add

- B. What is the emergency notification name for Henry Batgirl's 5/31/2017 office visit?

Springer,Susan

- C. If a provider creates a new encounter and changes the emergency notification name to Brown,Susan, will the value update on Henry Batgirl's 5/31/2017 office visit?

Yes

3. What nickname is used for the Response Each Time and Lookback add types?

Overtime

Networking

1. A networked item points to a record in another master file. What item from the destination record shares the value of the networked item?

1

2. Does a networked item store the name, the ID, or both the name and ID of the record/contact it points to?

The ID only

3. Indicate which of the following tools you can use to identify whether an item is networked:

Item Information window (using Ctrl + Click), Item Editor, Record Viewer.

All of the above

Item Numbers

1. EPT 2200 stores a patient's account number. Does this imply that SER 2200 necessarily stores a provider's account number?

No

2. EPT .1 stores a patient's internal ID. Does this imply that SER .1 necessarily stores a provider's internal ID?

Yes

Response Types

1. Consider patient allergies.

- A. Is it possible for a patient to have more than one allergy?

Yes

- B. What would you expect for the response type of the item that stores allergy information?

Multiple

2. What nickname is used for the Multiple and Related Group response types?

Multiple

Data Types

1. What is the data type of an item that stores a pre-defined list?

Category

2. For I EPT 78, what is the category ID for the category title of Australia?

10

Indexing

1. If you choose to implement a parameter in your report on an indexed item, what may happen to the run time of the report?

It will run faster

2. Indicate which of the following tools you can use to identify whether an item is indexed: Item Information window (using Ctrl + Click), Item Editor, Record Viewer.

All of the above

Reviewing the Chapter

Review Questions

1. What is the difference between a record and a contact?
2. What is the difference between a multiple response item and a response each time item?
3. True or False: A patient who has been seen twice at your facility should have two records in the Patient master file.
4. A user shows you a field in Hyperspace that they want to report on. How can you find where in Chronicles that field files to?

Review Key

1. What is the difference between a record and a contact?

A record is a single entity. What kind of thing depends on the master file - a record in the patient master file is a patient, a record in the provider master file is a provider, etc. A contact represents a single set of data (usually representing a unique time period) on that record.

2. What is the difference between a multiple response item and a response each time item?

These refer to different item characteristics. "Multiple response" refers to a particular Response Type. A multiple response item can hold multiple answers on one contact. "Response each time" refers to a particular Add Type. A response each time item can hold different answers on different contacts.

3. True or False: A patient who has been seen twice at your facility should have two records in the Patient master file.

False - The patient should only have one record, but that record will have two contacts.

4. A user shows you a field in Hyperspace that they want to report on. How can you find where in Chronicles that field files to?

Control-click it. If that doesn't work, try using the Record Viewer.

Study Checklist

Make sure you can define the following key terms:

- Chronicles
- Master File
- Record
- Contact
- Item
- Data Type
- Add Type
- Response Type
- Networking
- Indexing

Make sure you can perform the following tasks:

- Use Ctrl + Click to investigate item characteristics
- Find information about a Chronicles item using the Record Viewer and Item Editor

Make sure you fully understand and can explain the following concepts:

- The structure and relationship of the parts of Chronicles (master file, record, contact, item, line)
- The importance of INI and item number in locating Chronicles data

Dashboard Metrics

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Introduction

The metric framework allows your organization to collect, store, and display data for key performance indicators (KPIs) and other metrics in Radar. The metric framework also allows your organization to share information with other Epic community members and benchmark your performance against your peers.

In this lesson, you will learn how to use this framework to measure common metrics across all applications, collect data for easy trending and comparison, and allow your organization to pick and choose the individual metrics that you want to display on dashboards. This allows you to display data for the key performance indicators your organization cares about most.

By the End of This Lesson, You Will Be Able To...

- Use the Metric Repository to find and use Epic-released metrics
- Build Radar components that have a data source of dashboard resources
- Display multiple summary targets for a single metric in one component

Scenario Questions/Notes

Page numbers

Lorena searches for metrics to build a prescription monitoring dashboard.

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.

Wednesday morning starts with a ticket in your queue. Mona sits on the prescription practices steering committee and has put in a high priority request for a lot of data to motivate a prescription monitoring program.



Lorena,

We need a lot of data about our outpatient medication orders, and we need it fast. We want dashboard components for some key performance indicators so we can take the temperature of our prescription practices.

- Patient wait times in the pharmacy
- Percentage of our internal prescriptions that are being e-prescribed
- Barcode compliance during prescription fills.
 - We need the percentages and total counts.
- Patients on opioids
 - We're planning some new prescribing protocols, and we want to get a baseline number now so we know how big our population is before we institute the program.

Let me know if you have any questions. We're counting on you.

Best of luck,

Mona

This is a lot to dig into. You know that you could probably start with SlicerDicer and build a few of these, but a lot of these measurements sound like they might be a good fit for using dashboard metrics. Mona implied this data was needed now to "take the temperature" of the current practices. She'll probably be viewing this data many times during this prescription overhaul, and she will want to benchmark appropriately against previous values and maybe even members of your Epic peer group to track the success of the program. You decide to do some research and find out if Epic has released any metrics that capture this kind of prescribing data.

- 1 Log in to the **UserWeb**.
- 2 Open the **Data Handbook**.
- 3 Open the **Metrics Repository**.

You do some keyword searching for the various measurements and investigate the results. You find the following records to validate

Report Request	Keyword(s)	Metric[Record ID]
Patient wait times	wait time	Rx Prescription - Average Patient Waiting Time [R IDN 48168]
Internal e-prescribing	internal pharmacy	Rx Prescription - Internal Prescriptions Filled and Transmitted Internally[R IDN 48005]
Barcode compliance	barcode	Rx Prescription - Barcode Compliance Rate in Fill Verification [R IDN 48411] Rx Prescription - Barcode Compliance Rate in Filling Activity [R IDN 48410] Rx Prescription - Number of Barcode Scans in Fill Verification [R IDN 48409] Rx Prescription - Number of Barcode Scans in Filling Activity [R IDN 48408]
Opioid patients	opioid patients	Rx Patients with Active Opioid Orders [R IDN 48066]

Your barcode compliance search came up with a lot of options. Two of these metrics store counts, and two store rates (percentages). According to the documentation, the difference is when the barcode scanning

happened. You're no pharmacist, so you contact Mona to ask if she needs barcoding for verification or for the filling activity.



Lorena,

That's a good question, and I'll take it to my stakeholders and get back to you. In the meantime, how is that opioid patients count coming along? We really need that data first if you can. We want to capture the current state of affairs before rolling out our new protocols. Make it a priority.

Best,

Mona

Since you were able to find an Epic-released metric for opioid patients, you should be able to build a component for Mona fairly quickly and start getting it validated today.

- 4 Log in to Classic as Lorena
- 5 Search for and open the **Resource Editor**.
- 6 Create a new <your initials> **Opioid Patients** resource record.
- 7 Select a Record type of Historical Trending
- 8 Under the Data Source form, point this resource to the Rx Patients with Active Opioid Orders [R IDN 48066] metric you found.

Since Mona is in a hurry to get this data, you decide to focus on just getting the component built first, and will worry about display, links, and benchmarking later if she needs them altered.

- 9 Jump to the **Component Editor** form and create a new component to display this metric data. Name it <your initials> **Opioid Patients**.
- 10 Make a **Table** component with a data source of **Dashboard Resources**.
- 11 Under **Data Source**, configure your resource to:
 - Have a type of "Historical Trending"
 - Allow multiple "Resources" in the component
 - Summarize by Service Area using "EHS Service Area" by default
 - Look only at the "<your initials> Opioid Patients" resource you just built.

- Display 4 months of data

 **12** Do not change the rest of the settings in the component. Mark it as **Enabled**, then add it to your dashboard.

You send a couple of screenshots to Mona along with the ID of the component so she can try it out herself. Once she signs off on the build, you can send it to Hannah for peer review. Hopefully Mona will have her component in production soon.

Metrics Definitions

The metric framework consists of records across multiple master files:

- IDM - Radar dashboard record that is the frame for metric-based components
- IDB - Radar component record that pulls together IDK records for display
- IDK - Stores settings related to how the data will be displayed in Radar
- IDN - Stores the definition of the metric
- CSF - Stores the actual data for the metric

Exercise 1: Explore a Metrics Dashboard

In this exercise, you will explore how users can interact with metric-based dashboards.

Viewing data in a metric-based dashboard

1. Log in to Hyperspace as Violet, your Clinical Administrator.
2. Use the **Epic Menu** to open the **Analytics Catalog**.
3. Find the Clinical Metric Trends Dashboard using a keyword search.
4. Open the Clinical Metric Trends dashboard.
5. Click on one of the cells in the CPOE row of the Compliance and System Proficiency component.
What options appear?
[View Month and Filter Graph](#)
6. Drill down to the most detailed time period you can for the most recent data. As you move through the periods, display the graph. What changes?
[Time period, granularity of graph data](#)
7. Restore the component to its original time period.

Dashboard-level metric settings

1. The dashboard currently displays metric data for the EMH Med Surg department. Make the dashboard display data for the "EMH Cardiac ICU" department instead.
 - All metrics update to display data about the EMH Cardiac ICU department
2. Make the dashboard display data for the "EHS Hospital" Revenue Location instead.

Component-level metric settings

1. How many time periods of data appear on the Compliance and System Proficiency component?
[four, including the QTD](#)
2. Which rows appear in the component?
[CPOE](#)
[Admission medication Reconciliation](#)

[Non-Violent Restraint Documentation](#)

[Violent Restraint Documentation](#)

Resource-level settings

1. Hover over a cell in the **Admission Medication Reconciliation** row. What thresholds does the row use?

0-80 red, 80-95 yellow, 95 and above green

2. How would you find out what CPOE means?

Hover over the information icon and read the description

This is the end of the exercise.

Master Files

Dashboards in the IDM master file act as frames in which components are embedded. Dashboard-level metric settings can control, dashboard-wide, the summary levels and targets of displayed data.

Like dashboards, components in the IDB master file control metric-related settings that propagate to lower levels of the metric framework, like the default time period used for the data. And, like dashboards, components act as frames that store one or more records of the next level of the metric framework: the dashboard resources.

Dashboard resources are IDK records. Resources store settings related to how the data are actually displayed, like the thresholds that determine the color. Each resource points to its particular metric and displays the data associated with that metric.

Benchmark definitions (metrics) are IDN records. They determine how raw data are summarized into displayable data. If you were asked to find the percentage of active MyChart users, you would divide the number of active users by the total number of users. This definition of how to calculate the desired data, in essence, is a metric. Actually applying a metric yields the data points that make up the records of the CSF master file.

The records of the CSF master file store the data points that are shown on the dashboard. Each record represents the collection of data associated with a metric for a specific summary target. For example, the metric about MyChart activation rates would have one CSF record for each department, location, service area, and facility for which it collected data.



You typically cannot directly edit Epic released content. Instead, you must make a copy of those Epic-released records and edit the copy.

IDK and IDN records are exceptions: you may make changes that directly impact these records without copying them. The system will create an override record to reflect these changes. In order to migrate your records, you will need to enter "base.<Record ID>" instead of the record ID. Contact your Cogito and Data Courier teams for assistance.

Metric Data Sources

The metric framework is a standard infrastructure for putting data into dashboard components, and there are many possible data sources.

Chronicles

Chronicles-based metrics can update in real time and include the most current information.

Registries

Registries collect data for entities that all have something in common, such as patients with asthma. Healthy Planet relies heavily on registries for population health. Registries are populated and update on set intervals, and metrics based on registries are as up-to-date as the registry itself.

Clarity, Caboodle, and SQL-based databases

SQL is a programming language used to query relational databases like Clarity and Caboodle.



SQL writers can build their own custom SQL metrics. Learn more about this in the [COG2010i Radar SQL Metrics Badge](#).

And more...

The metric framework is very flexible, and these are just a few of the possible data sources. This complexity means that validation can be a difficult task.

Building a Metric-Based Component

There are many bells and whistles that a user can build into a metric-based component, but some core steps will be the same every time you wish to use metrics.

Find a Metric in the Data Handbook

The first resource for finding available metrics is on the UserWeb in the [Metric Repository](#). This site allows you to search for Epic-released IDN records as well as providing some helpful guidance in ensuring your organization is collecting the data required to enable the metric.

Create the Resource

Build and modify resources with the **Resource Editor** activity. Use the following forms to associate the resource with a metric definition (IDN record) so it can be displayed in a component.

Basic Information

Documenting your build with a meaningful description and an owning application will make maintenance easier, but the only absolutely required field is **Record Type**.

Record Type	<i>Enter Historical Trending if this resource will retrieve data from a metric. Enter Trending Grouper if this resource will group other resources together.</i>
Data Source	
Metric	<i>Specify the metric this resource should display data from.</i>
Show result as	<i>Metrics which store data as a ratio can display either</i> <ul style="list-style-type: none"><i>Calculated Value: the output of the ratio formula defined in the metric</i><i>Elements of the ratio: the numerator, the denominator, or the numerator over the denominator</i>



R IDN 72004 is the metric "C-Section Delivery Rate." This is a calculated metric which takes the ratio of Cesarean deliveries to all deliveries. Depending on the value set in the **Show results as** field, a resource using this metric could display:

- Calculated Value
 - A percentage of all deliveries which were Cesarean
- Numerator
 - A number representing total Cesarean deliveries

Create the Component

Building a metric-based component is similar to building any other component type in the **Component Editor**, with a few special considerations.

Basic Information

Display format	<i>Metric-based components use a display format of "Table" or "Graph".</i>
Data source	<i>Set to "Dashboard Resources".</i>

Data Source

Most of the specialized build happens in the Data Source form.

Summary type	<i>Set to "Historical Trending".</i>
View As	<i>This field determines the meaning of a row in the component. A value of Resources allows one component to display each resource as its own row. A value of Summary Targets allows one component to display a different summary target on each row.</i>
Add	<i>Use the Add button to add each row of the component.</i>

Summary Level

Set up to four summary levels over which to aggregate the data. Common values include service area, revenue location, or department.



Beyond the Basics: Your organization can build its own summary levels beyond those available in Epic released metrics. For more details on this feature, consult the Setup & Support guide here: [Create Custom Summary Levels](#).

Lookup Method

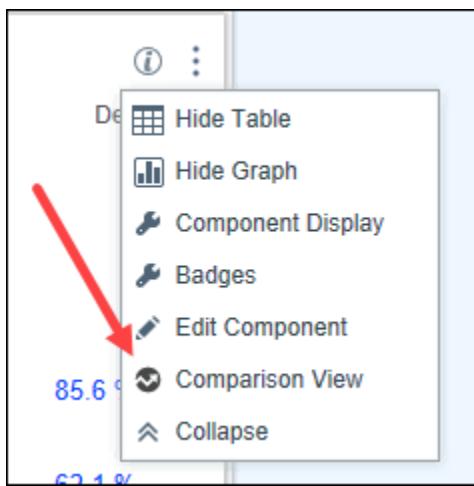
Determine how the dashboard resources on this component retrieve the summary target(s) for display. Possible options include:

- *User Security - Use the values from the appropriate summary level on the Cogito form of User Security*
- *Login Context - Returns a single value: the viewing user's provider record or their current login department, location, or service area (depending on the selected summary level)*
- *Override Parameter - Returns a value specified on the dashboard through the **Edit Parameters** menu*
- *Specific Value - You will manually define the target(s) for this component*

Default Interval and Number of periods	<p><i>These two fields determine the number and type of time intervals to include. If you select the "Use dashboard date range" box, your choices here will be overridden by the dashboard user on their personal view of the dashboard.</i></p>
Future data	<p><i>Some metrics are based on scheduled appointments that exist in the future. You can configure these metrics to display "future data" based on the date of these scheduled encounters.</i></p> <p><i>Metrics based solely on events that have occurred in the past won't have any measurable future data, but can still use this option to display a forecast of future data based on past measurements.</i></p>
Forecasting	<p><i>Metric-based component can be set up to forecast future values and display them on a dashboard. You can control:</i></p> <ul style="list-style-type: none"><i>• how many intervals to forecast</i><i>• whether the forecast should use mean, median, max or min of previous values</i><i>• how many periods from the past to use to generate the forecast</i> <p>! Forecasting does not use any statistical or predictive analytics. It is a simple forecast based on a function of previous values.</p>

Columns

In the columns tab you can change your component from detailing to a Trending view to a Comparison view and choose what values to compare your real data to.



On the dashboard, toggle between Trending and Comparison view in the Component Options menu.

Add the component to a dashboard

Once the component is built, it can be added to dashboards just like any other component.

Exercise 2: Build a Metric-Based Component

Exploratory Method – Try this if you have experience building metrics. Otherwise skip to the Guided Method below.

- Create a new dashboard resource called "<your initials> IP CPOE". This resource should use the COG170 00 IP CPOE metric (IDN record).
- Create a new component called "<your initials> Multiple Resource Component" with a display title of your choice.
 - The component should present the data as a table.
 - The component should be of a type of Historical Trending and be displayed as a list of resources.
 - It should display data from the <your initials> IP CPOE resource as well as the IP Clarity Admission Medication Reconciliation [11054] resource.
 - The component should display department-level data and should determine potential summary targets by login context.
 - The component should display four months of data by default, but should respect any dashboard overrides.
 - Do not display any future data.
- Add this component to your Starter Dashboard.
- Open the dashboard.

In a component with multiple resources, how is each resource represented?

EACH RESOURCE DETERMINES ROW-LEVEL DATA AND PRESENTATION.

Guided Method

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Use the **Resource Editor** to create a new dashboard resource called "<Your Initials> IP CPOE".
3. Choose a **Record Type** of "Historical Trending".
4. On the **Data Source** form, choose the "COG170 00 IP CPOE" metric.
5. Save your resource.
6. Use the **Component Editor** to create a new component called "<Your Initials> Multiple Resource Component".
7. Choose a **Display format** of "Table".
8. Choose a **Data source** of "Dashboard Resources".
9. Give your component descriptive help text.
10. Give your component a meaningful **Display title**.
11. Navigate to the **Data Source** form.
12. Choose a **Summary type** of "Historical Trending".
13. **View As** "Resources".
14. Click **Add**.
15. Search for the "<your Initials> IP CPOE" resource and click on it.
16. Also add the "IP Clarity Admission Medication Reconciliation [11054]" resource to your component.
17. Select a **Summary Level** of "Department".
18. Use a **Lookup Method** of "Login Context".
19. Set a **Default interval** of "Month" and a **Number of periods** of "4".
20. Make sure to **Use dashboard date range**.
21. Set **Display future data** to "no".
22. Navigate to the **Distribution** form.
23. Make sure your component is **Enabled** and save your work.
24. Log in to Hyperspace as Violet, your Clinical Administrator.
25. Open the <your initials> Starter dashboard.
26. Enter the Designer UI.
27. Click **Add Component**.
28. Find your "<your initials> Multiple Resource Component" and add it to your dashboard.
29. **Accept** your changes to exit the Designer UI.

30. Examine your new component. In a component with multiple resources, how is each resource represented?

Each resource is a single row in the table on the component.

This is the end of the exercise

Metrics Features

Builders can quickly create a simple component to display metric data, but there are a number of additional bells and whistles to enrich the metric framework experience.

Dashboard Summary Level Parameters

A summary level is a conceptual way to group data. For example, you could group your data by department, and department would be a summary level. A summary target is a specific entity in a summary level. For example, you might be interested in only the data from one obstetrics department, and that department would be the summary target.

Rather than allowing each component to individually set its summary target, you may wish to have all components on a dashboard display information about the same target. In the **Designer UI** you can click the **Enable summary level parameter** checkbox in the **Edit Parameter** menu to override the dynamic summary target selection of any components and allow dashboard-wide summary target selection instead.

This will add a number of new parameters to your dashboard. By editing the Summary Level parameter, you can click **Selectable Levels** to pick which of these levels are appropriate for your dashboard. You should not include summary levels which are not supported by the metrics used in your components.



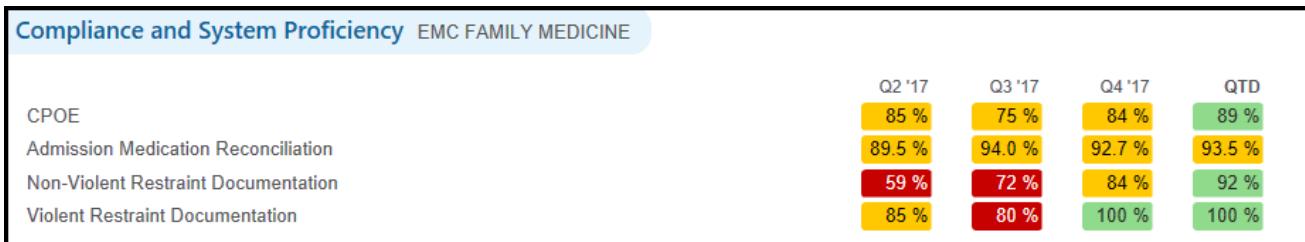
This will only affect components that have a lookup method other than "Specific Value" set on the Data Source form.

The screenshot shows the Tableau Designer interface. At the top, there is a toolbar with a date selector, filter, refresh, and more buttons. Below the toolbar is a header bar with a red box around the text "✓ Enable summary level parameter". The main area is a table titled "Edit Parameters" with columns "Parameters", "Values", "Editable?", and "Pinned?". The rows listed are Department, Location, Service Area, Provider, User, Group, and Department Specialty, all with checked boxes in both "Editable?" and "Pinned?" columns. Below this table is a modal dialog with a red box around it. The dialog has a title "Summary Level ⓘ", a section "Starting Summary Level" with a search input containing "Facility" and checked checkboxes for "Editable?" and "Pin to dashboard?", a section "Applies to components" with a dropdown arrow, and a bottom row with a ">Selectable Levels" button, an "Accept" button with a checkmark, and a "Cancel" button with a cross. At the very bottom of the screen, there is a "Data Range Control" bar.

Enabling dashboard summary level overrides is done in the Edit Parameters menu in the Designer UI

One Resource, Many Targets

So far, we've considered components where each resource is one row in a table. For example:



Four resources with the same summary level

In this case, we have one component listing four resources with a summary target of EMC Family Medicine. However, a user may want to compare multiple summary targets for one resource, as in the following:



One resource with four summary targets

To build a component with one resource but many targets, go to the Data Source form of the Component Editor. Once you set the **View As** field to "Summary Targets", the rest of the **Data Source** form changes as well.

View as: Summary Targets Resources

Historical Trending

Resource: COG170 00 IP CPOE [95080000] 🔍 ✖

Summary level: 🔍 Add

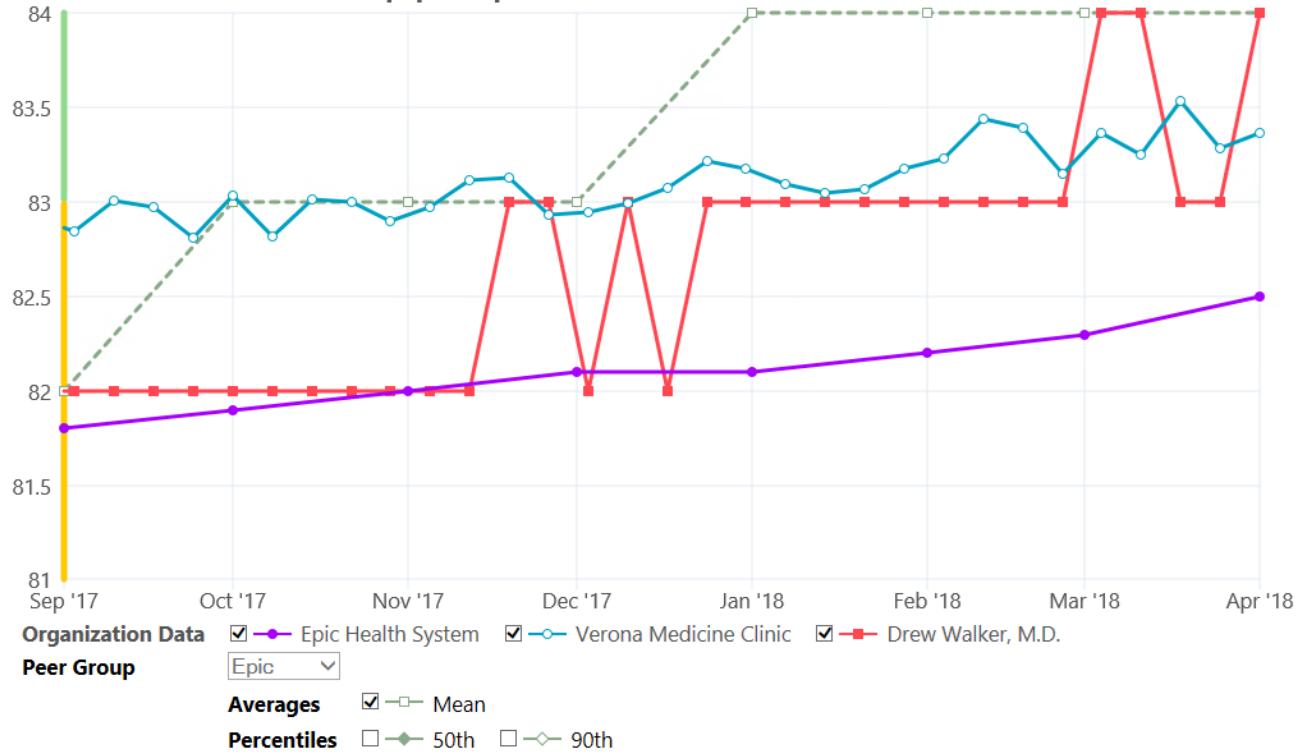
Level	Lookup Method	Value
Department	Specific Value	EMC FAMILY ... 🔍 ✖
Department	Specific Value	EMC DERMAT... 🔍 ✖
Department	Specific Value	EMC CARDIOL... 🔍 ✖

Data Source form for a component allowing multiple summary targets

Benchmarking

Benchmarking is a powerful feature that allows your users to compare your organization's metric data against data from other Epic community members. This helps magnify the impact of metric-based components as the measures are seen outside the narrow context of your specific organization and can be understood as part of industry-wide trends. No additional licensing fees are required.

Use of Appropriate Asthma Medications



An example of benchmarking



For details on how to participate in and set up benchmarking, refer to the [Cogito Benchmarking Strategy Handbook](#) and the [Benchmarking](#) topic on the UserWeb.

Validate the Data

Users often want to see the row-level details underlying metrics. To do so, they can click the information button (ⓘ) that appears on a resource on hover and click one of the resulting links. There are two types of linked reports that provide row-level detail: SQL drilldown reports and reports from Reporting Workbench.

SQL drilldown reports

SQL drilldown reports execute SQL queries to display row-level drilldown about the current summary target(s) and time interval the metric displays.



Building SQL drilldown reports is more complex than the other types of links, and will not be covered in this course. For more information, see the [Allow Users to View Drilldown Reports for SQL Metrics](#) section of the Radar Setup and Support Guide on Galaxy.

Linked SlicerDicer sessions

Dashboard resources can be configured to connect to saved SlicerDicer sessions. This is usually done to allow a user to “dive in” to the data displayed by the metric and explore it themselves. This requires building SlicerDicer sessions which closely match the logic of the attached metric (IDN).

These linked SlicerDicer sessions can be set to pull in the current summary targets and date range being used by the dashboard resource so that the user will be opening a session already filtered to their level of drilldown from the dashboard.

- 13 Open the <your initials> Opioid Patients resource
- 14 Add a link to the Patients on Opioids SlicerDicer session. R HRX 90104109

Metric Deep Search

This is not a feature that is built into the metrics, but something to be aware of. Metric deep search refers to the ability of the Analytics Catalog to find components that contain certain metrics by searching not only the component (IDB) record, but also the resource (IDK) records attached to it and the metric definition (IDN) records they point to.

Notifications

Organizations track metrics to prompt action and decision-making. Radar can track metric values and notify users if the values meet defined criteria. These notifications are also known as Triggered Metric Events (TMEs). However, they are not records in a TME master file. You can build notifications in the **Notification Editor** activity. See the [Notify Users When Metrics Change](#) section of the Radar Setup and Support Guide for more details.

Exercise 3: Build a Resource-Based Component on Multiple Summary Targets

In this exercise, you will build a component in which each row represents a different summary target's data for a given resource.

Exploratory Method – Try this if you have experience building metrics. Otherwise skip to the

Guided Method below.

1. Create a new component named "<your initials> Multiple Target Component" with a display title of your choice.
2. The component should be a resource-based table component that is Historical Trending and that allows multiple summary targets.
3. Display data from the COG170 ## IP CPOE resource using the departments from User Security.
4. Present the data as a table and display four months of data. Add this component to your Starter Dashboard.
5. Don't include future data or forecasting
6. Save your work and view the dashboard as a user. Which summary targets does the component use?
LINE
7. Enable dashboard summary level parameters on your dashboard.
8. Allow users to select summary levels of facility, revenue location, and department from the dashboard.
9. Save your work and view your dashboard as a user. Which summary targets does the component use?
LINE

Guided Method

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Create a new component named "<your initials> Multiple Target Component" in the **Component Editor**.
3. Choose a **Display format** of "Table".
4. Choose a **Data source** of "Dashboard Resources".
5. Give your component descriptive help text.
6. Navigate to the **Data Source** form.
7. Choose a **Summary type** of "Historical Trending".
8. **View as** "Summary Targets".
9. In **Resource**, enter "COG170 ## IP CPOE".
10. Use a **Summary Level** of "Department".
11. Use a **Lookup method** of "User Security".
12. Display four months of data.
13. Do not include future data or forecasting.
14. Navigate to the **Distribution** form.

15. Make sure your component is **Enabled**.
16. Using the Designer UI, add your component to your "<your initials> Starter Dashboard".
17. View your dashboard as a user. Which summary targets does your component use?
EMH Med Surg, EMH Admitting, and EMH Cardiac ICU
18. Open the **Designer UI**.
19. Click the **Edit Parameters** button.
20. Click the **Enable summary level parameter** checkbox.
21. Click the **Summary Level** parameter to expand it.
22. Click **Selectable Levels** and only include Facility, Service Area, Revenue Location, and Department.
23. Click **Accept**
24. Set the **Summary Level** parameter to a starting value of Department.
 - A. Leave it as **Editable** so that consumers can change this summary level on their views of this dashboard.
25. Click outside the parameters window to close it.
26. Click **Accept** to save and exit the **Designer UI**.
27. Now which summary targets does your component use?
28. Just EMH Med Surg (or whatever I select on the dashboard override. Enabling summary level parameters means each component can only use one summary target at a time.

If You Have Time - Exercise 4: Define Report Links on a Resource

In this exercise, you will alter the COG170 ## IP CPOE resource such that it will link to both a report and a SlicerDicer session.

Exploratory Method - Try this if you have experience building metrics. Otherwise skip to the Guided Method.

- First, add the COG170 ## Trending Compliance and System Proficiency component to your Starter Dashboard
- Enable the summary level parameter on your Starter Dashboard.
 - Users should be able to select the Service Area, Revenue Location, and Department summary levels, and the dashboard should begin on the Revenue Location summary level.
- Open the COG170 ## IP CPOE resource for editing.
- In the **Links & Reports** form, **Add** the following:
 - A Report link to the "Find Orders in Preference Lists [10600]" report
 - This report link should only apply when drilled down to the Revenue Location summary level.

- A SlicerDicer link to the "All Patients on COPD Registry [331870] session.
 - This report link should be available at all summary levels
- View your Starter Dashboard as a user and verify that the report links only appear at their assigned summary level

Guided Method

1. In Classic, as Lorena, Open the **Designer UI** for your Starter Dashboard.
2. Click **Add Component**
3. Add the COG170 ## Trending Compliance and System Proficiency component to your starter dashboard
 - A. Reminder: ## is your unique two-digit trainee number.
4. Click the **Edit Parameters** button.
5. Click the **Enable summary level parameter** checkbox.
6. Click the **Summary Level** parameter to expand it.
7. Click **Selectable Levels** and only include Service Area, Revenue Location, and Department.
8. Click **Accept**
9. Set the **Summary Level** parameter to a starting value of Revenue Location.
 - A. Leave it as **Editable** so that consumers can change this summary level on their views of this dashboard.
10. Click outside the parameters window to close it.
11. Click **Accept** to save and exit the **Designer UI**.
12. Use the **Epic Menu** to open the **Resource Editor**.
13. Open the **COG170 ## IP CPOE** resource.
 - A. Reminder: ## is your unique two-digit trainee number.
14. Go to the **Links & Reports** form.
15. Click **Add**.
16. Select "Report" to create a link to a workbench report.
17. Fill out your new link with the following information:
 - A. **Report template:** skip this field
 - B. **Report:** Find Orders in Preference Lists [10600]
 - C. **Label:** leave this with the default label
 - D. **Tooltip:** type in "Hover text added by <your initials>"
 - E. **Summary level:** Revenue Location
18. Now click **Add** again.

19. Select "SlicerDicer".
20. Fill out your new link with the following information:
 - A. **Session:** All Patients on COPD Registry [331870]
 - B. **Label:** leave this with the default label
 - C. **Tooltip:** type in "Hover text added by <your initials>"
 - D. **Summary level:** All levels
21. Save your changes by changing forms in the **Resource Editor**.
22. In Hyperspace, as Violet, open your Stater dashboard and press **ALT+=** to refresh your dashboard build.
23. Find your **Compliance and System Proficiency** component.
24. Hover over the **CPOE** row, and click the information button
 - A. It looks like a lower case letter "i" in a circle just to the left of the data table.
25. You should see your "Find Orders" report link and your All Patients on COPD Registry SlicerDicer link.
 - A. Hover over it to see your tooltip text.
26. Now change your dashboard **Summary Level** to "Department."
27. Check the information button on the **CPOE** metric again, and you should only see your SlicerDicer link.

This is the end of the exercise.

Reviewing the Chapter

Review Questions

1. What master file stores dashboard resources?
2. What master file stores metric definitions?
3. If a table component has a data source of "Report", will it leverage the metric framework?
4. True or False: A metric definition may only be referenced by one dashboard resource record.

Review Key

1. What master file stores dashboard resources?

IDK

2. What master file stores metric definitions?

IDN

3. If a table component has a data source of "Report", will it leverage the metric framework?

No. A Data Source of Dashboard Resource indicates a component will use the Metric Framework.

4. True or False: A metric definition may only be referenced by one dashboard resource record.

False.

Study Checklist

Make sure you can define the following key terms:

- Metric Definition record
- Dashboard resource
- Summary level
- Summary target
- Benchmark
- Metric notification

Make sure you can perform the following tasks:

- Build a component that uses multiple dashboard resources
- Build a component that pulls data from multiple summary targets for the same resource
- Add the summary level parameter to a dashboard
- Dynamically apply a summary target to a metric based component based on user login and/or user security
- Build links to workbench reports from a dashboard resource

Make sure you fully understand and can explain the following concepts:

- Supported summary levels for a metric definition record
- Supported time intervals for a metric definition record
- What is the purpose of SQL drilldown from a metric based component

Workbench Reports

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Introduction

Some report requests require real-time data and a greater level of flexibility and customization. Cogito's Reporting Workbench is a tool that can query Chronicles directly to retrieve the most up-to-date information possible.

By the End of This Lesson, You Will Be Able To...

- Run Workbench Reports
- Modify existing Workbench Reports
- Build your own Workbench Reports
- Distribute Workbench Reports to a Radar dashboard

Scenario Questions/Notes

Page numbers

Lorena builds a report on chronic pain patients.

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.

A new message is waiting for you on the same ticket.



Lorena,

The metrics you found were a great start, but I have one more thing I need. Our team wants to be proactive, and remind our physicians about the opioid prescribing policies we're putting in place. We would love to be able to see all the upcoming appointments for patients with chronic pain so that we can reach out to their visit providers and PCPs with some 'just-in-time' decision support. Think you can add that to the list?

Ciao,

Mona

After some clarification with Mona, you come to some important conclusions about this additional request:

- This data must include appointments created today, so it must be retrieved from Chronicles.
- The audience will be clinic managers working in different locations with different schedules and departments, so it must be customizable.
- Users should be able to "re-run" the query whenever they want, so it must be run on demand, not updated on a set schedule.

With these strictures, you realize quickly that a new metric component will not meet these needs. SlicerDicer reports on Caboodle data, which does not include today's newly scheduled appointments.

There is a tool made specifically for this type of report request.

Building our Pain Patients Report

To build the report that Mona needs, you are going to use another tool from the Cogito suite called Reporting Workbench.



This scenario is intended for in-class demonstration. This report may not return data as written in Study environments.

- 1 Log in to Classic as Lorena, your Cogito Tools Administrator
- 2 Use the **Epic Menu** to open the **Analytics Catalog**
- 3 Search for the **Find Patients - Generic Criteria** template
- 4 Create a new report
- 5 Name the report "<your initials> Pain Patients"
- 6 Set the report to **Public**
- 7 Filter the report to only include patients with an active **Problems by grouper** of "EDG CONCEPT CHRONIC PAIN [100245]"
- 8 Add a criterion to search for patients with a **Visit: Type** of "Appointment" within the next "3 days"
- 9 Add a new column to the report to display the patient's next appointment date
- 10 Run your report

Your report will have to go through some validation before it's ready for public use, but you send a message to Mona pointing her to the test environment where you built the report so she can do some initial review.



Lorena,

This looks like a great start. Oh, and before I forget, I want all of my Clinic Managers to be able to run this report from their dashboards. Make it happen.

Much love,

Mona

There are a few different ways to run a report from a dashboard, but after clarifying with Mona that she only wants a couple of very specific reports on this dashboard, you decide to add the report to an existing link component. You get the name of the dashboard and component from Mona, and get to work adding the report in your test environment.

Linking a report from the dashboard

- 11 Open the COG170 ## Clinic Manager Resources component in the **Component Editor**
- 12 Navigate to the **Data Source** form
- 13 Add a link to your Pain Patients report
- 14 Add the component to your Starter Dashboard
- 15 Return to your dashboard to test the component

Once the component gets tested, the updates will get moved into production and your new report will be in the hands of the users who need it.

Supporting Documentation

After class, you may find it helpful to continue studying Reporting Workbench if this will be a tool you work with regularly. All of the following documents can be found on [Galaxy](#).

Setup and Support Guide

The [Reporting Workbench Setup and Support Guide](#) contains detailed descriptions of the core functionality of Workbench reports as well as some bells and whistles that are beyond the scope of this course. It should be your first resource when looking for more technical details about the tool.

Reporting Workbench Report Design Specification

The [Reporting Workbench Report Design Specification](#) is used to help plan and document Workbench reports being built. It helps the report builder and the report consumer document what should be included in the report, the details of what should be displayed, and the intended purpose of the report.

Report Testing Forms

After you create a new report, the [Report Testing Forms](#) will help you validate that the report is accurate and usable.

Cogito Strategy Handbook

The [Cogito Strategy Handbook](#) is a complete source of information during the Cogito implementation process. It discusses key players, tools, timelines, and milestones that you need for success at go-live and beyond.

The Framework

Reporting Workbench is a tool that consists of a handful of master files working in tandem to retrieve and display data.

The Template

All Workbench reports are created from a template. The template is a record in the HGR master file, and all reports built from the same template have a few key characteristics in common:

- Search Master File: The template defines the Chronicles master file that the search is based in. All reports from the same template return results from this master file.
- Search Engine: Workbench templates designed to search through Chronicles data will use the Ad Hoc search engine to do so. Some templates will use a SQL search engine to retrieve data from Clarity or Caboodle first, and then use the Ad Hoc search engine to refine the data based on Chronicles data

Workbench templates can be found in the Analytics Catalog, and can be differentiated from reports by their icon.



The Find Patients with Unsigned Orders report and the Find Orders template.



In this class, we will build reports from existing templates. If you wish to learn more about customizing and building your own templates, you can do so in the following courses:

[COG200v Cogito Tools Administration](#) covers building templates using the Ad Hoc search engine.

[COG2030v Cogito SQL](#) adds on to this by explaining how to use the SQL search engine.

Report Template Audit

Searching for a template can be difficult if a user doesn't already know the name or ID of the template they are looking for. There is a template specifically built and released by Epic to help users find the perfect template for a reporting need. The **Report Template Audit** template can be used to build a report that finds templates.

The Report

Reports are records in the HRX master file. Users with appropriate security can build many reports from

available templates. The most common settings a user will save in a report are:

- Criteria: Users define the search parameters of the report, the date range, and the logic between criteria.
- Display: Users can pick from available display elements or create their own display columns to decide what to show users running a given report.
- Access: Reports can be private or public, and have some sharing features which allow an author to pick the correct audience for the data being retrieved.

Reports can also be found in the Analytics Catalog.

The Results

Results are records in the HRN master file. Every time a report is run, a new HRN is generated to display the results. HRN records can be saved and even customized by the consumer, but they are ultimately temporary, and all HRN records eventually get purged from the system a few months after they expire. While they exist, end users can do some customization of the results including:

- Sorting
- Filtering
 - No amount of filtering on the results can ever return data that wasn't returned by the original run of the report.
- Saving a view
 - After applying sorting and filtering, a user can save their cosmetic changes so that the next time they run the same report, the results already have their preferred display settings.

You cannot find recent or saved results in the Analytics Catalog. Instead, you can add a component to your dashboard which lists all recent or saved results.

The screenshot shows a dashboard component titled "My Recent Results". It has a header with a help icon and a more options icon. Below the header, there's a section titled "Recent Results" with a dropdown arrow. Three items are listed: "All Radar Link Components" (726 results, ready to view), "Pediatric Patients" (430 results, ready to view), and "Ready for Use Components without Help Text" (99 results, ready to view). The background of the component is white, and the text is in a standard sans-serif font.

Report Name	Results	Status
All Radar Link Components	726	Ready to view
Pediatric Patients	430	Ready to view
Ready for Use Components without Help Text	99	Ready to view

My Recent Results dashboard component

You will learn to build this type of component later in the [Distributing Reports on a Dashboard](#) section of this chapter.

My Reports

When you are viewing results, you will notice you are in an activity called My Reports. This activity was the "home base" for Workbench reporting before the Analytics Catalog was released. It can still be used to see some helpful metadata about recent results, but it generally is less useful than the Analytics Catalog for finding and distributing content to end users.

Exercise 1: Viewing Results

In this exercise, you will investigate how users interact with report results.

Part 1: Running a Report

1. Log into Hyperspace as Violet, your Clinical Administrator.
2. Open the **Analytics Catalog**
3. Remove your previous filters
4. Add a filter to look for Workbench Reports.
5. Your favorite reports should appear first in the list. Run the **Pediatric Patients** report
 - You are taken to the Results Viewer.

Part 2: Viewing Results

1. When the report has finished running, the results of the report run appear.
2. In the upper right corner of the results, click the **Options** menu. It appears as a series of three vertical dots, much like the Dashboard Options or Component Options menus on a dashboard.
3. Select **Show Search Information**.
4. The criteria the report used appear at the right side of the screen. What criteria did this report use?
All patients where Patient Status = Alive and Age in Years <18 and ZIP code = 53593 or 53711 or 53726 and in my authorized service area of EHS Service Area.
5. To hide the search criteria, click **Options** and select **Hide Search Information**.

Part 3: Sorting Results

1. Hover over the **Patient** column header. What pops up?
The name and ID of the column, as well as a description of what the column displays.
2. Click the Patient column header. What happens?
The results are sorted in order of the patients' names.
3. Click the Patient column header again. What changes?
The results are sorted on their names going from Z-A instead of A-Z.
4. Now, click the DOB column header. What changes this time? Did this undo what you did in the last step?
The results are sorted by the patients' Date of Birth. Yes

Part 4: Filtering Results

1. Dr. Pat Ness wants a list of just her pediatric patients. Instead of running a different report, you can filter the current report to show only Dr. Ness's patients. Click **Filter** at the top of the workspace.
 - The Filters pane appears on the left side of the workspace.
 - You can filter by more than one column, but we only want to filter by one right now. Click the plus sign in the field to pick a column.
 - Select **PCP**.
2. Filter the results down to patients with **Pat Ness** as their PCP and click **Accept**.
 - What happens to the report?
Only the results where Pat Ness is listed as the PCP are shown
3. In the bottom left of your screen, click **Clear All Filters**. Now what happens?
The report is no longer being filtered
4. Dr. Ness is actually covering for Dr. Diana McQueenie, so she wants the report to show both of their patients. Add doctors **Pat Ness** and **Diana McQueenie** to your filters. Can the report be filtered to show multiple values at once?
Yes
5. Close the Filters pane by clicking **Filter** again.
 - With the Filters pane closed, are the filters you selected still active?
Yes
 - How can you tell which column the report uses to filter? In the column the report is filtering by, there is an icon

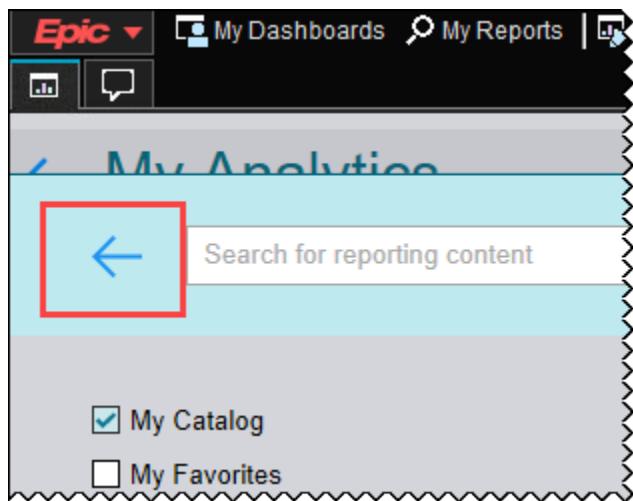
Saving Results and Views

1. Click **Options**.
2. Select **Save Results** to open the Save Results window.
3. Name your saved results <"your initials> Pediatric Patients". Set an expiration date of "w+1", one week from today.



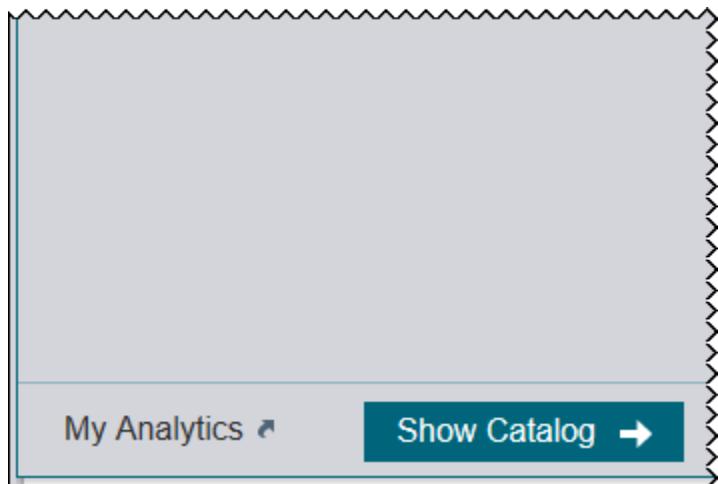
When this expiration date is reached, you will be prompted to delete your saved results or set a new expiration date. This helps prevent a build-up of forgotten saved results.

4. You're done with these results for now. Close the Reports workspace.
5. You are returned to the **Analytics Catalog**. Click the arrow in the upper right to hide the full catalog.



Hide Full Catalog

6. Click the **My Analytics** button.



My Analytics

7. The My Analytics dashboard is available to all users and shows favorite and recently run reports, as well as saved results. Find the results you saved and click the **Viewed** link next to them to view them again.

8. You are taken to the Results Viewer again where the results are once again displayed. You had filters set when you saved your results. Were they preserved?

No

Saving results only saves the actual result data, not any formatting. If you want to save formatting, you can create a View using the View Manager.



Saving a view preserves your filters and sorting.

Following up on results

1. Click on a patient in the report, and then click **Chart** in the activity header. What happens?

The patient's chart opened

Reporting Workbench can be set up to allow you to take actions on the results of a report. This helps Reporting Workbench reports to be directly integrated into end-user workflows.

2. Close the patient's chart. You are brought back to the Results Viewer.

3. Click the **Pats by Sex** tab near the top of the activity:



If the report has a graphical summary, then additional tabs will appear in the Results Viewer

- What happens?

A pie chart appears

4. Now click the Explore tab.

5. In the SlicerDicer interface, try and make the same pie chart:

- A. Slice by Sex
- B. Click Add All
- C. Click on the tree map visualization
- D. In the sidebar change your tree map to a pie chart.

Reporting Workbench can perform summarization through the Workbench report itself, or end users can create their own visualizations. In the current version, these SlicerDicer-created visualizations can be saved and made available to all users running a public report. However, the summaries cannot yet be shared on a dashboard. This feature is planned for release later in 2022.

This is the end of the exercise.

Working with Results

After the report has successfully run, users can view the results in the **Results Viewer**.

Every Workbench Report returns a list of data. This data usually comes in one of two forms:

- Records
 - Record-level reports generate a list of records from a specific master file. There is no way to generate a list of records from more than one master file in a single workbench report. A record will be included in the results if at least one contact on that record in the report's date range meets all of the parameters of the report.
- Contacts
 - Contact-level reports return a list of contacts on records in a specific master file. Every contact which meets the parameters of the report will be in the results. This means many rows in the results could all be from the same record.



A patient, Jackson Shehulk, has had 5 office visits in the last year. Three of these office visits were with Dr. Marino, and two were with Dr. Whitecoat. A user builds the following report:

Find all patients with an office visit in the last year where the visit provider was Dr. Marino.



Write in Workbook

How many rows would Jackson have in the results if this report were record-based?

1

How many if it were contact-based?

3

Workbench reports based off of Clarity or Caboodle can be built to return results that do not map to Chronicles records or contacts, but such reports should be considered a small minority of cases.

Valid Until Time

When the report is finished, the **Status** will be "Ready to view." These results have a Valid until time which is determined by the report's template. Users won't usually see this time displayed.

Users are unable to re-run the report until the Valid until time has been reached. When the Valid until time has been reached, the results of the report will be considered obsolete, or expired, and will fall off the list.

The only time a user can re-run a report before the Valid until time has been reached is when the report is modified so that the current results may no longer be considered valid. This usually means a change to the report's filters or to the columns being displayed.



Dr. Agate runs the Pediatric Patient report at 9:00 AM and views the data that is returned in the results. The results are valid until 11:00 AM.

At 10:00 AM, an administrator edits the Pediatric Patients report. She adds a new criterion that in addition to patients being less than 18, the patients should also live in the city of Madison.

Since the administrator changed the meaning of the report, the results that Dr. Agate currently has may no longer be considered true information. If Dr. Agate clicks the Pediatric Patient report at 10:15 AM the report will rerun even though the original results were valid until 11:00 AM.

Detail Reports

Some reports might display a detail report at the bottom of the window inside of the Results Viewer. This detail report is a print group report that can show additional information about the row selected. Multiple detail reports can be configured to appear for a given report. This detailed information report can be configured in either the report or template on which the results are based. For more information on configuring print group reports, contact your Epic representative.

Sorting Results

To sort the results, click the header of the column by which you want to sort. Click again to reverse the sort. To sort by multiple columns, right click on a column header and use the **Modify Columns** option to customize your sorting.

Sorted columns are denoted by small numbered triangles pointing in the direction of the sort.

Filtering Results

To filter results by information in a specific column or columns, click **Filters** on the toolbar. Then choose one or multiple columns to filter on, and specify values for each. Click **Apply** to filter your results.

A funnel icon in the lower right corner of the column header denotes that the results have been filtered on that column.

To clear the filters, click **Clear All**. Click **Filters** a second time to hide the filter options.

Toolbar Actions

The buttons available on the activity toolbar vary according to the report being run as well as the security of the running user. Common buttons such as Save Results, Export to File, Export and Open, and Settings are grouped under **Options**.

What options appear in the menu depend on the security of the person who ran the report. Users will only see the actions that they have the security to take. Some common actions include:

- Save Results
 - Save results past the valid until time for later viewing. This requires naming the result set and choosing an expiration date.
- Export Results
 - Export results to tab- or comma-delimited text file.
- Show Search Information
 - Many users won't have the security to actually modify the parameters of a report. This button allows them to still view the parameters used to generate the current set of results. This information is displayed in the message area at the top of the results.
- Open Column Definitions
 - This shows a quick definition for each of the display columns your report is currently using
- Turn Debug On/Off
 - This can be useful when you wish to see the underlying data that your columns are using to calculate the displayed values. For example, it can show the category numbers next to any string category values.

Creating Workbench Reports

Once a user has found the template they will use to create a new report, they can create a new report in the Analytics Catalog by hovering over the template icon and clicking. This opens up the **Report Settings** window. The Report Settings window contains all of the forms used to build or modify a Workbench Report.

Report Setting Window Tab	What does it do?
Criteria	This tab is used to set the parameters of the report, the logic used between parameters, and the date range used by time-sensitive parameters.
Display	This tab is used to add or remove display columns from the report, and to add detailed views to the results.
Appearance	This tab is used to adjust the font, color, and highlighting of rows or columns of data in the results.
Summary	This tab is where a user can build charts and graphs to display aggregated summary data about report results.
Print Layout	This tab is only used for reports that need special formatting for printed or e-mailed results.
Toolbar	This tab is where users can remove or re-order action buttons from the results of the report.
Override	Users with a high level of Reporting Workbench security can use this tab to change some template-level settings like the hours to keep results or the maximum records to search or return. Settings here override template-level settings and only apply to this one report.
General	This tab is for broad settings like the name of the report, whether it is public or private, and report- or result-level sharing.



Before making any changes to an existing report, or beginning build on a new report, navigate to the General tab to give your report a name and click either **Save** or **Save As**. **Save As** will create a new copy of an existing report.

- 16 In Classic, as Lorena, open the **Analytics Catalog**
- 17 Find the **Find Patients - Generic Criteria** template.
- 18 Create a new report named "<your initials> Sample Report".

The General Tab

Beyond naming the report, the General tab controls whether a report is public or private, and sharing of the report or results.

- Private reports are owned by the creating user and are not visible in other users' libraries by default. Many high-needs reporting users will have the security to create their own private reports because the impact of such reports is limited and there is low risk of accidentally distributing incorrect or confusing data.
- Public reports are often built by analysts or report writers who have a strong understanding of Chronicles data. These reports can be seen and run by any user with access to the report's template. Because of this, the number of users with the ability to write public reports should be carefully controlled.

Whether a report is public or private also greatly impacts what can be shared.

Public - Results Sharing	When one user runs the shared report, all of the users with whom the results are shared will see the results in Recently Run Reports
Private - Report Sharing	Each individual with whom the report is shared gains the ability to run this report from their own Analytics Catalog, but do not share results.



In order to share the results, the report template must allow sharing of results.

Shared Groups	<p>Public reports only. Results will appear in the Recent Results of every user with a report group listed here. Report groups are covered in more detail in the Security lesson.</p>
Shared Users	<p>Public and Private reports. List individual users with whom to share.</p>
User Notification	<p>Public reports only. Choose whether or not the shared users or the group of users should receive an In Basket notification telling them that the report results are ready to view.</p>

Report Tags

Tags are used to organize and distribute templates and reports. Most tags are set at the template level, and are inherited by all reports built from the same template. On the General tab, it is possible to assign report tags at the report level. These tags are added to the tags assigned at the template level. If tags are added at the report level, and then later all of these tags are removed at the report level, the report will default to the template level tags.

The Criteria Tab

A report's parameters, sometimes called criteria or filters, control its search. Each parameter is one true/false expression that the report will evaluate to determine which results should be returned.

Each parameter you add to a report is displayed in a card in the Criteria tab. To edit the parameter values, click the criterion to open or close the card.

To add a new parameter to a report, either search for it by name, or use the **Search** button to see a full list of all parameters available on this template. Some users will have the security to add additional parameters to the list using the **Add Criterion** button at the bottom of this list of criteria, but this is typically restricted to those users with a sophisticated understanding of the Chronicles data structure like analysts or members of the Cogito team.



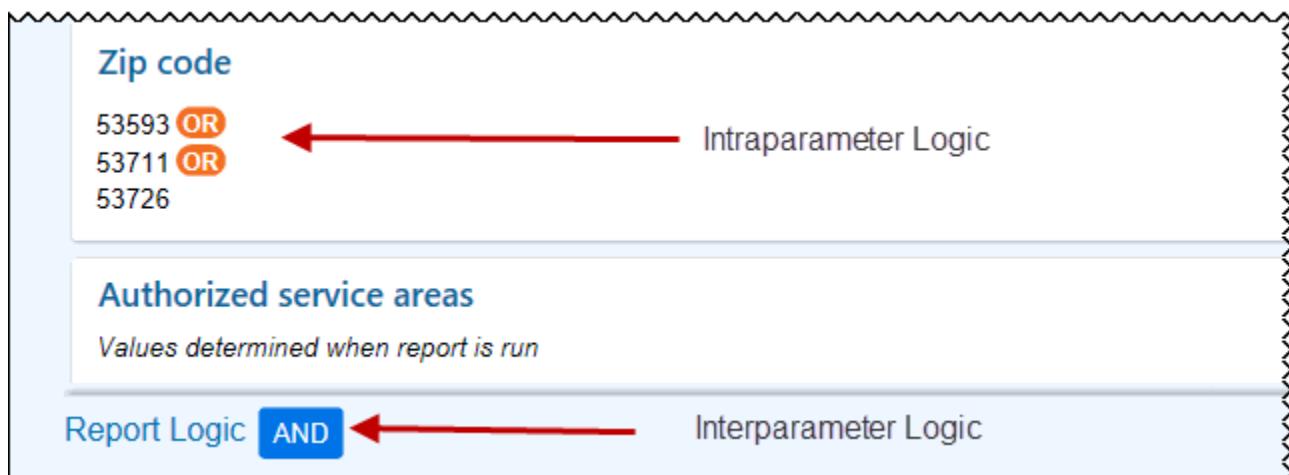
The ability to add criteria on the fly to a report is based on several factors.

- The template the report is made from needs to be set up to allow users to add criteria on the fly.
- You have to have the security to add criteria on the fly. Not everyone who can edit reports can add new criteria to the list.

In addition to adding parameters, the Criteria tab controls logic between parameters as well as the date range of the report.

Report Logic

Most reports will use multiple parameters in one search, and possibly multiple values for each parameter. Users are able to choose the logic used between the parameters, called interparameter logic, and the logic used between the values of one parameter, called intraparameter logic.



Logical operator	Function
And	All parameters must be true, or each value within a parameter must be true.
Or	One parameter must be true, or at least one value within the parameter must be true
Custom	This option allows users to define their own logic among criteria or values using a combination of AND and OR. This option is only available to users with the appropriate security on report templates which are enabled for custom logic between criterion values.

Custom logic should be formatted as a logical statement consisting of numbers representing each parameter, ANDs, and ORs. For example, a report with the following parameters:

1. Sex = Male
2. Patient status (alive/deceased) = Alive
3. BMI > 30
4. Weight > 200 lbs.

And the following custom logic:

- 1 AND 2 AND (3 OR 4)

would be evaluated as "Patients who are male AND are alive AND either (have a BMI over 30 OR a weight over 200 lbs)".

Date Range

The date range can narrow down the records or contacts being returned by the search. Not all parameters will use the date range as you may expect. In Workbench reports, the date range is not an actual parameter itself. Rather, it acts as a boundary within which time-sensitive parameters are evaluated. This functionality may seem odd to users accustomed to other data structures and reporting tools, and deserves special consideration.



Only time-sensitive parameters respect the date range on a workbench report. Time-sensitive parameters can be identified by the presence of a clock icon on the Criteria tab.

Not all master files use overtime items. For example, ETR (financial transactions) does not, and neither does ORC (scheduled surgeries). Templates searching these master files will generally not include a date range section. Users may still want to report on all charges filed or all surgeries scheduled within a certain date range, however. These master files usually have a no-add item that holds a relevant date for the record - for example, Posting Date in ETR, and Surgery Date in ORC. Templates searching these master files should include a parameter that allows for filtering on that item.

The above rules explain the behavior of the vast majority of templates. There are, however, some heavily customized templates that operate differently. For example, the Specify Date Range section of the Find Orders template acts differently depending on how a parameter is set: you can search by when an order was placed, verified, charged, or more. In this template, the search respects the date range even though no clock icons appear next to parameters.

Record or Contact

Each workbench report returns either a list of records or a list of contacts. This is determined by the template. A record-based search will return one row for each record that meets all criteria. A contact-based search will return a row for each contact that meets all criteria.



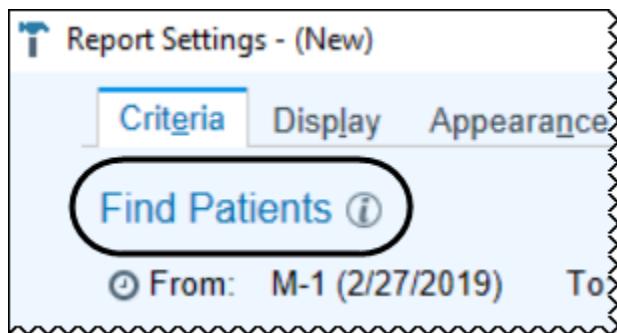
A record-based search would be appropriate for this reporting need:

A physician wants a report that returns a list of patients they have seen in the past month. For this report, each row should represent one patient that was seen. Even if a patient was seen five times that month, the patient should only appear once in the results.

A contact-based search would be appropriate for this reporting need:

A clinic manager would like to run a report that returns a list of all the appointments that occurred at the clinic in the past month. For this report, if a patient has come in five different times, they should appear in the results five times.

The way an end user can tell whether a report is record- or contact-based is by looking at the information window (i) at the top of the Criteria tab. This should indicate to the end user whether the report is searching records, with a key word like Patients or Accounts, or searching contacts with a key word like Contacts, Encounters, or Appointments.



This key word is specified by the report programmer in the template. To get more information about what the report is built to do, click the information window and a description box will appear.

Exercise 2: Date Range in Workbench Reports

In this exercise, you will investigate when the date range in the Report Settings window applies to criteria.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. In the **Analytics Catalog**, find the "Exercise 2: Patients with Diabetes on Problem List" [90001802] report and open it for editing.



In this exercise, you only need to run this report. You should not make any changes to the report.

3. What date range does this report use?
M-3 To T
4. Which of these criteria are overtime, if any?

None of them

5. Run the report. Looking at the results, did any of the criteria in the report use the date range?

No. Patients with encounters outside the date range are returned by this report.

6. Back in the **Analytics Catalog**, find the "Exercise 2: Patients with Encounter Diagnosis of Diabetes" [90001808] report and open it for editing.

7. What date range does this report use?

M-3 To T

8. Which of these criteria are overtime, if any?

Diagnosis by grouper (note the clock icon)

9. Run the report. Looking at the results, did any of the criteria in the report use the date range?

Yes. Only patients with encounters within the date range that had a listed encounter diagnosis of diabetes are returned.

This is the end of the exercise

The Display Tab

The **Display** tab of the Report Settings window determines what information is displayed about the records or contacts found by the search.

Each of the columns used to display information in a Reporting Workbench report is its own record in Chronicles. Columns are defined in the **PAF** master file. PAF records do not store data. They are only used to format and display data.



PAF records are shared across Epic in many different applications to display data. Do not modify an existing PAF without knowing where else it is being used.

The **Selected Columns** are ones that appear in the Results Viewer. A list of **Available Columns** will not appear in the results, but are easy to add to your Selected Columns using the add/remove arrow buttons. The template defines the Available Columns which should meet the most common reporting needs. Use the arrows to the right of the Selected Columns list to change the order the columns will appear in the report results.

In the **Anchor** field, select up to three columns to anchor in place. When viewing results, users will scroll horizontally through any columns that are not locked in place (anchored) on the left of the screen.

Some users can go beyond the list of available columns and create custom PAF records to display any data they want.

The Column Editor

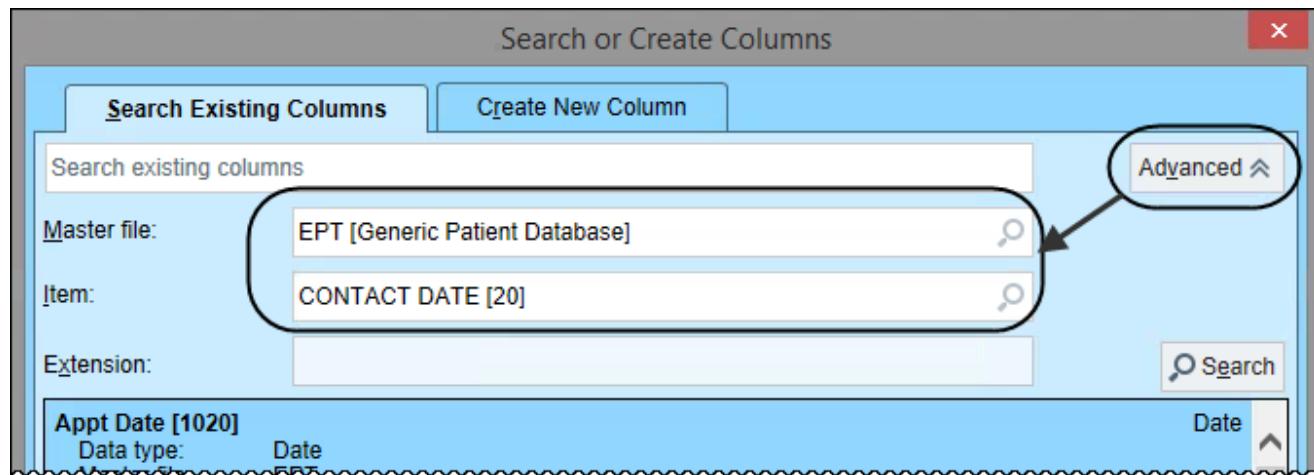
On the Display tab, the **Add** button launches the **Column Editor** activity. Use the **Column Editor** to search for existing PAF records or to create new custom columns.



Before you create a new column, always check to make sure there isn't an existing column that you could use. This will help prevent duplicate columns being made. The Epic-released template **Find Report Columns [R HGR 3042]** is a good resource to help with this research.

In the **Search or Create Columns** window, enter a keyword, the name of a column, or the ID of a column to search for an existing column.

If you know the item you want to display, use the **Advanced** search options to look for columns by the INI and item they display, or by extension.



Once you find the column you seek, you can add the column to the report.

If you do not find an existing column that you can add to your report, you can create a new one. From the column selection window, select **Create New Column**.

Fill in the appropriate information, such as the **Column name**. If you do not assign a Column ID, the system automatically assigns one.

In the **Column Editor**, you can enter a **Caption** and a **Basic Description**. The Caption is the name that will be used in the column header when this column is used in a report, and the Basic Description is the help text that the end user will see.

The Column Definition and Display Extensions sections determine what the column will display.

The **Field type** defines whether this PAF record will display the value stored in an item in a Chronicles master file, or if it will display the results of a piece of M code called an extension. Select a Field type of Data Item to make columns that display Chronicles item values. Then, enter the desired INI and item number in the Master File and Item fields. If you think you may need an extension to display the data you want, you should work closely with your Epic technical services representative.

The other fields in the Display Extensions and Filter Extension sections define PAF columns that use a

Field type of Extension. After you select the information the column should display, use the **Column Formatting** section on the right to choose how the column will appear in a report.

The available options depend on the data type of the column. Some of the less intuitive configuration options are called out below.

Data Type	<i>The data type of the item that will display. This is important for correct formatting of the data. Most of the time this will match the data type of the item in Chronicles.</i>
Record/Categor y	<i>If the data type is category or record, this field becomes enabled. It allows the data to be presented in various combinations of name, abbreviation, and ID.</i>
Sort On	<i>For columns with a data type of category, you can control whether the column will sort by the category value or the category name.</i>
Lines/Line Number	<i>For columns displaying data from a multiple response or related group item, you can control which line(s) within the item should be displayed.</i>
Width	<i>The default width of the column. Column width is measured in twips. One pixel equals about 15 twips.</i>
Summarization Format	<i>For columns with a numeric data type, you can control how Reporting Workbench grouped and table summaries will display the results of functions applied to this column. Examples include currency, time duration, and number (no decimals).</i>

Detail Views

The field at the bottom of the Display tab lists one or more detailed view print group reports for display. This is the most common location to specify the detailed views that will appear on a report. A template can list a single default detailed view, but reports specified here in the Display tab will override the one set at the template level.



Reporting Workbench is not the only application that uses print groups. For more information about print groups, go to the [Data Handbook](#) on the UserWeb, and select Print Groups from the toolbar.

The Appearance Tab

The **Appearance** tab lets you determine your report's colors, fonts, and general formatting.

The Formatting section shows an example of how the fonts and colors will appear in the results. To customize, click the **Set custom colors** field and use the appropriate fields. Select **Copy From** to copy the formatting of another report and apply it to this report. Select **Revert to default colors** to restore the default settings.

Conditional Formatting

Use this section to call attention to specific results based on defined logic. For instance, a report displaying a patient's recent lab tests could highlight abnormal lab results with a red background. This lets report users find important information quickly with just a glance through the report.

- Choose a column, an operator, and a value to define the conditions that cause overrides.
- Choose the resulting text font, text color, and background color changes.
 - If you select Whole row, the entire row takes on the selected formatting options. If you select Cell only, the formatting changes only affect the cell that met the condition.

Exercise 3: Build and Modify a Report

In this exercise you will create a new report from an existing template in the Analytics Catalog. Physicians at your clinic want to keep track of patients with a high BMI. You have a request to build a report that displays all patients in the city of Madison who have had a high BMI recorded at a recent visit.

Part 1: Set up the Search

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Open the **Analytics Catalog**.
3. Create a new report from the "Find Patients - Generic Criteria" template.
4. Save the report as <your initials> BMI in Madison. Your report should be public.
5. Add the following parameters to the report:
 - City = Madison
 - BMI > 22
6. Set your date range to search contacts between **2/1/2018** and **3/31/2018**
7. How will the date range be used when this report is run?
"The report will return all Living patients in Madison with a documented BMI greater than 22 between 2/1/2018 and 3/31/2018."
8. Save and run the report.
9. How many patients did your report return?
Results may vary
10. Can you tell how many contacts each patient had within the date range? Why or why not?
No, it is a record-based report

11. Can you tell each patient's BMI? Why or why not?

No, we don't have a column displaying BMI

Part 2: Modify Appearance

The physicians you are working with have requested to view the BMI of the patients in the report, along with something to distinguish those patients with an extremely high BMI. Modify your report to accommodate these requests.

1. Open your BMI in Madison report again for editing.

2. Open the **Display** tab. When this report is run, what information will we see about each patient in the results?

MRN, Name, DOB, AGE, Sex, and PCP

This template does not have a column available to display patient BMI. In order to find or build the appropriate column, we first need to know where patient BMI is stored. After doing some research in the Record Viewer, you determine that **I EPT 18035** stores the data you need.

3. Click **Add**.

4. Click **Advanced**.

5. Search for a column that displays I EPT 18035.

It is likely you'll see some columns built by your classmates in this environment, but we will pretend that there is no existing column that meets your need so that you can practice building a column.

6. Click on the **Create New Column** tab.

7. Name your new column <your initials> Patient BMI.

8. Click **Accept**.

9. Confirm that your column displays I EPT 18035.

10. Click **Accept**.

11. Find your column in the list of available columns and add it to your report, but do not run the report yet.

12. In order to call attention to the highest values in our report, your report consumers would like to highlight the patients with BMIs above 30. Open the **Appearance** tab.

13. Create a new conditional formatting rule. Set up your rule according to the following specifications:

A. For the whole row

B. When <your initials> Patient BMI is greater than or equal to 30

C. Set the background color to red

14. Save and run your report.

This is the end of the exercise.

The Summary Tab

Summaries in workbench reports are often created specifically to integrate with Radar dashboard components. If a reporting need is going to be best met with a summary, SlicerDicer is usually a better tool than a Workbench report for generating the summary.



Write in Workbook

What would be a good reason to build a summary in Reporting Workbench instead of using SlicerDicer?

The summary must include data from today. The summary is based on data not stored in Caboodle.

For more detailed information on building summaries in various Cogito tools, reference the [Summaries](#) lesson.

The Print Layout Tab

The main goal of Reporting Workbench is to allow users to view reports and take actions on the results in Hyperspace, but there are possible reasons to print the results on paper.

For more information about the Print Layout Tab, reference the [Allow Users to Print Report Results](#) and [Change the Appearance of Printed Reports](#) sections of the Reporting Workbench Setup and Support Guide.

The Toolbar Tab

The template a report is built from is the main source of actions that will appear at the top of the results of a Reporting Workbench report. On the toolbar tab, users can choose which of these default actions will appear in the results for a particular report.

Administrators who do not want to allow users to modify these default actions can disable this tab from the template.

The Override Tab

All of the options in the override tab have default settings on the template. Template builders will be familiar with these options and are typically the only users with the security to change these items at the report level.

Report Models

Epic can't release configured workbench reports that would work for every customer because each has different organizational structures and customizations. Instead, Epic releases *report models*. The primary use case for models is to allow Epic to build released content. In general you would not specifically seek out or use a model instead of a template or existing report. But you should know what they are in case you run across one of them in the Catalog.



Write in Workbook

In which master file is each report model a record?

HSQ

What is a Report Model?

Report models are Epic-released and contain the basic information about what a report should do. It might contain what the summary should be for the report, what the print layout should contain, or what column overrides will be commonly used. However, Epic cannot anticipate organization-specific information. A parameter that looks at departments, providers, or payers could use a different value at every Epic organization.

A report model is a report as far as Epic can create it without filling in these specific holes.

When building a report from a report model, a wizard walks through the process of filling in these holes.

19 As Lorena, in Classic, open the **Analytics Catalog**

20 Filter to **Workbench Reports**

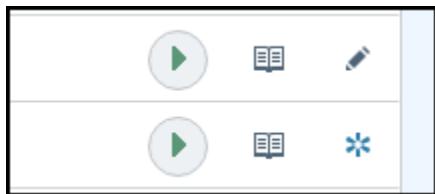


A report model is not a report. It is a record that can help create a new report. Report models cannot be edited, but after building a report from a report model, you can edit the new report.

Using a Report Model

Report Models are in the Analytics Catalog, and are nearly indistinguishable from normal Workbench reports. You can tell a model from a report in 2 ways:

1. The description of the report will reference "this report model."
2. The icon in the sidebar in List View (or the hover icon in Card view) will be different



Reports have a pencil icon to edit the report, Models have a starburst used to publish a new report from the model

When you click to publish a report from a model, a window will pop up to walk you through creating the report. This report build wizard will help you create a report based on a report model. As you click **Next** you will have the chance to fill in the settings that Epic could not. You may see default suggestions based on the setting, but you are able to edit any of the defaults.

After you have gone through all the screens in the wizard by clicking **Next**, click **Finish**. A new report is created based on the information you put into the wizard. The new report can be found in the Analytics Catalog. If you wish to edit the report after it has been created you can find it in the Analytics Catalog with the rest of your reports.

Distributing Reports on a Dashboard

Radar can integrate with Reporting Workbench and serve as a single location for users to view their reports.

- Link components can include a manual list of links to reports.
- Report listing components can automatically list different reports for the user.

Both types of component let users view, run, or edit the listed reports.

Manual Report Distribution

Use a Link Component

Administrators can distribute unchanging lists of reports with link components.

These components have a

- **Display format** of Link
- and a **Data Source** of Component Record



No component can confer access to a report not already available in the viewing user's Analytics Catalog. If the link is to a report the user cannot normally access, the link does not display.

Each of your links is built on the **Data Source** form of the **Component Editor**. While you can add links to external URLs and Hyperspace Activities, the most common use for these components is to link to Reports. The basic setup for a report link is controlled using the fields that appear when you **Add** a report link.

Report

Select the report for which you wish to create a link.

Lists of reports can be visually organized using Link Groups and Separators. Link Groups create collapsible headers within the list, and Separators display a simple horizontal line to break up the list of links.

Automatic Report Distribution

Use a Report Listing

The screenshot shows a report listing component with a header "Radar". Below the header is a table with columns "Report Name" and "Status". The table contains several rows of report names. To the right of the table is a context menu with three items: "Run", "Edit", and "Remove from Favorites". The "Status" column for the first row shows "Ready to run".

Report Name ▲	Status
All Grand Central Radar Components	Ready to run ▾
All Radar Link Components	
Components with Linked Epic-Crystal Reports	
Radar Dashboards Not Accessible By Model RPT Admin	
Reporting Role	

A report listing with a data source of My Reports

For recently run reports, the Status column displays the status of the results. Otherwise, it indicates whether the report can be run.

To build a report listing component, select Report Listing in the Display Format field of the Component Editor. The Data Source field determines how the component retrieves reports:

- My Reports - Pulls reports and results from the viewing user's Favorites and recent runs
- Report Tags - Keywords that are associated with reports

The Data Source form of the Component Editor has different options for these two methods.

Data Source - My Reports

My Reports had many types of content. Select which My Reports content to include on the Data Source form. Options include recent Reporting Workbench reports, favorite reports, and saved results.

Data Source - Report Tags

Use the checkboxes to select the types of reports you wish to pull in to the report listing component. There are a few types of report that can be included here that we will not build in this class:

- **Datalink reports** are an older functionality that allowed for bringing Clarity data into Hyperspace in order to take action on the results. Now that Workbench reports can use a SQL engine, this functionality can mostly be done with SQL based Workbench templates.
- **Application reports** are built by epic and customized by your application analysts. They are usually deeply ingrained in a very specific workflow.
 - Example: The Department Appointments Report (DAR) is used extensively by schedulers and front desk staff to monitor and check in appointments.
- **Business Objects, Epic-Crystal, and Epic-WebI reports** are all 3rd party reporting tools that have been used by Epic customers in the past and allowed integrated distribution in Hyperspace. Epic no longer recommends these tools, but currently still supports distributing them on dashboards.



Application reports require specific setup in the application report template and the application report template must be configured in the Template Manager.

Once you have selected the types of reports to return, you may list up to five tags to use to search for reports in the Include reports with the following tags field.

If you list more than one tag, you must select the logic to use between those tags. The default is And logic. You may alternatively choose Or logic (not recommended for performance and sheer number of potential results) or custom logic.

Exercise 4: Distributing Reports on a Dashboard

In this exercise, you will distribute reports on a dashboard through two different component types.

Distribute Reports by Report Tag

You want a component that displays all current or future Workbench reports tagged with Admission, Discharge, and Transfer. In the steps that follow, you will build a Report Listing component with a Data Source of Report Tags to satisfy this need.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Use the **Component Editor** to create a new component called "<your initials> Tagged Report Listing".
3. Fill out the appropriate **Display Format** and **Data Source** as follows:
 - A. Display Format: report listing
 - B. Data Source: report tags.
4. Give your component help text, a **Display title**.
5. On the **Data Source** form, include Reporting Workbench reports with *all* of the following tags: Admission, Discharge, and Transfer.
6. Group reports by their type.
7. Make sure your component is **Enabled**.
8. Save your component's settings.

Now you are going to create a link component to link to the report you created in [Exercise 3: Build and Modify a Report](#).

9. Use the **Component Editor** to create a new component called "<your initials> Report Links".
10. Give your component a **Display Format** of "Link "and a **Data Source** of "Component Record".
11. Navigate to the **Data Source** form.
12. Click **Add**.

13. Choose to insert a link to a **Report**.
14. Configure your link to point to the "<Your Initials> BMI In Madison" report.
 - Note: your report must be public in order to add it to a component.
15. Make sure your component is **Enabled**.
16. Save your component's settings.
17. Switch to Hyperspace as Violet.
18. View your Starter dashboard.
19. Enter the Designer UI.
20. Click **Add Component**.
21. Find your "<your initials> Report Links" component and add it to your dashboard.
22. Click **Add Component**.
23. Find your "<your initials> Report Listing" component and add it to your dashboard.
24. **Accept** your changes to exit the Designer UI.

This is the end of the exercise.

Reviewing the Chapter

Review Questions

1. A user ran a report to find all geriatric patients but now wants to limit the report to only patients who have arthritis. The report includes a column to display the patients' medical problems. How can the user limit the report to only arthritic patients without re-running it?

2. Who can find a public report in the Analytics Catalog?

3. True or False. A private report is one that anyone can run, but only the creator can edit.

4. What is the difference between a parameter and a display column?

5. What Master File stores one record for every display column in Chronicles? Choose only ONE answer.
 - A. HRX
 - B. PAF
 - C. IDB

6. What should you do before creating a new display column?

Review Key

1. A user ran a report to find all geriatric patients but now wants to limit the report to only patients who have arthritis. The report includes a column to display the patients' medical problems. How can the user limit the report to only arthritic patients without re-running it?

Use the Filters tab, and filter the Medical Problem column on the value "arthritis"

2. Who can find a public report in the Analytics Catalog?

If a user can see a template in the Analytics Catalog, they will be able to view and run all the public reports made from the template.

3. True or False. A private report is one that anyone can run, but only the creator can edit.

False.

4. What is the difference between a parameter and a display column?

A parameter is used by the query. It will determine which results are found at run time. A display column is used to display information about the results that are found.

5. What Master File stores one record for every display column in Chronicles? Choose only ONE answer.

- A. HRX
- B. PAF
- C. IDB

b

6. What should you do before creating a new display column?

Check to make sure there isn't a column already created that you can use.

Study Checklist

Make sure you can define the following key terms:

- Results
- Report
- Template
- Analytics Catalog
- Results Viewer
- Parameter
- Public report
- Private report
- Report Model
- Report Listing Component
- Tags

Make sure you can perform the following tasks:

- Run a report
- View the results of a report
- Filter the results of a report run
- Sort the results of a report run
- Determine the criteria a report used to find results
- Find a report in the Analytics Catalog
- Create a new report
- Copy an existing report
- Search for an existing display column by INI and item #
- Create a new display column
- Create a Report Listing component based on My Reports or Tags
- Apply font and color overrides to report results

Make sure you fully understand and can explain the following concepts:

- The importance of the valid until time
- What the different tabs of Report Settings control
- Why different users see a list of different reports in the Analytics Catalog
- The effect the date range has on overtime and non-overtime parameters
- The meaning of a row in Reporting Workbench results
- Why you should search for an existing column before creating a new one
- The difference between manual and automatic report distribution on a dashboard
- Reporting Workbench's data source

Day 2 Lab: Epic-Released Content

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Introduction

Epic has created hundreds of dashboards, components, reports, templates, SlicerDicer Data Models and Filters used to display and search over a variety of content and applications.

In this lab, you will learn how to use Epic's online documentation to research what content is available, how to leverage the content, and how to tweak it to suit your needs.

By the End of This Lesson, You Will Be Able To...

- Leverage Epic's standard-release and Foundation System content
- Locate documentation on Epic's UserWeb to review Epic-released content

Review Epic-Released Content

Before re-inventing the wheel, the first step is to research what Epic content already exists.

Standard Release Content	<p><i>Epic has created hundreds of out-of-the-box components, metrics, templates, SlicerDicer Filters and more. Standard release content is automatically installed in your environment when you go-live or upgrade to a new version.</i></p> <p>! Released records cannot be edited in your environment. If you wish to customize an Epic-released record, you must create your own copy and edit that instead.</p>
Foundation System Content	<p><i>The Foundation System is an Epic environment that provides installing and live Epic community members with up to date features and content based on the expertise and experience of the Epic community and the Epic staff. Dashboards, components, reports, and more are included in the Foundation System.</i></p>



The Foundation System is like a building that's substantially complete - you can walk through it and settle in a bit, but it hasn't been customized to meet the unique needs of your organization, and doesn't contain all the tools and equipment your users need for their work. Depending on the needs of your organization, you might have a little or a lot of work to do to get the building up to your specifications. The Foundation System considerably reduces the work required for overall build and configuration and provides content for you to build on.

The Report Repository

Epic's [Report Repository](#) is a comprehensive and centralized database that documents standard reporting content and Foundation System content produced by Epic. This repository allows you to search Epic's released reports, dashboards, components, SlicerDicer Data Models and Filters from a central webpage. Each entry contains basic system-level information as well as contextual information on how the content is used.

The Report Repository is available as a link from the UserWeb home page.

- 1 Log in to the UserWeb.
- 2 Under **Documentation**, navigate to the **Report Repository**.

Use the Report Repository

1. Search by Application, Topic, Consumer, Reporting Tool and/or keyword.
2. Click on an entry to view information about it. You will see general information about the component, report, dashboard etc. such as applications most likely to use it, common report consumers, and scope. You'll also see a description and a sample image for the entry.

Explore the Report Repository

In the following exercise, you will explore how to research Epic-released content in the Report Repository, specifically content useful for members of the Cogito team, but you could apply the same skills to content available for other Epic applications. As you explore different dashboards, templates, components, reports and filters, you will use the online documentation to answer a number of questions about the content you are researching to help test your understanding and sleuthing skills.

If you don't know your credentials for logging in to the UserWeb at this time, you can complete most of the exercises using Hyperspace documentation tools like the **Record Viewer**, the **Analytics Catalog**, the **Dashboard Editor**, **Component Editor** and **SlicerDicer**. Let your trainer know if you are completing these exercises in class and don't know how to log in to the UserWeb.

Epic-Released Cogito Content

1. Log in to the UserWeb (<https://userweb.epic.com/>)
2. Under **Documentation**, navigate to the **Report Repository**
3. In the Report Repository, search on the following:
 - **Applications:** Reporting Workbench, Radar
 - **Reporting Tools:** Cogito Radar Dashboard
4. You just searched the Report Repository for dashboards that help distribute information about Reporting Workbench and Radar. Write down the name of one of the dashboards returned in your search that interests you: Answers may vary, including options like the Cogito Security and Build Audit Monitor Dashboard, the Cogito Analytics Usage and Monitoring Dashboard, and the Data Steward Dashboard.
5. Open the Cogito Analytics Usage and Monitoring Dashboard entry in the Report Repository.
6. Read the summary of this dashboard. Who at your organization might be interested in using this dashboard? Answers may vary, including Cogito Project Managers, Executives, Business Intelligence Developers
7. How many components does this dashboard include? List some of the components that interest you: Answers may vary.
8. Read through the **General Information**
9. In which Chronicles master file is the Cogito Analytics Usage and Monitoring Dashboard a record? Write the INI for that master file here: IDM
10. What is the ID of the Cogito Analytics Usage and Monitoring Dashboard? 33010000007
11. Log in to Classic as Lorena, your Cogito Tools Administrator. Open up this dashboard in the **Record Viewer**, specifying the appropriate INI and Record ID.
12. What item stores the description of this dashboard? IDM 40 stores the description of the dashboard.

13. Navigate back to the **Report Repository**.
14. Check out the following Workbench templates in the **Report Repository**. Use the documentation about them to answer the questions that follow. You may keyword search for them by name, though it may be faster to filter on a **Reporting Tool** of Cogito Reporting Workbench Template and an **Application** of Reporting Workbench.
 - Report Settings Audit Report Template
 - Audit Report Runs Report Template
 - Report Template Audit
15. Which of the three listed templates is the newest? Report Template Audit
16. How can you tell? The First available base version lists when the template was first available. The Report Template Audit was first available on Epic 2018. The other templates were available prior to Epic 2018.
17. You'd like to show your Cogito Project Manager how much content you've created since you were hired. You want to create a report that lists all the public reports you have created. Which of the three listed templates should you build your report from? Report Settings Audit Report Template
18. Open this report in the Repository and scroll to the bottom.
19. Expand **Review Criteria**
20. Which criteria should you filter on to see a list of just reports you have created that are also public? The Created by users criteria will help narrow down the results to just reports you created and the Private or public criteria will help narrow down the results to just public reports.
21. Now that you've done your research, log in to Hyperspace as Lorena, your Cogito Tools Administrator.
22. Find the template you researched in the **Analytics Catalog** and create a new report from it.
23. Set up the **Criteria** tab of your report to search for public reports created by the Cogito Tools Administrator you are logged in as.
24. Make this report public, and save it as "<Your initials> My Public Reports"
25. Run the report and validate the results.
26. Navigate back to the **Report Repository**.
27. You'd also like to follow up on reports that were run today that didn't finish running. Which of the three listed templates should you build your report from? Audit Report Runs Report Template
 - Report Settings Audit Report Template
 - Audit Report Runs Report Template
 - Report Template Audit
28. As you are preparing to call it a day, someone calls you up who attended your recent SlicerDicer workshop and asks if you have any documentation about the Surgeries and Invasive Procedures

data model you could share with them. Can you find anything on the Report Repository that might meet this need? Yes, the SlicerDicer Data Model: Surgeries and Invasive Procedures entry in the Report Repository.

29. What filters could you have used to find this entry faster? Filter on Applications = OpTime and Reporting Tools = Cogito SlicerDicer Data Models and Filters.
30. The **Report Repository** also has a number of topics that collect information about different dashboards, components, reports and more that you can use to address that topic. From the home page of the **Report Repository** (click Report Repository in your Data Handbook toolbar to navigate back to the home page), under **Browse Report Topics**, pick a topic that interests you and read through the entry in the Report Repository. Take note of any dashboards, components, reports or data models that are mentioned in addition to other reporting solutions.
31. Continue to explore the Report Repository further. Filter by the **Reporting Tools** that interest you and the **Applications** you may be supporting as part of your role.

Reviewing the Chapter

Study Checklist

Make sure you can define the following key terms:

- Report Repository
- UserWeb

Make sure you can perform the following tasks:

- Find Epic-released dashboards
- Find Epic-released components
- Find Epic-released reports
- Find Epic-released data models
- Find Epic-released reporting content

Make sure you fully understand and can explain the following concepts:

- Incorporate Epic-released content into your organization's Radar dashboards

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Introduction

Some reports need more than just a list of results. Any time a user wants to aggregate and analyze data in groups, or track trends over time, they rely on summaries. Cogito's tools all have the ability to produce summaries in one form or another, but there are key differences to consider when choosing how to summarize.

In this chapter, you will build summaries in SlicerDicer, Workbench reports, and dashboard components. Each tool has some unique advantages and important considerations to learn. Understanding these will ensure that your summaries are customized to meet any reporting need.

By the End of This Lesson, You Will Be Able To...

- Choose the appropriate summary and summarization function for a given request
- Change your visualization options in SlicerDicer
- Build a summary in a Workbench report
- Build table and graph dashboard components based off of Workbench reports

Scenario Questions/Notes

Page numbers

Lorena summarizes patients by PCP for a dashboard component.

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.

This morning, yet another message awaits you on Mona's ticket.



Lorena,

A number of our providers are currently using a workbench report called My Patients on Opioid Analgesics to keep an eye on patients they care for. I want to see those numbers myself. Ideally, I'm picturing a graph of all these patients broken down by ZIP Code to look for trends geographically. How long do you think that'll take?

Toodles,

Mona

Since Mona has given you a Workbench report to start from, it will be easiest to copy the existing report and build a summary from there.

- 1 Log in to Classic as Lorena
- 2 Open Report Settings for the report My Patients on Opioid Analgesics (R HRX 3260)

Mona said that many providers already use this report, so you don't want to make any changes to the original. You will need to change the patient base if the report is going to return a list of all patients on opioids instead of just a single providers' patients.

- 3 Save a copy of the report as "<your initials> Patients on Opioid Analgesics".
- 4 Change the **Patient Base** to "All Patients".

To group these patients by Zip code, the report needs a column which can display this item. Patient zip code is stored in I EPT 80.

- 5 On the **Display** tab, add a new column which displays I EPT 80
- 6 On the Summary tab, create a new Grouped Summary with the following settings:

- Title: Patients by ZIP Code
- Tab name: Pats by ZIP

7 Group by ZIP Code

8 Summarize by a Total count of MRN and a percentage of total MRNs.

9 Save and run the report



This report is no longer just looking at one physician's patient population. It is searching through every patient in our system, so it may take a few minutes to run.

With a summary built into the report, you contact Mona and ask some more questions about how she wants to see this summary. There are a few options available to her:

- Workbench report summary
 - If Mona wants to be responsible for running the report on demand when she needs it, and viewing the summary within the results, you can simply publish the report to her Favorites and be done.
- Radar dashboard component
 - If Mona wants to see this list of ZIP Codes alongside the rest of her data, you can build a component to host the summary on her dashboard with the option to link to the report results if she needs more detail.
- SlicerDicer population
 - If Mona wants to be able to change the parameters of this summary on the fly, and is not concerned with seeing today's data, you could try to re-create the summary in SlicerDicer and share it with her.



Dashboard components linked to a Workbench report will display the exact same data as is seen in the Workbench report. However, a SlicerDicer component may not exactly mirror a Workbench report without a lot of research into the exact items used by the Workbench summary and how those items move into Caboodle.



Lorena,

I think the dashboard component would be best. I want to see these numbers alongside the other metrics you built for me. Just make sure it doesn't look too cluttered.

Buena suerte,

Mona

- 10** Create a new Table component named "<your initials> Patients on Opioid Analgesics" with a **Data source** of "Report".
- 11** Set the **Data Source** to the "<your initials> Patients on Opioid Analgesics" report summary.
- 12** Check the **Output Format** of your table. Mona hasn't asked for any highlighting or thresholds, so the defaults should suffice.
- 13** Add a bar graph to your table component. The default settings look fine.
- 14** Make sure your component is **Enabled**.
- 15** Add the component to your Starter Dashboard to test it.

You now have a table summary that can be run and viewed from the dashboard with a bar graph attached if needed. Mona should be delighted you were able to get this done so quickly.

Choosing to Summarize

When a report requester wants to more easily consume and analyze large amounts of data, they ask for a summary. Cogito's tools have a number of different ways to summarize data, but all of the tools go through two main steps to generate summaries:

1. Group the rows
2. Aggregate across the rows

Group the Rows

Whichever summary format the report builder chooses, they will have to specify how the data is grouped. All summarization formats fundamentally group data by common characteristics.

Consider the following set of data regarding patient encounters.

Patient Name	Patient MRN	Encounter Date	Department	Total charges
Anna Allen	111	1/1/2011	AA Clinic	\$100
Barry Brown	222	1/1/2011	BB Clinic	\$100
Barry Brown	222	1/14/2011	BB Clinic	NULL
Carla Collins	333	1/5/2011	BB Clinic	\$0
Denise Drake	444	2/2/2011	CC Clinic	\$300
Eli Emery	555	3/3/2011	BB Clinic	\$0
Frank Ford	666	4/4/2011	NULL	\$400
Anna Allen	777	5/5/2011	AA Clinic	\$1000
Ginny Gale	888	NULL	NULL	NULL
Haleem Hadi	999	NULL	NULL	NULL
Iago Ingersoll	101	1/10/2012	BB Clinic	\$700
Anna Allen	111	2/10/2012	AA Clinic	\$100

Grouping by one of these columns will break out this one data set into multiple groups. Every group consists of the rows of data for which the value in the grouped column is the same.

For example, if we grouped this data by Department, our summary would have 4 groups: AA Clinic, BB Clinic, CC Clinic, and NULL. Notice the NULL group for rows that have no department. Depending on your request, you may need to include or exclude this group.



A report request wants to summarize this data to find out which patients generate the most charges. Group the summary by patient so we can compare them.

There are two columns which we might use here: Patient Name and Patient MRN.



Write in Workbook

How many groups would the summary have if it was grouped by Patient Name?

9

How many if it was grouped by Patient MRN?

10

When grouping, pay close attention to duplicate values, this could cause unrelated rows to be summarized into the same group.



Even line graphs work on the principle of grouping. Most line graphs group data by day, month, or year and summarize all the events that share that date characteristic.

Aggregate across the Rows

Once data has been grouped, summarization functions aggregate the data and define how it should be displayed for each group. Choosing the wrong summarization function can obfuscate the data.

Count

One of the most common summarization functions is count. Counting a column means that for each group, your summary will show how many rows in the group have a value in that column. Count does not care what the value is, only that it exists. This means the only rows not counted are those containing a NULL in the counted column.

Count Unique

Counting unique values in a group is very different from performing a simple count. Counting unique values will display the number of different values stored in a column for each group. NULL values will still not be counted.

Sum

Sum is only used for numeric columns. It adds up the values in a column for each group. When adding up numbers, neither a 0 nor a NULL will affect the total sum.

Average

Average is also applied to numeric values and can be thought of as Sum divided by Count. It is important to recognize that since the denominator of this function is a Count, this means that the number of NULL values will not be considered when calculating an average.



There are several common errors made when choosing how to summarize. Follow these rules.

- DO NOT use a count function on numeric data to find total amount.
- DO NOT use count unique unless you want to display "number of different values."
- When using an average function, find out if the column stores a NULL or a 0 when no data is entered.

Percentage

Percentage allows you to evaluate the proportion of a data set that is comprised of a particular value. It can be used on both numeric and non-numeric values. Once again NULL values are not included in the denominator.

Exercise 1: Which Function?

For each example, choose the correct summarization function(s) you might need.

1. How much money did we charge in 2011?
Sum
2. How many patients were seen in each clinic?
Count Unique
3. How much money do we usually receive from Medicare for each knee replacement procedure?
Average
4. For each provider, how often are they prescribing drugs from the Statins grouper?
Count
5. How many different procedures have each of our clinics performed this month?
Count Unique

This is the end of the exercise.

SlicerDicer Visualizations

By default, every SlicerDicer population starts with no grouping and a count of all records. SlicerDicer supports a number of different summarization formats.

Grouping

Changing grouping in SlicerDicer is done by adding slices. Most users will be looking at the top or bottom slices of a population, so it is crucial to know whether a given population is being used to find outliers at the high or low end of the range.

The slices that can be chosen come from the list of SlicerDicer Filters (FDS records) built for the chosen data model. If a user wants to slice by some value that isn't available in SlicerDicer, a new FDS record can be built as long as the data is in Caboodle.

Summarization Functions

The measures used by a SlicerDicer population control which summarization functions are used. All measures can be counted or viewed as a percentage of the total count. Depending on the type of data being measured, other summarization functions may also become available.



The SlicerDicer Filter (FDS record) "Chief Complaint" can be measured either as a count or percentage.

The SlicerDicer Filter (FDS record) "Age in Years" can be measured as an average, minimum, maximum, variance, deviation, or percentage.

Map Visualization

SlicerDicer's map visualization summary stands out as a way to group by geographical zones. The data displayed in a map visualization is the same that a user would see if they did a bar graph grouping by ZIP code, but the map overlay creates a more meaningful way to consume the information and see trends based on location. Map visualizations are not available in every data model, and are not available for display on a dashboard component.

In addition, mapping data is usually licensed from a third-party data vendor. Each organization will need to load the appropriate data before the map visualization summary will function.

SlicerDicer summaries in Reporting Workbench



While it is possible to summarize Workbench results using the SlicerDicer interface, those visualizations are not truly "SlicerDicer" summaries as they don't send queries to Caboodle, and they lack a number of features found in SlicerDicer itself.

Workbench Report Summaries

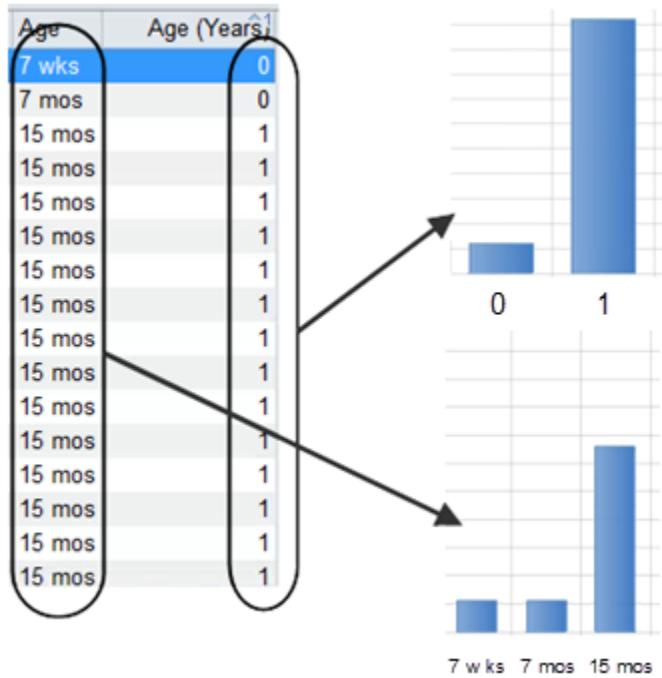
Workbench report summaries are built in the Summary tab of the Report Settings window. The possible ways to visualize the summary are grouped summary, bar graph, line graph, area graph, pie chart, and table. Whichever visualization you select will perform the two steps of summarization, grouping and aggregation, on the columns in the report.



Line graphs in Workbench reports can conceal gaps in the data. A line graph fundamentally groups the same way other summaries do, which means no group is created if no data exists. Imagine a line graph showing cases of hospital-acquired pneumonia week-by-week. If there were ever a week with 0 cases, that week would not show up on the graph, and the line would just skip from the week before to the week after.

Workbench Summaries Rely on PAF Output

Workbench summaries group and aggregate on the data returned by the PAF columns. If you build a summary to count patients by age using a column that formats patient ages by year, then all patients between 12 and 23 months old will be grouped together as Age (Years) = 1. However, if you use a column that formats such ages as "7 wks," "7 mos," and "15 mos," then each age would get its own group.



These two columns would yield very different groupings if used in a summary.

Columns do not have to be displayed to be available to a summary. To group or aggregate by an element not already available in the report, add a new column on the Display tab, whether as an Available Column

or a Selected Column.

The Explore tab

The Explore tab allows end users to create their own summaries with the SlicerDicer interface. The biggest differences between summaries in the explore tab and summaries created in Report Settings are as follows:

- 1) The summaries can be saved as views of the report results only. This means they will be available to all users who run the report, but only within the results, not on a dashboard.
- 2) The summaries can be grouped and aggregated based on only the displayed PAF columns, not those listed as "Available" in the Display tab.

Exercise 2: Build a Workbench Summary

In this exercise, you will create a report that returns a set of outpatient visits, summarized by visit department.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Open the Analytics Catalog.
3. Create a new report from the COG170 Visits [90000063] template.
4. Go to the **General** tab.
5. Make this a Public report.
6. Name your report "<your initials> Visit Summaries".
7. On the Summary tab, create a new Bar Graph.
8. Name the graph "Visits by Department - Summary Tab".
9. Name the tab "visits by dep".
10. Verify that Hide this summary in Reporting Workbench is unchecked.
11. This summary should show the visits in each department. In the X-Axis section:
 - Enter a Column of DEPARTMENT/LOCATION[1031]. This will tell the summary what each bar going across the x-axis should represent.
 - Label the x-axis "Visit Department".
 - Don't include blank values.
12. Each bar should represent a count of the visits in each department. In the Y-Axis section,
 - Add a Function of "Total count".
 - Add a Column of CSN (EPT) [811].
 - Label the y-axis "Number of Visits".
13. Click Accept to save the summary.

14. Save and Run your report to view your bar graph.
15. Now build the same summary in the explore tab. Click **Explore**.
16. Add a slice by "Dept/Loc" and choose "Add All."
17. To save your explore tab view, click your **View Manager** in the upper right of your results viewer.
 - A. It should currently say "Explore - Original"
18. Save your summary as "Visits by Department- Explore tab".

This is the end of the exercise.

Table and Graph Components

Workbench summaries and metric-based dashboard resources can be displayed as summaries on a user's dashboard using components with a Display Format of either Table or Graph. The decision to choose table or graph is primarily cosmetic, as you can build a table component from a summary defined as a graph, or vice versa.

The data displayed in either type of component comes from the summary defined by the data source; the component build is primarily focused on the data's presentation.

Build a Table or Graph Component

The appearance of both graph and table components is determined in two places - the component record and its data source. Since graph components may display a table, and table components may display a graph, their **Component Editor** options are nearly identical.

-  16 Open the COG170 Bar Graph component in the **Component Editor**

Basic Information

Display format	<i>Select Table or Graph. SlicerDicer components must use Graph.</i>
Data source	<i>In a graph component, you can display data from the results of a Reporting Workbench report, a dashboard resource, a saved SlicerDicer session, or you may select a Code Template. This lesson assumes that you have selected a data source of Report or SlicerDicer.</i>

Data Source

For information about a data source of:

- Code Template: view the [Radar Setup and Support Guide](#) or refer to the [INF500i Informatics Programmer](#) self-study
- Dashboard Resources: refer to the [Dashboard Metrics](#) lesson

For components with a **data source** of SlicerDicer, the **Data Source** form is very simple. Just select the saved SlicerDicer session you want to display on your component.

For components with a **data source** of Report, the **Data Source** form specifies the Reporting Workbench report template, report, and summary from which the component will pull its data.

Here are the settings important to table and graph components based on a Workbench report:

Template	Select the Reporting Workbench report template of the report or report model that retrieves the data for the component.
Report	Select the Reporting Workbench report or report model to use as the data source. The report model cannot require additional setup to run. The report or report model must be saved with a summary to return any data to the component.
Summary	A report or report model can be saved with more than one summary. Select which summary should be used for your graph.
Allow users to view the report	Includes a hyperlink to the report results in your component.
Enable report drill-down	Allows users to drill down to a subset of the report results when they select a row from the table that can be displayed with the graph.
Use expired results if available	The graph shows data even after the results have expired. The component displays a message indicating it is showing expired results.
Parameters	Allows you to set values for the parameters (criteria) in the report. By default, the 'Use dashboard values option' is selected, meaning that parameter values will be based on settings chosen in the Edit Parameters menu.

Output Format - Graph

Advanced graph display settings for your component are determined on the **Graph** section of the **Output Format** form. These display settings include whether or not to show a legend, the aspect ratio and scale factor of the graph, labels for the different axes and much more.



Remember to **CTRL + CLICK** in the different fields on the Output Format form to get detailed item help text.

Output Format - Table

The **Table** section of the **Output Format** form has many options separated by tabs. The **General Settings** tab, the **Columns** tab, and the **Thresholds** tab are essential to any table component.

General Settings

The first tab of the **Output Format - Table** form determines overall how your table component will look. The Sample layout area shows how your selections change the appearance of your component. Here are the settings important to the table component on the **General Settings** tab:

Show table

If unselected, no table will display. If disabled on a graph component, the component will be unable to display a table in addition to the graph.



SlicerDicer graph components cannot show a table. Even if this option is selected, a SlicerDicer component will not have an option to show a table. To see a SlicerDicer session as a table, instead edit the session and change the visualization to a Detail Table view.

Show status indicators

Enables showing red, yellow, and green indicators on your component.

Columns

On the **Columns** tab, specify the columns you will want to appear in your component and their settings. These will populate for you from the Reporting Workbench report. If someone edits the underlying report, click the **Reload from Report** button to refresh the table from the report.

Thresholds

In tables displayed as part of graph or table components, a builder can specify thresholds at which the summary data can highlight red, yellow, or green to indicate which groups of data need attention first. These are controlled in the **Output Format - Table** form of the Component Editor.

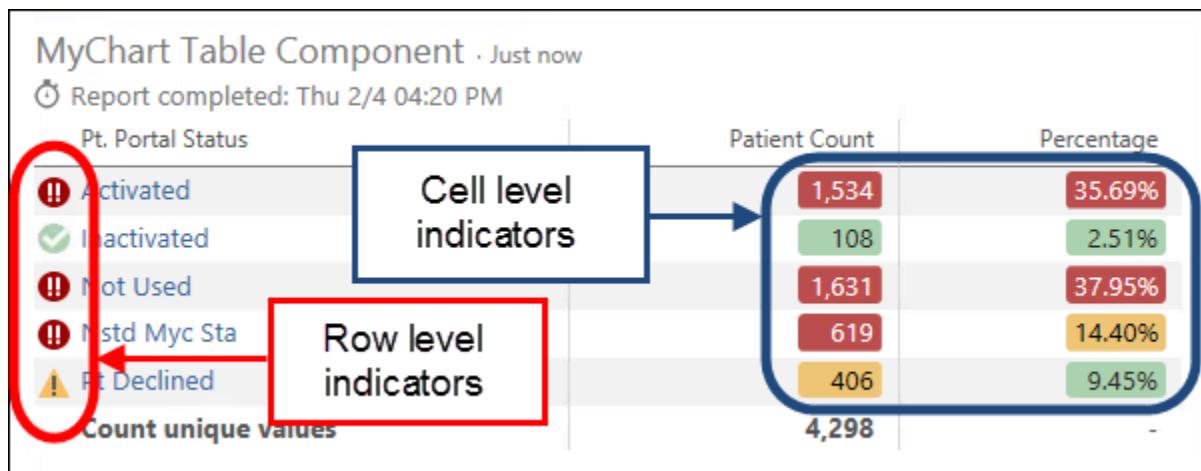
The first section of the form, Default Thresholds, specifies the thresholds for entire columns.

The second section of the form, Threshold Overrides for specific cells, overrides the above column settings for specific rows.

Indicator style

Specifies which indicators will be used. There are two options:

- "Cell indicators only" - *Color indicators only appear in cells - no row-level icons appear.*
- "Include row indicators" - *An icon appears adjacent to each relevant row. If a single row has cells of different color indicators as below, it will show the icon for the higher alert level.*



Comparison of cell indicators and row indicators

Group level	<i>The group level to which the table's alert thresholds apply.</i>
Column	<i>Enter the name of the column to which this threshold rule applies.</i>
Lower and Upper Bound	<i>Enter values for the lower and upper bounds of the threshold. An empty field leaves the threshold range open.</i>
Alert	<p>! The component will evaluate these rows from top to bottom. If two rows have overlapping boundaries, whichever row comes first in the table will determine the threshold used.</p> <p><i>Choose whether a value within the threshold range causes a green, yellow, or red indicator.</i></p>



Radar evaluates thresholds first by specificity and then by order. Consider the thresholds below. What color indicator would be displayed for a Percentage value of 50?

Column	Lower Bound	Upper Bound	Alert
<Apply to all>	0	20	Green
<Apply to all>	20	100	Yellow
Percentage	0	50	Green
Percentage	50	100	Yellow

As the Percentage thresholds are more specific than the <Apply to all> thresholds, Radar evaluates with the Percentage thresholds. Next, as the green boundary is defined above the yellow boundary, a value of 50 would evaluate to Green.

It is good practice to have an overlap across rows. If a value does not fall within any threshold bounds that you've defined, it will appear with no indicators. In the thresholds table below, a value of 49.5 would not qualify for any row and no indicator would appear.

Column	Lower Bound	Upper Bound	Alert
Percentage	0	49	Green
Percentage	50	100	Yellow

Threshold Overrides

It is possible to set override thresholds for specific cells in a table component. Consider the following scenario:



The MyChart administrator noticed that you use a threshold setting that can be described, in essence, as 'high percentage values result in more severe alert colors.'

However, these same threshold values apply to activated patients. This is inaccurate since high percentages of activated MyChart statuses is a good thing. The MyChart administrator would like higher percentages in that row to cause more positive alert colors.

We would need to make changes that are specific to the Activated row and override the default thresholds. Radar allows us to do that in the **Override thresholds for specific cells** section.

Here are the settings unique to the Threshold overrides for specific cells section:

GT	<i>Select the GT check box if the specific row you want to set an override rule for is a grand total row. This check box appears only if the row titles have categories or records as their source. Selecting this check box causes the only selectable rows to be those listed in the Grand total labels section of the Rows tab.</i>
Row	<i>Enter the row to which the override thresholds apply.</i>

Badges

Badges are easily digestible graphics representing a single data point from a table or graph component. Badges can be added to a table or graph component through the **Component Editor** or through personalization. To build a badge in the **Component Editor**, navigate to the **Badge** section of the **Output Format** form.

Badge

The options on the Badge form may vary based on the data source of the component. The following appear for report-based table or graph components.

Only show badges	<i>This setting causes the component to only show badges. Many Epic-released dashboards take advantage of this feature to display a row of critical KPIs across the top of an otherwise data-dense dashboard.</i>
Column	<i>The column that provides the data the badge represents.</i>

Grand total	<i>Indicates whether the badge is representing a grand total. If selected, the Row field will only be able to represent the grand totals already built for the component.</i>
Row	<i>Select the row of data that the badge represents. The row must be defined in the Rows tab of the Table form.</i>
Size	<i>Choose whether your badge will be Mini, Standard, or Big. Mini badges show up in the component header, even when the component is collapsed. Big badges take up the full width of the component and are intended for large, shared displays.</i>
Visualization	<i>Select how the badge should be graphically presented. The badge will change color and indicator depending on the value it represents and the thresholds set on the Table form of the Component Editor.</i>

Exercise 3: Put a Summary on a Dashboard

In this exercise, you will create a table component based off the Workbench report you built in [Exercise 2: Build a Workbench Summary](#) and add that component to your dashboard.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Use the **Component Editor** to create a new component called "<Your Initials> Table".
3. Fill out the appropriate **Display Format** and **Data Source** for a report-driven table component.
4. Give your component help text, a meaningful **Display title**.
5. Your component should pull data from the "<Your Initials> Visit Summaries" report you built in [Exercise 2: Build a Workbench Summary](#).
6. Click the magnifying glass to see a list of available summaries. Are you able to select the "Visits by Department – Explore tab"?
No.
7. Make sure your component is using the "Visits by Department – Summary Tab" summary.
8. **Show report completion time**, **Allow users to view the report**, and **Enable report drill-down**.
9. Your table component should **Show status indicators**.
10. Status indicators should show up at the beginning of each row.
11. Fill out the **Default thresholds** table to display, in order of precedence, green if there are

between 0 and 100 visits, yellow if there are between 100 and 300 visits, and red if there are more than 300 visits.

A. Check your work with the below screen shot:

Column	Lower Bound	Upper Bound	Alert
Number of Visits	0	100	Green
Number of Visits	100	300	Yellow
Number of Visits	300		Red

12. Make sure your component is **Enabled**.
13. Log in to Hyperspace as Violet, your Clinical Administrator.
14. Open your Starter dashboard.
15. Enter the Designer UI.
16. Click **Add Component**.
17. Find your "<your initials> Table" component and add it to your dashboard.
18. **Accept** your changes to exit the Designer UI.

SlicerDicer on a Dashboard

Radar dashboards can host SlicerDicer sessions in components. Like all components, SlicerDicer components can be added to the source dashboard via Dashboard Editor or added to a user's view via personalization.

Adding a SlicerDicer Component to the Source Dashboard

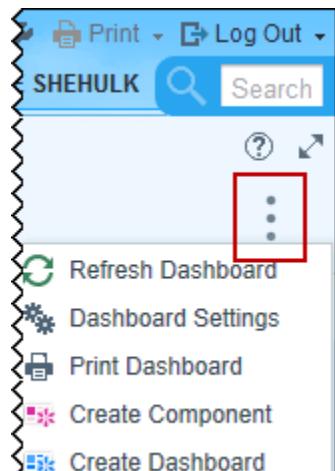
Administrators can manually create a new SlicerDicer component using **Component Editor**. These components use the following settings:

- **Display Format:** Graph
- **Data Source:** SlicerDicer

On the **Data Source** form, specify the ID of the SlicerDicer session you wish to display.

Adding a SlicerDicer Component to the Dashboard View

Adding a SlicerDicer-based graph component to a dashboard view is no different than adding any other component. Users can find components in the Analytics Catalog and add them to their view. However, SlicerDicer components come with an added wrinkle. Users also have the ability to create their own SlicerDicer components and add them to their view. The Create Component button available in the Dashboard Options menu launches SlicerDicer.



Dashboard Options

From there, users can create a new session or load a saved one. Users can manipulate the session like any other SlicerDicer session, then use the Create Component button to create a SlicerDicer component and add it to the user's dashboard view.

Adding to the Source Versus the View

You have now seen two different ways to add SlicerDicer sessions to a dashboard. You may be asking

yourself, "Which way is better?" All of the same considerations that apply to other components also apply here.

- Who is the audience for the component?
- How critical is the data in the component?
- What is the data used for?
- Where else can the data be seen?

The self-service nature of SlicerDicer and the ability for users to create components adds an additional layer. Administrators don't need to be as prolific creating and adding components because users have the ability to do it themselves. Additionally, if you are planning to add SlicerDicer components to the source dashboard, there are some special build considerations outlined in the [SlicerDicer Setup and Support Guide](#).



As with all reports in Hyperspace, SlicerDicer sessions will only show content for which the logged in user has the proper security. A saved session on a dashboard can look different for two users who have different security. Administrators must consider the audience of a dashboard and adjust their distribution strategy as needed.

Dashboard Parameters in a SlicerDicer session

When a user saves a SlicerDicer session for use on a dashboard, there are a few options that will impact the session specifically on the dashboard.

Create New Session

COG170
 [Create New Group](#)

Date Range

Last months

Start

End

Current month to date

Since

Fixed: to

Behaviors

Population

Recalculate base filters for recipient when loading this session

Dashboard

Use dashboard dates

Dashboard Parameter	Target
Department	<input type="button" value="T+ Department"/> <input type="button" value="▼"/>
Revenue Location	<input type="button" value="T+ Service Location"/> <input type="button" value="▼"/>

The options under "Behaviors" specifically impact the session when viewed on a dashboard.

Recalculate Base Filters	If selected, "all records" or "my records" bases will re-evaluate for each user who views the component on their dashboard.
Use dashboard dates	If selected, any changes to the dashboard's date range will immediately change the date range of this session as well.
Dashboard Parameters	This option allows you to map specific filters in this data model to parameter values that may be stored at the dashboard level. You can map parameters to filters that are used as criteria or slices, or even map them to unused filters! If you map a dashboard parameter to an unused filter from the session's data model, that filter will be added as a criterion to the session when viewed on any dashboard using the associated parameter.



For more details on how dashboard parameters affect SlicerDicer filters, see [Save a Parameterized Session](#) from the SlicerDicer setup and support guide.

When to use SlicerDicer Components

End users should build SlicerDicer components as a way to easily view and track the sessions they create for themselves. Good use cases would be:

- Data that you want to see every time you log in
- Data related to other metrics and graphs on an existing dashboard
- A query you want to be able to revisit regularly and modify or re-evaluate for unique cases

When not to use SlicerDicer Components

Many dashboard components are shared across dashboards, to standardize understanding of certain reports and metrics. SlicerDicer is not intended for distributing a shared session across a large population. You should not use SlicerDicer components to:

- Track a predefined and unchanging metric across departments/users. Use a metric-based component instead. See the [Dashboard Metrics](#) lesson for more information.
- Find a small set of records on which you need to take immediate action or see real time details. Use a Reporting Workbench report instead. See the [Workbench Reports](#) lesson for more information.

Exercise 4: Adding SlicerDicer Components to a Dashboard

In this exercise, you will see the differences between adding a SlicerDicer component to the source versus the view.

Create a SlicerDicer Component via Component Editor

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Use **Component Editor** to create a new component called "<your initials> SlicerDicer Source".
3. Choose a **Display format** of "Graph".
4. Choose a **Data source** of "SlicerDicer".
5. Navigate to the **Data Source** form.
6. In the **SlicerDicer Settings**, add the <your initials> Exercise 2: Build a Session session that you created in [Exercise 2: Build a Session](#).
7. Navigate to the **Distribution** form.
8. Make sure your component is **Enabled** and save your work.

Add the SlicerDicer Component to the Source Dashboard

1. Switch to Hyperspace as Violet, and open your Starter dashboard.
2. Enter the Designer UI.
3. Click **Add Component**.
4. Find your "<your initials> SlicerDicer Source" component and add it to your dashboard.
5. **Accept** your changes to exit the Designer UI.

Let's test this SlicerDicer component as another user. In order to grant your clinician access to your dashboard, you will have to add a Report Group to it.

6. Click **Dashboard Options**.
7. Click **About Dashboard**.
8. Click **Edit Details**.
9. Scroll down to the bottom and add the **Clinical** Report Group.
10. Click **Save**.

View the SlicerDicer Source Component

1. Log out of Hyperspace.
2. Log in to Hyperspace as Brandon, your Clinician.
3. Navigate to the **Analytics Catalog**.
4. Search for your <your initials> Starter Dashboard.
5. Is your <your initials> SlicerDicer Source component on the dashboard? Why or why not? Yes

because the component was added to the source dashboard in Dashboard editor, therefore it is visible to all users who use the dashboard.

6. Can Brandon see the SlicerDicer session saved in the component? No, he doesn't have permission to view it.

A. Granting a user the ability to see a component does NOT grant them the ability to see all content within the component. You will learn more about the different ways to grant user access to content in the Security chapter.

Create a SlicerDicer Component via Create Component

1. Still logged in as your Clinician, go to the **Dashboard Options** menu and click **Create Component**.
2. Choose the **Patients** data model.
3. Slice by **Chief Complaint**.
4. Grab top 10.
5. Click **Create Component**.
6. Name your component <your initials> SlicerDicer View.
7. Specify that your session is included in the **My Sessions** group.
8. Map the dashboard parameter "department" to the "Department" filter.
9. Click **Add to dashboard**.

View the SlicerDicer View Component

1. Confirm that you see the <your initials> SlicerDicer View component on the dashboard.
2. Your dashboard now has a date range and a department dropdown. Change the departments and the date range to see how your SlicerDicer session updates.
3. Log out of Hyperspace
4. Log in to Hyperspace as Violet, your Clinical Administrator.
5. Navigate to the **Analytics Catalog** and open your <your initials> Starter Dashboard.
6. Is your <your initials> SlicerDicer View component on the dashboard? Why or why not? No because the component was added to the clinician's view of the dashboard, therefore it is only visible to that user.

This is the end of the exercise

Reviewing the Chapter

Review Questions

1. How could you find out what options are available for you to use in dividing up a pie chart, choosing categories for your bar graph, or setting up levels of a grouped summary?

2. What controls the list of available measures in SlicerDicer?

3. True or False: In table components, the colored indicators can have different thresholds for each row.

4. What causes of concern would we have about a table component with the following threshold settings?

Column	Lower Bound	Upper Bound	Alert
Percent	34	67	Yellow
Percent	0	33	Green
Percent	68		Red

- A. Percent thresholds should divide into perfectly equal parts (e.g. 33.33, 66.66)
- B. The thresholds do not account for decimal percent values
- C. Percent values are unavailable for threshold logic
- D. Alerts should always be ordered from lowest to highest severity, or highest to lowest severity

5. When can you integrate dashboard parameters and dates with your SlicerDicer session?

- A. When picking your data model
- B. When saving your session
- C. When creating your component
- D. While viewing your dashboard

Review Key

- How could you find out what options are available for you to use in dividing up a pie chart, choosing categories for your bar graph, or setting up levels of a grouped summary?

Check the list of Available and Used columns in the Display tab of your report.

- What controls the list of available measures in SlicerDicer?

Measures are chosen from the list of SlicerDicer Filters (FDS records) available in a given data model.

- True or False: In table components, the colored indicators can have different thresholds for each row.

True. On the Thresholds tab in the Output Format form, you can specify overrides for each row to have its own thresholds.

- What causes of concern would we have about a table component with the following threshold settings?

Column	Lower Bound	Upper Bound	Alert
Percent	34	67	Yellow
Percent	0	33	Green
Percent	68		Red

- Percent thresholds should divide into perfectly equal parts (e.g. 33.33, 66.66)
- The thresholds do not account for decimal percent values
- Percent values are unavailable for threshold logic
- Alerts should always be ordered from lowest to highest severity, or highest to lowest severity

b

- When can you integrate dashboard parameters and dates with your SlicerDicer session?
 - When picking your data model
 - When saving your session
 - When creating your component
 - While viewing your dashboard

D

Study Checklist

Make sure you can define the following key terms:

- Grouping
- Summarization function
- Graph component
- Table component
- Badge
- Bar graph
- Line graph
- Tree map
- Detail view
- Explore tab
- Geographic visualization

Make sure you can perform the following tasks:

- Change your grouping and summarization functions in SlicerDicer
- Choose appropriate PAF columns for grouping and summarizing in Workbench reports
- Build a graph component
- Build a table component
- Add a badge to a component
- Build appropriate row and cell level thresholds
- Add a SlicerDicer session to a dashboard
- Associate SlicerDicer criteria, slices, and dates with dashboard parameters

Make sure you fully understand and can explain the following concepts:

- The relationship between Workbench summaries and Radar components
- The differences between summarizing in Reporting Workbench, SlicerDicer, and Radar

Report Requests

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Introduction

The report request process depends on the communication skills of both the requester and the report author. Both must understand what makes a good report request in order to ask the right questions and get the detail needed to build good reports. In addition to understanding the reporting need, the author may also need to correctly identify the data source for a given request to appropriately triage and prioritize it when it comes in.

By the End of This Lesson, You Will Be Able To...

- Read and write a report request
- Classify requests according to their data source and visualization
- Ask the right questions to get actionable report requests from consumers

Scenario Questions/Notes

Page numbers

Lorena and Mona have a chat about report requests.

Capture your questions in the space provided.

Scenario



SELF-STUDY TIP: Skip the Scenario section of this chapter. The Scenario is designed for use as an in-class demo during at-Epic training, and does not contain the instructions needed to complete the demo on your own. After reading the rest of the chapter and completing the exercises, you should be able to come back to the Scenario and walk through the steps as written.

Mona has had some time to look at the summary you built, and has one small addition to the request.



Lorena,

This is exactly what I needed, thank you! As we were looking it over, I had another idea I wanted to run by you. Would it be possible to see this same data, but trending over time? If we end up finding some providers with high numbers, we'd like to be able to build reasonable goals for them and keep tabs on this data over the coming months. I'm picturing a line graph, maybe let me pick four or five providers and look at how their numbers changed over the last two years by month. Everything else is perfect. How long to add this piece to the dashboard?

Cheers,

Mona

The Workbench template you're working with is built to capture current opioid patients, not to trend them over time. This means you'll need to look into other tools to meet this need, possibly building a new report from scratch to create this summary.

This is also Mona's fifth addition to this same ticket. Looking back you realize that this request has far exceeded the original scope of the project. You send Mona a message to ask for a face-to-face meeting to discuss these constant additions.

- 1 Work with a partner to get Lorena and Mona on the same page, and clarify Mona's request.



Meeting prep: Mona

Going in to this meeting, you are focused on expanding your access to the data you see as critical to measuring the success of your prescription program. The whole goal of the program is to get these numbers down. If you can show the current numbers and the trend since implementing new protocols, you can quantify the value of this project and prove that the impact is meaningful. You are a little confused as to why this last request is any different than the one before it. You hope to clarify exactly what you need for Lorena.

- You want the number of patients with an opioid prescription tracked monthly by PCP.
 - It would be helpful to our managers to drill down and see the patients grouped by the prescribing physician as well.
 - Grouping by the clinic where they get their prescription is also important.
 - A map where the ZIP Codes of the clinics with the highest prescriptions are called out could be used to cross reference with our social indicators of health and inform our project about socioeconomic factors in abuse.
- You need to be able to run this report on a weekly basis
 - You have two clinic managers, Omar and Kelly who should see the same thing, but only for the clinics they oversee.
 - Their providers should be able to look at the same data, but just a personal trending line, to show how they are doing.
 - Could we include a goal, and turn the numbers green when they achieve it?
- You already have the current prescribing data you need to start the project, so you probably won't need this trending graph until the next project phase which starts in 3 months, once the new prescribing practices have been in effect for a while.

To make sure you understand why Lorena asked for this meeting, you have a few questions you hope to ask as well:

- Why is this graph any different than the last one? It's just a line graph instead of a bar graph, right?
- What is the problem with adding on additional requests as they come up?

Think of at least one other question Mona might have for Lorena.

Write

Question

Here



Meeting Prep: Lorena

You called this meeting to try and help Mona understand how her request fits into your other responsibilities, and make sure that she is following the proper processes for report requests. You also hope to explain why you can't meet her latest request as easily as the others.

- Mona's ticket is not your only task right now. Time you spend on her project is time you're not working on the others.
 - You're building a dashboard for your population health team to schedule outreach efforts for patients with low medication adherence.
 - There is an upcoming cases report used by your oncology team that has a broken column, and you need to figure out why the data isn't showing up.
- The initial report request was triaged to you because it was within the scope of your role, and you had the available bandwidth to complete it in a timely manner.
 - You build reporting content in Chronicles, but you don't work with trending reports out of Clarity or Caboodle.
 - The ticket was estimated to take 5 hours of work, but with the follow up requests, you have now spent more than 10 hours on it.
- A request for months and years of data should be built out of Clarity or Caboodle, since they are optimized for reporting on large data sets.
 - If the original request included this time frame, it would have been triaged to the Business Intelligence team.

You would be happy to help Mona clarify the needs of this report to send in a new request to the right people. To make sure you understand the recent additions to her original request, you have a few questions to ask.

- How soon do you need this data?
- What are you going to do with the data?
- Who needs to see this data?
 - Do they need to be able to change parameters and run the report on demand, or just see the data?

Think of at least one other question Lorena might have for Mona.

Write

Question

Here

Mona is happy to have a better understanding of the needs of the reporting team. She's a data-hungry user, and plans on having a lot of needs for data in the future. Before closing out the meeting, she asks if there are any resources she could use to make sure her report requests are concise and useful in the future, to make the back-and-forth more efficient.

Your organization uses the Epic-released Report Design Specification documents to document requests. You point Mona to the three documents used on your Cogito team. If she familiarizes herself with the types of information your team uses, she's more likely to include the necessary specifics when she makes a request in the first place.

- [Clarity Report Design Specification](#)
- [Workbench Report Design Specification](#)
- [Radar Dashboard Design Specification](#)



Not every organization has the same processes for report requests, triage, or prioritization. For a deeper investigation of the request process, challenges, and recommendations, see the [Report Request, Tracking, and Development Process](#) lesson from [COG300 Cogito Project Manager](#)

Report Requests

Every report starts with a request. Some requests may be more formal or informal than others, but they can all be evaluated by some common standards.

What makes a good report request?

A good report request gives the author the information needed to begin retrieving the right data, and also provides some way to verify that they are on the right track once they get results. Some characteristics to look for include:

- The purpose of the report, examples of what it will be used for
- A description of the results, including the definition of the result set and a list of which data points they want to display
- Who will be consuming the report, and in what medium they want to see the data
- When the report will be needed, and how often will it be run thereafter

This is typically enough information to get the author started in building whatever resources best suit the reporting need.

However, a report request is not necessarily a static document. As the project progresses, the author may also need help validating the data being returned and setting up summaries and distribution. The following information may be included in an initial report request, or perhaps gathered during a later phase of development:

- Test cases for validation, both inclusive and exclusive
- Thresholds for summarizing data and effective visualizations
- Security and access concerns when choosing a medium for distribution to ensure that the right consumers see only the pertinent data

Questions to ask

There are dozens of questions you might have when first reading a new report request, but here are a few good ones to get started with.

What should one row in the results represent?

This question can help authors choose an appropriate starting place for a report, and make sure the granularity of the results is appropriate.



A consumer is looking for "Patients who were discharged in the last month." This could feasibly mean:

- a list of patients who have at least one discharge last month

or

- a list of hospital encounters that were discharged in the last month

The meaning of each row and number of rows would be drastically different in these reports.

What will you do with these results?

Common answers to this question might include:

- I use them to do my job.
 - This may include making a phone call, opening a patient's chart, verifying an order, or any other 'next steps' taken based on the results.
- They are being sent to an outside entity.
 - This may be a claims clearinghouse, a regulatory agency, or any other system that needs some specific data from your database.
- I'm presenting the data to others.
 - These could be C-level executives, physicians and nurses, or other panels, teams, or governing bodies who need to see data to make informed decisions.
- I'm curious and want to verify a hunch.
 - Though they sometimes have lower priority, personal hunches can lead to revelations if they can generalize anecdotal evidence into patterns in the data.

Whatever the answer, understanding the use case for a report can inform where to retrieve the data from and help prioritize requests by criticality.

What do you expect to see in the results?

Many report authors do not have a healthcare background. A report requester might know at a glance what numbers are clearly too high or too low to be valid, but a report author doesn't necessarily have that same expertise. Asking "what do you expect to see in the results?" can help set appropriate expectations for initial validation, even if the answers are as vague as:

- Most patients should have between 5 and 10
- We don't expect to see more than \$10,000
- This could really be anywhere from 300 to 3000

Choosing a Visualization

Once a report request is submitted, most organizations will triage it. This involves looking at the scope and priority, as well as classifying the report by which database should be used.

Data Source

Epic data primarily lives in Chronicles, Clarity or Caboodle. Often the first questions that must be answered when deciding how to visualize the data is to determine where it must come from.

Chronicles

If the report needs Chronicles data, that is usually because the consumer wants to act directly on the results as they are in real time.

- Reporting Workbench is the most appropriate way to visualize Chronicles data

Caboodle

If data doesn't need to be real time, then it will probably come from Caboodle. By combining Epic and non-Epic data into a dimensional format, Caboodle acts as a primary data source for both complex analysis and user-facing report requests.

- SlicerDicer is the preferred means of visualizing Caboodle data.
- Workbench reports with a SQL search engine can also retrieve an initial data set from Caboodle and then refine it in Chronicles.
- Dashboard Metrics built by Epic can use Caboodle as a data source.
- 3rd party tools can also be used to retrieve and analyze Caboodle data.

Clarity

If the data needed isn't in Caboodle and doesn't need to be real time, then Clarity will be the data source. Clarity reports often require skilled and certified BIDs to write custom queries to retrieve and assemble the data. These can be the most time consuming requests.

- Reporting Workbench templates with a SQL search engine can use Clarity to get a starting set of records, and then refine the results using Chronicles data.
- Dashboard Metrics built by Epic can save you a lot of time in analyzing and displaying Clarity data.
- 3rd party tools can be used to retrieve and analyze Clarity data as well.

Discussion

Every organization has a different request process, and it can be helpful to compare your processes with other organizations' processes to hear about new ways to innovate or solutions to old problems. Share your report request process with those around you. If you do not have a process yet, or do not know what it is, you can use the following questions to guide the discussion.

Exercise 1: Discuss the Report Request Process

1. What do you use to track report requests?
2. Who are your biggest customers? Which users do you work with more frequently than others?
3. How are requests triaged and prioritized?
4. Which aspects of the report request process are your organization good at?
5. Which aspects of the report request process does your organization struggle with?

This is the end of the exercise.

Reviewing the Chapter

Study Checklist

Make sure you can define the following key terms:

- Triage
- Data source

Make sure you can perform the following tasks:

- Categorize a reporting need by the appropriate data source and visualization tool

Make sure you fully understand and can explain the following concepts:

- What makes a good report request
- What questions to ask to clarify a request

Troubleshooting

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Introduction

Sometimes things don't work. Often the hardest part about fixing a broken report or dashboard is figuring out what went wrong in the first place. Reporting Workbench, SlicerDicer, and Radar all have diagnostic tools and features that can help identify where an error is occurring.

By the End of This Lesson, You Will Be Able To...

- Trace Workbench report results
- View other users' Libraries
- View other users' personalized dashboards
- View a SlicerDicer session's SQL query

Troubleshooting Workbench Reports

In this section we will examine a few of the most commonly used tools for troubleshooting Workbench reports. For even more tools and strategies, check out the [Common Issues and Resolutions](#) section of the [Reporting Workbench Setup and Support Guide](#).

Why is the Report Returning These Results?

If results contain data that shouldn't be there, or do not contain results that should, the problem may be in the query itself. A complex query, especially one using custom logic, can be difficult to unravel.

Running a **trace** of the report can answer the question: "Why did this report return this result?" It can also show which indexes, if any, the search engine is using in the report. A trace will run the report as normal but the system will keep a log of what was done. This log can be viewed to show the exact logic evaluated for the subject of the trace. You are able to specify a record or set of records, and see why each record was included or excluded from the results of the report.

Not everyone has the security to run a trace of a report. To run a trace, a user must have the report tracing security point assigned.

Tracing an Ad Hoc Report

Keep in mind that even though a user may be able to run a trace for any report, the trace may not give meaningful results for reports built from templates which don't use an Ad Hoc search engine.



A Reporting Workbench search can be built in one of three different methods. You can use an Ad Hoc search engine, an M search engine, or a SQL search engine.

- 1 Log in to Classic as Lorena, your Cogito Tools Administrator
- 2 Use the **Epic Menu** to open the **Analytics Catalog**
- 3 Find the Pediatric Patients report
- 4 Right click on Pediatric Patients and select **Trace**

The Reporting Workbench - Trace Settings window appears. Select whether you would like to trace a single record, a range of records, or all the records listed in a specific grouper record. For more information about groupers, reference the [Groupers Setup and Support Guide](#).

- 5 On the **Single** tab, enter the name of your patient and click Accept

After running a trace, you will see the report results as normal. The information gathered by the trace is accessible through the **Report Options** menu.

6 Click the **Report Options** menu

7 Select **View Trace**.

There are several sections of information included in the trace.

Report Configuration	<i>This section has information about the report that was run, including the template it was built from, the master file that it searches, whether it is a record or contact based search, and information about the queue that the report was run on.</i>
Column Information	<i>This section has information about what columns are displayed in the results of the report including the PAF display column ID and name, and the master file and item number that the column displays.</i>
Search Performance Statistics	<i>This contains performance data (in Seconds) for each step of the search and summarization processes.</i>
Column Performance Statistics	<i>This contains performance data (in Seconds) for each of the display columns, which can help identify slow-performing columns.</i>
Search Information	<i>This section has information about the search that was run, including the master file that was searched, the date range used, and the indexes that the system tried to use.</i>

The Report Configuration and Column Information sections are available under Additional Information for all report runs, not just the ones that have been traced.

Record Specific Information

This section has information about the records that were specified before the trace was run. It lists why each record was included or excluded from the results.

Record Specific Information ☰

Tracing record: ACCRUAL,JOEL [Z8404]

1. Record: ACCRUAL,JOEL [Z8404]

DAT: 99999

(EPT, Z8404,99999)/(,,99999)

Value from record: VERONA

Comparing VERONA = MADISON

No valid contacts found.

The values specified for criteria Patient living status, BMI, City do not match
Record rejected.

Joel Accrual was rejected because he lives in Verona, not Madison

Traces can also help to troubleshoot reports built from Cogito SQL templates which run off of a SQL query.

8 From the **Analytics Catalog**, find a <my initials> visit summaries report, and run a trace, leaving the record entry blank.

9 View the trace.

The **SQL Search** section includes some metadata about the database connection, but you can also view the full SQL code executed at run time, with parameter values included.

10 Expand the Resolved Query subsection under the SQL Search

This code can be copy/pasted out of Hyperspace and run like a normal SQL query. Any SQL programmer should be able to use this code to troubleshoot and debug the report.

Performance Cap Errors

Reporting Workbench directly queries the Chronicles database. It generally should not be searching over large data sets or returning a large number of results.

Each organization is able to decide what should be considered "large" and set caps to prevent reports from searching over or returning too many records. These caps are set in the Analytics System Settings activity.



As ad hoc searches run, the system checks approximately once per 1000 records that have been searched to determine whether the maximum has been reached. After the maximum is reached, the search stops automatically. However, the search might not stop exactly at the limit; it is normal for the search to stop slightly sooner or later than your limit.

If a running report reaches either of these limits, the system will communicate that information. When the report results are viewed, the message area at the top of the Results Viewer will alert the user that not all results are being displayed, and that the number of records searched or returned was too high.

If you encounter a search or return limit error, there are some things you need to consider:

- Is this report appropriate for Reporting Workbench, or would another tools be better suited
 - Are there dashboard metrics that meet this need?
 - Could this be built as a SlicerDicer population?
 - Could this be retrieved from Clarity or Caboodle?
- If the max number of records to search is reached, can the report be modified so that it searches on fewer records?
 - Including indexed items in the search can help reduce the number of records a report has to look at
- If the max number of records to return is reached, can the number of results be cut down?
 - One way to do this is make sure the search is using an appropriate date range. If the date range is more than a week or two, you should re-evaluate if the date range can be reduced or if Reporting Workbench is an appropriate tool for this report.

Troubleshooting Another User's Private Reports

Most users will only be able to make private reports. Troubleshooting the private reports of another user can be difficult. If the users have the security, they can share these reports with you directly. However, if your users can't or don't know how to do so, administrators can view another user's Analytics Catalog which will allow them to view the private reports of that user.



Not everyone can see another user's Analytics Catalog. This can only be done by users with the proper security.

When a user with the proper security accesses the Analytics Catalog, one of the options on the left is **View Another User's Catalog**. While viewing the other user's catalog, they can view all of the content including their private reports.

The screenshot shows the Analytics Catalog interface. On the left, there are filtering options: 'Content Type' (Dashboards, SlicerDicer, Components, Workbench Reports, Report Links, Dictionary), 'Tags' (Select a tag), and 'Advanced' (View Another User's Catalog). The 'View Another User's Catalog' section is highlighted with a red box. It contains fields for 'User' (dropdown with 'Select a user') and 'Login Department' (dropdown with 'Select a department'). Below these fields is a 'Clear Filters' button. The main area displays a grid of report cards. Each card has a star icon in the top right corner. The reports include: Cogito IAR - Dashboards Not Ready for Use, Cogito IAR - Ready For Use Dashboards with a Component that is Not Ready For Use, Large Result Set - Last Week, Learning Home User Mapping, Not Viewed - Last Month, Queue Wait Times - Last Week, Stopped or Errored RW - Last Week, Therapy Evaluation Statistics, Unique Users per Month - Last 3 Months, and !Positive SARS CoV-2 Results (Last 7 Days).

Users do not have the same options in another user's catalog as they do in their own.

- You cannot create new reports in another user's catalog. You can edit a report or save a copy into your own catalog.
- If you try to run a report while viewing another user's catalog, you will see a message indicating that the "report's results will be generated as if it were run by the login user, and may be different than if the report were run by" the user whose catalog you are viewing.
- While looking at another user's catalog, the filters will display that user's name instead of your name.

To return to your own catalog, clear the **User** field.

Saving a Copy of a Private Report to Your Own Catalog

After finding a report in the other user's Analytics Catalog, you can open the report for editing and view Report Settings. If you know what changes need to be made to the private report to make it work correctly, you can make the changes right away and save the original private report. However, you will often have to edit the report and then run it to make sure it runs properly. The most effective way to troubleshoot another user's private report is to save a copy of the report to your catalog.

- While in the Report Settings window in another user's private report, click **Save As**. Choose the **My Library** option to save a copy to your own catalog.
- Now that you have a copy of the report in your catalog, you can change aspects of the report, run it as needed, and troubleshoot it effectively.
 - Running a trace is a great tool to use here.

- Once the report is fixed in your catalog, you have several options for getting the fixed HRX back to its owner.
 - Share the report with its original owner and have them save a copy of the fixed report. The fixed copy in your catalog and the original will have to be deleted from their catalog.
 - If the fix is minor and quick, view their catalog and edit the original, making the change and saving it. The fixed copy in your catalog will have to be deleted.

Troubleshooting Radar Dashboards

Most of the time, troubleshooting a Radar dashboard is a matter of opening the dashboard and testing each level of build to determine where the error lies. Possibilities include:

- Dashboard level
- Component level
- Report level
- Column level
- Resource level
- Metric level

Once it is determined where the fault lives, you can use the appropriate editor to find and correct it. However, if the issue is in a dashboard to which you do not have access, or in another user's dashboard view, opening the dashboard can require an extra step.

Troubleshooting another User's Dashboard View

End users cannot open another user's dashboard view. Radar administrators can access dashboard views for troubleshooting purposes in the same way they view private workbench reports.

- 11 As Lorena, in the Analytics Catalog, use [View Another User's Catalog](#)
- 12 Open a **COG170 Starter Dashboard** used by another trainee

When in another user's view, You can see the IDs of each component and the layout of the view as seen by that user. This can help identify exactly which components a user may be having trouble with. The contents of the components will be obscured to prevent the administrator from seeing data they should not access.

Validating Metric Data

In many prior versions of Epic, Reporting Workbench reports were used to validate the summary data found in metric based components. SQL drilldown in these components is a much more efficient and accurate way to validate these components and troubleshoot any mismatched data.

SQL Drilldown in a metric-based component is described in the [Validate the Data](#) section of the [Dashboard Metrics](#) lesson.

Troubleshooting SlicerDicer Sessions

Troubleshooting in SlicerDicer usually means investigating where a given SlicerDicer Filter is getting its data. This means tracing the data lineage from Caboodle, sometimes all the way back through Clarity into Chronicles. The technical side of this requires training in the SQL programming language, which is beyond the scope of this course. Business Intelligence Developers (BIDs) who work in SQL databases will get the training needed to do this troubleshooting.

SQL Query Viewer

The best thing you can provide for a BID to get started in tracing this data is the actual SQL query generated by SlicerDicer. This can be viewed (not edited) in SlicerDicer by clicking the **Troubleshoot** button. The SQL query can then be copied out of Hyperspace into other SQL writing software to test and validate.

Filter Validation

In the **Troubleshoot** activity, the **Filter Validation** tab can be used to audit the Chronicles build supporting SlicerDicer. This can be useful if:

- You want to find out which of your SlicerDicer Filter records are Epic-released, and which have been customized.
- You want to see a list of SlicerDicer Filter in this data model which haven't been enabled yet.
- You are seeing errors in populations using a certain SlicerDicer Filter and wish to investigate the error message tied to that specific SlicerDicer Filter.



This screen includes some settings like the "Inactive?" flag and override records which are not covered in this course. For more information on building and customizing SlicerDicer Filter records, see [COG2020v SlicerDicer Custom Build](#).

Reviewing the Chapter

Review Questions

1. Which of the following best describes what happens when you run a report while viewing another user's Catalog?
 - A. You will be unable to run the report.
 - B. You will run the report as yourself, not as the other user.
 - C. You will run the report as the other user, not as yourself.
 - D. You can choose whether to run the report as yourself or as the other user.

2. When viewing another user's dashboard from their Catalog, why can't you see the data displayed by components?

Review Key

1. Which of the following best describes what happens when you run a report while viewing another user's Catalog?
 - A. You will be unable to run the report.
 - B. You will run the report as yourself, not as the other user.
 - C. You will run the report as the other user, not as yourself.
 - D. You can choose whether to run the report as yourself or as the other user.

B. You will run the report as yourself, not as the other user.

2. When viewing another user's dashboard from their Catalog, why can't you see the data displayed by components?

Security. Other users' components may display data from parts of Epic you should not be able to view.

Study Checklist

Make sure you can define the following key terms:

- Trace

Make sure you can perform the following tasks:

- Run a trace on an ad hoc Workbench report
- View another user's Catalog
- Run a report from another user's Catalog
- View another user's dashboard view from their Catalog
- Retrieve the SQL query generated by a SlicerDicer session

Analytics Catalog

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Introduction

Reports are useless if nobody can find them when they are needed. Epic-released and custom-built reporting content can be found in the Analytics Catalog if it is correctly tagged and documented. In this chapter, you will investigate how the Analytics Catalog organizes its content, and how you can increase the visibility and usability of your reports.

By the End of This Lesson, You Will Be Able To...

- Search the Analytics Catalog for reports, dashboards, and components
- Add tags to custom and Epic-released content
- Modify the end-user facing descriptions in the Analytics Catalog

Types of Catalog Content

The Analytics Catalog is the centralized shop for your data consumers. The following Cogito content is all available and searchable in a single place.

Dashboards

By default, the **Analytics Catalog** searches through source dashboards only. However, if a user has created many custom views, they can expand the **Advanced** options to include those views as separate entries in the search results.

SlicerDicer

All SlicerDicer data models that are enabled for use can be found in the Analytics Catalog, assuming a user has security. Clicking one of these data models launches SlicerDicer into a brand new session in that data model.

In addition, public sessions and a user's own private saved sessions can be opened from the Analytics Catalog.

Components

By searching for components in the **Analytics Catalog**, users can add components to their dashboard views without submitting a ticket or getting IT involved. Not every component is available to every user. In the [Security](#) chapter, you will see how to control which components are in the Catalog for each user.

Workbench Reports

Workbench reports includes both HRX and HGR records searchable by keyword or tag. As with other content, users will only see templates and reports they have access to.

Data Dictionary

Dictionary entries are used by SQL report writers to find documentation on tables and columns in the Clarity and Caboodle databases.

Report Links

Links are a special type of content only available in the **Analytics Catalog**. These hyperlinks can be configured to jump a user to a specific Hyperspace activity, or to an external URL. Most commonly, these are used to link out to dashboards or reports that are built on 3rd party tools.



Your organization has a denial analysis dashboard built in a 3rd party tool. Billing managers usually access this dashboard through a browser using a specific URL.

You can build a Link in the Analytics Catalog with that URL embedded, and then add metadata to the link like the tags "denials" or "Hospital Billing" so that when a user searches for "Denials" reports, they will see Epic reports, components, and dashboards, as well as a link to this 3rd party content.

To build a link in the Catalog, follow these steps:

1. Create a new component (IDB).
2. **Display Format** = "Link"
3. **Data Source** = "Analytics Catalog"
4. In the **Data Source** form, build your link. This will usually be a URL, since any links to activities or reports can be easily built into a Message Board post or other Link component.
5. **Enable** your component, and make it available to the appropriate **Report Groups** or **User Types**.



The Report Links filter can also include links to reports from third-party analytics tools. Certain Workbench templates can integrate with these tools to allow users to view report results in Hyperspace. The reports can not be run on demand. Instead, you can subscribe to the report, and the results will be available next time the report is run. For more information about setting up these reports, refer to the [SAP BusinessObjects Integration Setup and Support Guide](#).

Managing Catalog Content

Searching the Analytics Catalog can be done by keyword or by report tags. Keyword searching does not require any special set up, but can be imperfect, as it relies on finding the search term(s) in the name of the record, the names of its tags, or its description. Using report tags is a better way to categorize content.

Users rely on tags to narrow their search, and on useful descriptions to select the content they will to run or view.

Both tags and descriptions can be added during build in the following editors:

Components	Component Editor > Basic Information > Help Text
Dashboards	Dashboard Editor > Basic Information
Reports	Report Settings > General

However, Catalog entries can also be edited directly from the Analytics Catalog, so maintaining tags and descriptions does not require accessing all of these separate editors.

Available Content

The Analytics Catalog only returns components the user can add to their dashboard and reports and dashboards the user can open. Refer to the [Security](#) lesson for more information on how to control the content available in the Analytics Catalog.

Report Tags

Report tags are records in the HGG master file. Tags can be added to all of the content discoverable in the Analytics Catalog:

- Dashboards
- SlicerDicer Data Models
- Components
- Workbench Reports
- Report Links (to external or third-party content)

While there are a large number of existing tags in the Foundation System, each organization can also create their own tags to categorize these records.

New tags are created in the **Tags Editor** in Classic.

1 In Classic, as Lorena, search for and open the **Tags Editor**

2 Open an existing tag

Since a tag is primarily used to categorize and search, it doesn't need much information. Most tags are just a name, with no other metadata stored on their record.

Metadata Editor

A user with appropriate security can edit the metadata of Catalog content from within the Analytics Catalog itself.

3 Open the **Analytics Catalog**.

4 Hover over an entry in the Analytics Catalog and click the book icon that appears to view more details about the record.

5 Click **Edit Details**.

From the Metadata Editor, any Analytics Catalog entry can be modified without needing to open the record in a separate activity. This metadata is stored on a record in the HCM master file.

Changes made in the Metadata Editor will be reflected in the original record as well. Some of the useful things that can be modified here include:

- Descriptions and tags to improve visibility of your content to consumers.
- Review status and reviewer decisions to communicate which reports and dashboards have been validated.
- Ownership in case something breaks and needs fixing.
- For dashboards only, distribution to specific user types and report groups. More on how these work in the [Security](#) lesson.

The Metadata Editor can be accessed directly from a dashboard by clicking:

Dashboard Options > About Dashboard > Edit Details

Exercise 1: Tags and Descriptions

In previous lessons, you built a number of reports and dashboard components. Try to find them in the Analytics Catalog.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. To make sure you can find one of your components in the **Analytics Catalog**, we need to add a report group to it. Open a component with <your initials> in the name in the **Component Editor**.

3. On the **Distribution** form, add the "IT Staff" report group to **Allowed report groups**.
4. Save your changes.
5. Search the **Analytics Catalog** for content with the "Pharmacy - Outpatient" tag.
6. Did you find any of the reports or dashboard components you have built?
No, you never added the tag.



Typically, you would add tags when creating a new component, dashboard, or report.

Epic recommends using two types of tags:

1. Role-based tags group content by the audience it is intended for. These tags should be named according to the audience's job description.
2. Content-based tags are used to group together analytics content that is salient to a shared reporting topic. These tags should share a name with the topic they cover

For this exercise, you will create a new tag just for your project, but you should never create a new tag for your content unless it has been approved by your Cogito Project Manager.

7. Search for and open the **Tags Editor**.
8. Create a new tag called "<your initials> Cogito Fundamentals".
9. Find a report with **<your initials>** in the name in the Analytics Catalog.
10. Click the book icon to open the report's metadata.
11. Click **Edit Details** to open the metadata editor.
12. Add the **Pharmacy - Outpatient** and **<your initials> Cogito Fundamentals** tags to the report.
13. Add a short description of the report.
14. Mark this report as Approved (set the Overall Review Status).
15. Document yourself as the reviewer who approved it.
16. Find a component with **<your initials>** in the name in the Analytics Catalog.
17. Add the **Pharmacy - Outpatient** and **<your initials> Cogito Fundamentals** tags to the component.
18. Add a short description of the component.
19. Mark this component as Approved (set the Overall Review Status).
20. Document yourself as the reviewer who approved it.
21. Clear your search criteria in the **Analytics Catalog**, then search for the **<your initials> Cogito Fundamentals** tag.
22. Did you find your records?
Yes.

23. How could you tell which records have been approved?

The card in the catalog had a ribbon icon in it.

This is the end of the exercise.

Reviewing the Chapter

Review Questions

1. Which of the following reporting resources can appear in the Analytics Catalog?
 - A. Workbench Reports
 - B. Saved SlicerDicer sessions
 - C. Radar dashboards
 - D. Dashboard components
 - E. Workbench templates
 - F. Third-party reporting content

2. When building custom reports, dashboards, or components, which parts of your record will be visible and searchable in the Analytics Catalog?

Review Key

1. Which of the following reporting resources can appear in the Analytics Catalog?
 - A. Workbench Reports
 - B. Saved SlicerDicer sessions
 - C. Radar dashboards
 - D. Dashboard components
 - E. Workbench templates
 - F. Third-party reporting content

a) Workbench Reports

b) Saved SlicerDicer sessions

c) Radar dashboards

d) Dashboard components

e) Workbench templates

f) Third-party reporting content
2. When building custom reports, dashboards, or components, which parts of your record will be visible and searchable in the Analytics Catalog?

The display name of the record, tags, and the description

Study Checklist

Make sure you can define the following key terms:

- Analytics Catalog
- Tags
- Metadata Editor

Make sure you can perform the following tasks:

- Update documentation on custom records for the Analytics Catalog
- Build a tag
- Change the review status and reviewers of reporting content
- Access dashboard metadata from the dashboard

Make sure you fully understand and can explain the following concepts:

- The purpose of tracking metadata on reporting content

Cogito Roles

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Introduction

Cogito is a product which works best when all of its components communicate with each other. Cogito teams operate on the same principle. Every member of the Cogito team benefits by understanding the other team members' contributions and responsibilities. In this chapter, you will learn about some of the common roles staffed on Cogito teams at Epic customers.

By the End of This Lesson, You Will Be Able To...

- Differentiate between database administrators for Chronicles, Clarity, and Caboodle
- Name the different roles and responsibilities of Cogito team members
- Understand non-Cogito roles that work closely with reporting

Cogito Stakeholders

The Cogito team builds, validates, and distributes reports from three different databases, is responsible for the flow of data between those database, and depending on the organization, may be involved in:

- building extracts to feed non-Epic data warehouses
- pulling data into Caboodle from other data sources
- integrating third-party reporting content into Hyperspace
- building dashboards in third-party systems which rely on Epic data

or any number of other data-related tasks. This broad range of responsibilities is met by a broad range of people.



Every organization ultimately makes its own decisions on structure and staffing. What follows is a description of commonly staffed roles, and is by no means an exhaustive list of possible Cogito team members.

Database Administrator

Each of Epic's databases has an administrator. Database administrators sometimes oversee operation of more than one database.

Chronicles

The Chronicles Administrator oversees the daily functioning and troubleshooting of Chronicles, as well as updates to the system. The Chronicles Administrator is most often referred to as the ODBA (Operational Database Administrator), or the Cache DBA. Reasons to contact the Chronicles Administrator include:

- Workbench reports are displaying queuing errors
- Workbench reports are running slowly or not running

Clarity

The Clarity Administrator oversees and troubleshoots nightly and ad-hoc Clarity ETL executions that move data from Chronicles to Clarity. Because of this, they are sometimes called the Clarity ETL Administrator. They might also be called the ETL Administrator (without mention of Clarity), particularly if they oversee both Clarity and Caboodle ETL. The Clarity Administrator is also responsible for managing Epic-released updates to Clarity and any custom Clarity tables or columns an organization decides to create. Reasons to contact the Clarity Administrator include:

- A Clarity report looking at the last year's data isn't displaying anything for the most recent two months
- Meeting to decide which new Epic-released views and derived tables should be enabled during an upgrade

- Corrupted or incorrect data has made its way into Clarity reports that used to work perfectly

Caboodle

The Caboodle Administrator oversees and troubleshoots nightly and ad-hoc Caboodle ETL executions that move data from Clarity to Caboodle. Because of this, they are sometimes called the Caboodle ETL Administrator. They might also be called the ETL Administrator (without mention of Caboodle), particularly if they oversee both Clarity and Caboodle ETL. The Caboodle Administrator is also responsible for updates to Caboodle.

Note, the Caboodle Administrator is not primarily responsible for customization of Caboodle, although they should still be your primary contact for questions about Caboodle. Bringing additional Clarity data and non-Epic data into Caboodle is the responsibility of Caboodle Developers. Your Caboodle Administrator may be involved in Caboodle Development, may be a Caboodle Developer, or may be mostly uninvolved.

Reasons to contact the Caboodle Administrator include:

- Requesting an ad hoc ETL into a test Caboodle database to validate a report with test data
- SlicerDicer sessions are missing data for a conspicuous date range
- Scheduling ETLs from a new non-Epic data source into Caboodle

Cogito Project Manager

The Cogito Project Manager is responsible for the success of the Cogito team. They have a high-level understanding of each of the databases and tools used by their organization, and have a detailed and specific knowledge of the processes and policies that govern the reporting and analytics goals of the organization. Reasons to contact the Cogito Project Manager include:

- Questions about the report request process
- Help managing workload and appropriately estimating time commitments for reporting projects
- Projects that require strong data governance across multiple databases or entities within the organization
- Triaging or prioritizing reporting projects

Business Intelligence Developer

Business Intelligence Developers (BIDs) have some of the broadest responsibilities on the Cogito Team. They use all of Cogito's tools to retrieve and analyze data from all of Epic's databases. They get trained on Chronicles, Clarity, and Caboodle data structures and tools.

In Hyperspace, they work with SlicerDicer, Radar, and Reporting Workbench, but may also assist application analysts who are working with registries or extracts and need more understanding of the underlying Chronicles data.

Reasons to contact a BID may include:

- Need for a new workbench report
- Can't find specific report or dashboard, and need someone to grant appropriate access
- Troubleshooting existing reports, dashboards, or SlicerDicer sessions
- Need to confirm that the data in a SlicerDicer session matches a previously used SQL query off of Caboodle or Clarity for validation
- Want to build or validate SQL-based Workbench report

Application Analyst

Application Analysts may have different responsibilities depending on which application they specialize in. They interact most often with the Cogito team as subject matter experts (SMEs) who can help a report writer find the right data or understand a workflow used to populate the data for a report. Reasons to contact an Application Analysts may include:

- Needing someone to validate the data on a dashboard or report and make sure it is realistic and appropriate for that application
- Finding a specific data point populated by an end user workflow

Caboodle Developer

Caboodle Developers build the packages to bring data into Caboodle from Clarity and other non-Epic data sources. They know how and why all data comes into Caboodle. They may also be Caboodle BIDs, building SQL queries to retrieve data from Caboodle. Since Caboodle is the data source for SlicerDicer, these developers also are involved in building custom SlicerDicer Filter or even entire data models. Reasons to contact a Caboodle Developer may include:

- Need to add custom SlicerDicer Filter to an existing SlicerDicer Data Model
- Scoping out the possibility of building a SlicerDicer Data Model on non-Epic data

Cogito Tools Administrator

The Cogito Tools Administrator may be one person's full time job, or it may be a task that several BIDs share at an organization. They are responsible for building and maintaining Workbench templates, as well as overseeing distribution of dashboards for the Cogito team. This user needs to have a deep understanding of the Chronicles data structure that drives Workbench queries. Reasons to contact a Cogito Tools Administrator include:

- The need for a brand new template that doesn't yet exist
- Troubleshooting a custom template's parameters
- A SQL report has been built and needs to be integrated into Hyperspace so users can build reports from it

Cogito Principal Trainer

The Cogito Principal Trainer is responsible for customizing and delivering reporting training to end users

at each organization. This may be one person's full time role, or a Principal Trainer may be responsible for several applications and include Cogito in their list of responsibilities. Reasons to contact a Cogito Principal Trainer may include:

- Planning for which users should receive specialized SlicerDicer training after go-live
- Some users have been incorrectly building Workbench reports and need re-training
- Generating and distributing tip sheets or other training tools for ongoing optimization projects

After-Class Exercise

Exercise 1: Roles at your Organization

Cogito Role	Name	email address	phone/extension
Chronicles Administrator			
Clarity Administrator			
Caboodle Administrator			
Cogito Project Manager			
Cogito Tools Administrator			
Cogito Principal Trainer			
BIDs			
App analysts			

Reviewing the Chapter

Review Questions

1. Which of the following responsibilities are often met by the Cogito team?
 - A. Managing the flow of data between Clarity and Caboodle
 - B. Building SmartForms to support specific workflows in Hyperspace
 - C. Creating custom Radar dashboards for end users
 - D. Troubleshooting issues with the Chronicles server

2. True or False. Your Chronicles Administrator, Clarity Administrator and Caboodle Administrator will always be three separate people.

Review Key

1. Which of the following responsibilities are often met by the Cogito team?
 - A. Managing the flow of data between Clarity and Caboodle
 - B. Building SmartForms to support specific workflows in Hyperspace
 - C. Creating custom Radar dashboards for end users
 - D. Troubleshooting issues with the Chronicles server

a and c, though answers may vary by organization

2. True or False. Your Chronicles Administrator, Clarity Administrator and Caboodle Administrator will always be three separate people.

False. Database administrators sometimes oversee operation of more than one database.

Study Checklist

Make sure you can define the following key terms:

- Database Administrator
- Chronicles Administrator
- Clarity Administrator
- Cogito Project Manager
- Application Analyst
- Business Intelligence Developer
- Caboodle Developer
- Cogito Principal Trainer

Make sure you can perform the following tasks:

- Differentiate between database administrators for Chronicles, Clarity, and Caboodle
- Name the different roles and responsibilities of Cogito team members

Make sure you fully understand and can explain the following concepts:

- Why non-Cogito roles would interact or work with reporting

Day 3 Lab: Building Reports

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Introduction

In this lab, take some time to practice building workbench reports, summaries, and dashboard components to distribute them. The following report request contains some contextual information that would usually be provided by application subject matter experts (SMEs) to help understand the data being retrieved.

PB Charges

Build a Workbench report to show PB charges posted in a certain date range. Your consumers want to see some basic transaction data, as well as RVUs on the charges. They want summaries based on this data on a dashboard as well, and a link to the report results.

Professional Billing context

The following definitions are provided to help understand the context of the billing data being retrieved by your report.

Professional Billing (PB)

PB is an abbreviation for Professional Billing. Professional Billing collectively refers to all transactions generated by procedures performed by a provider.

Transactions

Transactions are records in the ETR master file. They come in three transaction types:

- Charges: generated when a service is performed.
- Payments: generated when money is received
- Adjustments: used to modify charges and payments. These can raise or lower the balance owed.



The Charge Router is a process that happens before charges are created in Professional Billing. Be careful to differentiate between charges that are transactions, and charges in the router (often called charge lines).

Post date and Service date

A charge's post date represents when it was created in the system, whereas the service date represents when the clinical activity which created the charge actually happened.

RVU

RVU stands for Relative Value Units. This numeric value is used to compare the non-monetary value of different procedures. This number can be broken down into three components:

- Work RVU represents how difficult the procedure is to perform, or how much work the provider had to do.
- Overhead RVU represents the cost of maintaining the facility or tools needed to perform the procedure.
- Malpractice RVU represents the risk involved in the procedure.

Total RVU is the sum of these three components. These numbers (especially Work RVU) are often used to drive physician performance evaluation and compensation within a practice.

Payer

When a patient receives care while covered by a health insurance policy, you may send a claim to that insurer to attempt to get them to pay for the charges generated by the service. In this case, we call that insurer the payer. Any charge that is currently assigned to insurance has a payer. Charges that are the responsibility of the patient will not have a payer.

Build a Report



Build a report to return a list of all PB charges posted between 3/1/2018 and 4/30/2018. Only include active charges (those that haven't been voided). Do not include charges for less than \$100. Your organization isn't very large, so you don't need to display service area or location. In the results, right after the original amount on the charge, also display the Work RVUs and the Overhead RVUs for that transaction. Display the Service Provider, but not the Billing Provider.

In addition, build a Grouped Summary grouped by payer and then by department to display total insurance balance, total number of charges, and the number of different patients who generated those charges. You will also need a table on the dashboard showing total amount charged by procedure.

This report should be run on demand, and users want to be able to change their own parameters

- Given the requirements above, what tool would be most appropriate for this request?

Reporting Workbench

- Log in to the UserWeb

- Navigate to the Report Repository

- To search for appropriate templates apply the following filters:

- Reporting Tool: Cogito Reporting Workbench Template
- Application: Resolute Professional Billing

- You can also apply a keyword to search. Possible keywords might include "charges," or "transactions."

- Given the context above, if you search for the keyword "Charges," you may get some templates that aren't actually looking at PB transactions. How can you identify templates that report on Charge Router charge lines instead of proper PB transactions?

Application: Charge Router. Name contains word Router. Name contains Charge Line.

- Search again, this time for the keyword "transactions." When you change your keyword, you will need to re-apply filters for Reporting Tool and Application.

- One of the first templates should be the **PB Generic Transaction Search** Report Template.

This report needs to return a list of charges, which is one "type" of transaction. Does this template allow filtering by transaction type? HINT: **Review Criteria** at the bottom of the page.

Yes, it has a criterion called Transaction Type.

7. Under **General Information**, note the HGR record ID of this template:

R HGR 40000

8. Log in to Classic as Lorena, your Cogito Tools Administrator.

9. Navigate to the Analytics Catalog.

10. Find the **PB Generic Transaction Search** Report Template by searching for the record ID you noted.

11. Create a new report from this template according to the following specifications:

- Name the report <your initials> COG170 Charges
- The report should be public

12. Navigate to the Criteria Tab.

13. Does this template have a date range?

Yes

14. Does this template have any overtime criteria?

No

15. With the **Post date/service date** parameter selected, click the **Info (i)** button at the far right to see additional information.

16. Given this description, what does the date range of this template control?

The template will search for transactions with either a post date or service date within the date range.

17. Set your report to return only

- Active transactions
- Charge transactions
- posted between 3/1/2018 and 4/30/2018
- with a minimum original amount of \$100

18. Save the report. What is the HRX record ID of your report?

IDs may vary.

19. On the **Display** tab, remove the display columns for **Billing Provider**, **Service Area**, and **Revenue Location**.

20. Create the following columns to display RVU data:

- "<your initials> Work RVU" should display I ETR 321
- "<your initials> Overhead RVU" should display I ETR 322

21. Move these new columns to appear just to the right of the original amount.
22. Create a new Grouped Summary.
23. Give your summary an appropriate title and tab name based on what it will display.
24. Your Top level of grouping should be **Current Payer**
25. Since you are summing up insurance amounts, you do not need a group for charges with no payer.
26. The three summarizations should be:
 - A sum of insurance amount
 - A total count of charges
 - Count by Transaction ID to ensure each charge is counted
 - A unique count of patients
27. Add a subgroup for department.
28. Click **Accept**.
29. The report request also asked for a specific table for a dashboard. Will this summary be able to display total charge amount grouped by procedure in a dashboard component?
No. Only grouping and summarization done in the Workbench summary can be displayed on the dashboard.
30. Create a new summary of any type for use on your dashboard.
 - Give it a descriptive name.
 - Hide this summary in Workbench.
 - Do not include charges with no procedure listed.
 - Group by **Procedure** and sum the original amount.
 - Click **Accept**.
31. Save your report.

Build Dashboard Components

1. Create a new component named <your initials> COG170 Charges by Payer.
2. Give your component a Display title that describes what it will be displaying.
3. Document your component's record ID here:
IDs may vary.
4. Your component should show a graph that gets its information from a Workbench report.
5. On the **Data Source** form, specify:
 - **Report:** <your initials> COG170 Charges
 - **Summary:** your insurance amounts by payer grouped summary

6. Navigate to the **Output Format > Graph** form.
7. Display this summary as a Pie chart.
8. Show the legend below the graph.
9. Enable your component for use.
10. Switch to Hyperspace as Violet.
11. Add this component to your Starter Dashboard.
12. Refresh your dashboard to test your component.
13. The summary on your report is grouped by Payer and Department, with three different summarization functions. What does your pie chart group and summarize by? Why?
Group by Payer, summarize by total insurance amount. It only uses the primary grouping and first summarization function.
14. Show the table on your component.
 - Hint, click the Options button in the component header.
15. Does the table still display all of your grouping and summarizing from the report?
Yes.
16. Switch to Classic as Lorena.
17. Create a new component named <your initials> COG170 Charges by Procedure.
18. Give your component a Display title that describes what it will be displaying.
19. Document your component's record ID here:
IDs may vary.
20. Your component should show a table which gets its data from a Workbench report.
21. On the Data Source form, specify:
 - Report: <your initials> COG170 Charges
 - Summary: your charges by procedures summary
22. Navigate to the **Output Format > Table** form.
23. On the **Columns** tab, set your table to sort by sum of total amount in descending order.
24. Set the following thresholds for this table:
 - Procedures for which you have charged \$1,000 or more should be red.
 - Procedures for which you have charged \$500 or more should be yellow.
25. Enable your component for use.
26. Switch to Hyperspace as Violet.
27. Open your Starter dashboard.
28. Enter the Designer UI.

29. Click **Add Component**.

30. Find your "<your initials> COG170 Charges by Procedure" components and add it to your Starter dashboard.

31. **Accept** your changes to exit the Designer UI.

If You Have Time: Line Graphs in Workbench Summaries

1. Switch to Classic as Lorena.

2. Open the <your initials> COG170 Charges report for editing.

3. Change the date range to 3/8/2018 - 3/12/2018.

4. Create a new Line Graph summary.

5. Name it "Charges line graph".

6. Group by **Post/Void Date**.

7. Summarize by Sum of Original Amount.

8. Save and run the report.

9. View your line graph.

10. According to your line, approximately how many dollars in charges were posted on March 10th?

Answers vary. It should be a positive non-zero amount.

11. Switch back to the Detail view.

12. To see just charges posted on March 10, filter on Post/Void Date:

- From: 3/10/2018
- To: 3/10/2018

13. How many charges meet this filter?

0

14. Return to your line graph.

15. Why doesn't your line graph show \$0 for days where no charges were posted?

The summary creates one point on the graph for each date with summary data, then connects the dots.



Workbench line graphs should not be used for data sparse data sets that may have dates that lack data. Any point in the date range with no rows in the results will not create a point on the plot, which can obscure the data.

If you can be sure that every point in the range will have summary data, then the line graph will summarize correctly.

Security

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Introduction

Before a user can access dashboards, SlicerDicer and reports, they need to be assigned security to the proper functionality. Furthermore, not every user should be able to see the same dashboards, data models and reports. A user should only be granted access to the content that your organization feels they should be using. In this lesson, you will learn what controls what a user can do and what content they can access so you can make sure the right users can do and see the right things in Cogito.

By the End of This Lesson, You Will Be Able To...

- Set up a user with the appropriate functionality
- Allow access to a dashboard
- Allow access to a report
- Allow access to a SlicerDicer data model
- Manage the security of different user populations

Provider and User Records

The basis of all staff-related build are the provider (SER) and user (EMP) records. Each staff member has a unique provider and/or user record.

Provider (SER)

The Provider master file can be thought of as a directory of clinicians who are affiliated with your organization. The Provider master file includes one record for every clinician who provides care to your patients.

A person's provider record includes their credentials (MD, RN, etc.), specialty, discipline, and more.



Dr. Walt Whitecoat is a family practice physician who sees patients at your organization. There is a record in the Provider master file for him named "Whitecoat, Walt." His provider record indicates that he is a physician (MD), with a specialty of family practice and a discipline of Physician.

A person's provider record also records their clinical authority, including whether they can:

- Authorize medications or other orders
- Write orders in the hospital
- Admit or attend on patients

A provider record is also used to track referrals to or from a particular provider.

When a patient makes an appointment, they are scheduled with a provider (sometimes more than one). A provider's schedule can prevent (or allow) overbooking. Remember that the term "provider" in Epic means both clinicians **and** resources.



There is one Provider (SER) record for each person or resource meeting ANY of the following criteria:

- C - Has Credentials
- A - Authorizes orders
- R - Can be Referred to or send referrals
- S - Can be Scheduled

User (EMP)

The User master file contains one record for every person who logs in to your instance of Epic. Your user record contains your login ID and password and links to security settings that determine what functionality you can access.

Some users need both a provider and user record to perform their jobs. Others may only need one or the other.



If someone needs to log in to the system to complete their job, they need a user record.

In order to streamline who gets what access, most users are attached to a linkable template. This template contains links to settings that are shared amongst a group of people who do the same job. This helps ensure consistency across those who do the same work, and allow for easier maintenance. Linkable template are stored in the EMP master file along with user records.

Your Turn: Label who needs a Provider Record (SER), a User Record (EMP) or Both

	Needs a Provider Record?	Needs a User Record?
- Dr. James Smith, MD <i>An employed family practitioner at our organization</i>		
- Mary Eliza Mahoney, RN <i>A nurse in the Emergency department at our organization</i>		
- Robert Weaver <i>An admissions clerk at our organization</i>		
- Ila Nevalogin, MD <i>A cardiologist from an outside organization who refers patients to us</i>		
- MRI Machine <i>Not a human, but needs to be scheduled with for inpatients and outpatients</i>		

Answers:

- James Smith: Needs Provider and User
- Mary Elizabeth Mahoney: Needs Provider and User
- Robert Weaver: Needs User Record (no need for provider record)

- Ila Nevalogin: Needs Provider Record (no need for user record)
- MRI Machine: Needs Provider Record (no need for user record)

User Templates

User templates are EMP records that are used to configure groups of users. They allow for build and maintenance of user settings in one location that is linked to by other user records. For instance, all inpatient nurses can be assigned the same template which controls their security, user role, and more. If a change is needed, it can be made once in the template instead of needing to update each nurse's user record individually.

Security and Role Records

Security and Role records are used in conjunction with user and provider records to give employees access to activities in the system.

Security (ECL)

Security is used to give "access" or "permission" to activities and information within Epic. There are two key security concepts: security points and security classes.

Security Point	<p><i>Grants access to one feature within Epic. Think of these like a key that grants you access to one room.</i></p> <p><i>If a user has a security point, they have access to an activity. If they do NOT have the required security point, then the activity will not be available to them; they won't even see it.</i></p>
Security Class	<p><i>Grouping of security points that grant access to related activities and functionality in an Epic application. Think of this as a ring of keys (security points).</i></p>

Security classes are application specific and attach to a user or template record. Any given user could have upwards of 15-20 different key rings (security classes) depending on their job responsibilities. The more applications they need to access, the more security classes they will have.

User Role (E2R)

The user role record defines the visual appearance (or layout) of Hyperspace. It works very closely with security in determining how a user can get to a given activity. It is attached to a user or template record and is required to log in to Hyperspace. Some of the things a role record controls include:

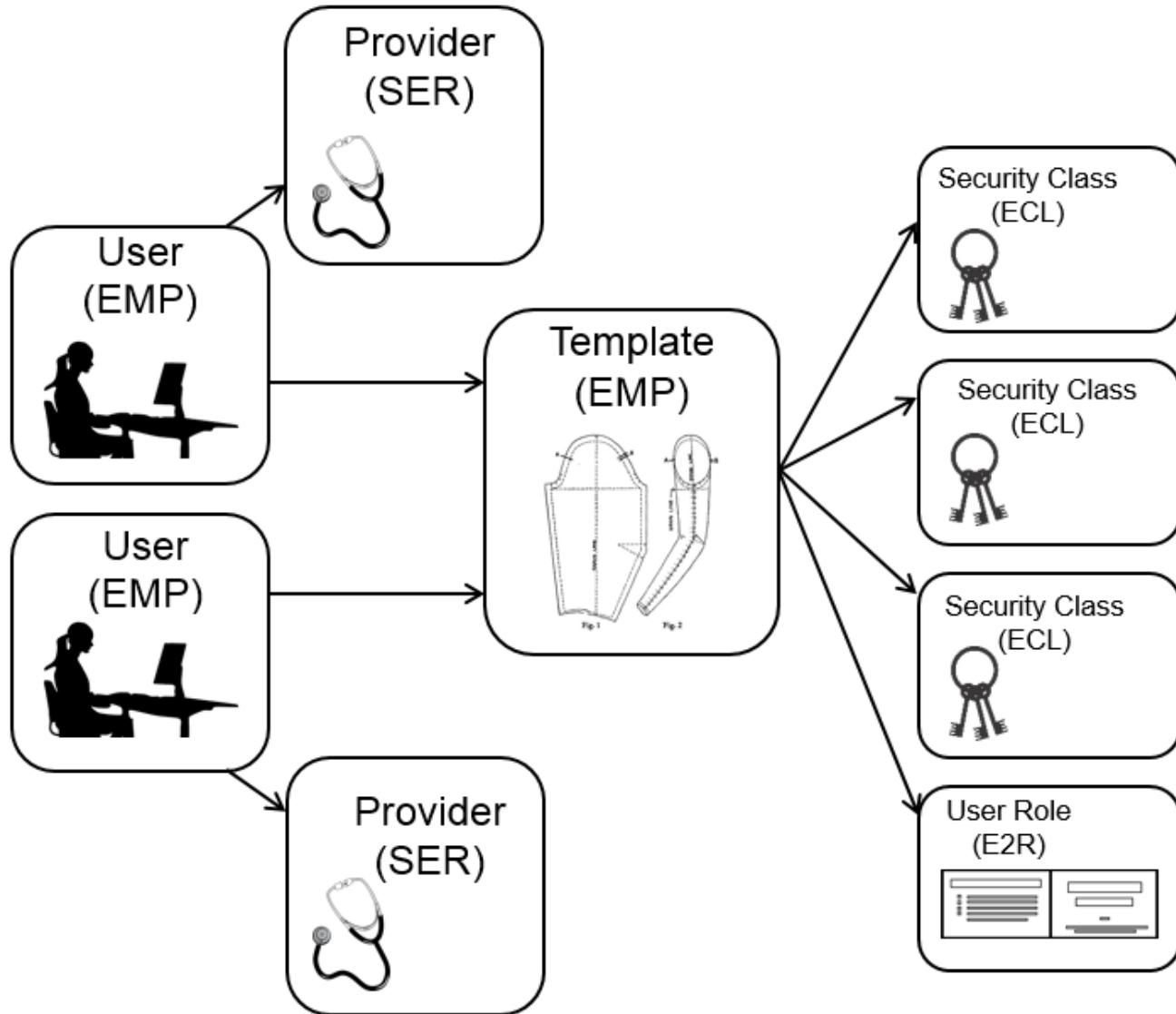
- What startup activities open automatically upon logging in to Hyperspace
- What buttons you have across your Hyperspace toolbar and under the Epic menu
- How long the system will stay idle before logging you out



Dr. Whitecoat has access to Chart Review, Medications, and Notes activities because of his security. He uses the Chart Review activity frequently, so it is a button on his Hyperspace toolbar because of his role.

Linking Records Together

Below is a diagram highlighting how each of the staff records interact with one another. Remember that security and role are shared amongst common users or templates, while the provider and user record are unique to each person.



Controlling Functionality

Before a user can access dashboards, Workbench reports, and SlicerDicer, they need to be assigned security to the proper functionality.

Security Classes and Security Points

To control Radar, SlicerDicer, and Reporting Workbench functionality:

1. Define the security points on the class
2. Assign the class to users

Radar Security Class

Define a Radar Security Class

To define Radar security classes, open an existing class or create a new one in the Radar Security Class Editor. The list of available Radar security points as well as descriptions of each can be found in the [Radar Setup and Support Guide](#) on Galaxy.

Assignment of a Radar Security Class

All users must have a Radar security class set in their user record to access dashboards. Assign the class on the **Radar** form of the **User Security** activity.

The screenshot shows the 'Radar Security' section of the User Security activity. It includes fields for 'Security class:' (set to 'RADAR ADMINISTRATOR [33500]') and 'Default dashboard:' (set to 'Cogito Business Intelligence Developer Dashboard [33010000008]'). Each field has a magnifying glass icon to its right for searching.

Radar form of User Security

Reporting Workbench Security Class

Define a Reporting Workbench Security Class

To define Reporting Workbench security classes, open an existing class or create a new one in the Reporting Workbench Security Class Editor. The list of available security points as well as descriptions of each can be found in the [Reporting Workbench Setup and Support Guide](#) on Galaxy.

If you do not want to manually go through and check off each security point as needed, you can start from a template with the **Apply default security for user type** field in the RW Security activity.

The screenshot shows the 'RW Security' activity. At the bottom, there is a dialog box titled 'Security points that affect Reporting Workbench security'. It contains three checkboxes: 'Save Shared Views', 'Send E-Mail in Report Viewer', and 'Export to Pivot Table'. Below the dialog is a table with a red border around the 'Apply default security for user type' column. This column contains a search bar labeled 'Select a user type' with a magnifying glass icon, and buttons for 'Accept' (with a green checkmark) and 'Cancel' (with a red X). The rest of the table is white.

There are seven different personas available in the drop down menu. Each persona has a different level of security, based on seven Epic-released security classes. After selecting a default security type and clicking Apply, the security points assigned to that persona populate your security class. You can use this as a starting point and then make any further modifications you need to the security class.

Assignment of a Reporting Workbench Security Class

All users must have a Reporting Workbench security class set in their user record to run and view Workbench reports. Assign the class on the **Reporting Workbench** form of the **User Security** activity.

Analytics Security Class

The Analytics security class controls many aspects of reporting, including whether the user can access SlicerDicer and to what degree the user may view and interact with the data.

Define an Analytics Security Class

To define Analytics security classes, open an existing class or create a new one in the **Analytics Security** activity. The list of available SlicerDicer security points as well as descriptions of each can be found in the [SlicerDicer Setup and Support Guide on Galaxy](#).

Assignment of an Analytics Security Class

All users must have an Analytics security class set in their user record to access SlicerDicer. Assign the class on the **Analytics** form of the **User Security** activity.

Workbench Report Action Security

Users are able to take direct action from the results of a Reporting Workbench report. There are two main types of actions that can appear at the top of a report: *activity-based actions* and *extension-based actions*. To an end user, they look alike, but in the background the security control is completely different.

Activity-Based Actions

The first type of action is one that jumps the user to a place in Hyperspace. This could be opening the patient's chart, creating an encounter, or opening any other activity. These actions could have also been accomplished by going to the Epic menu and finding a menu option in the list. The action in a report is a shortcut to the menu listing in the Epic menu.

These types of actions are assigned to the template in the **Template Editor**. You will learn more about the Template Editor if you attend [COG200v Cogito Tools Administration](#).

Whether or not a user can take these actions is controlled by the application security class in charge of that menu option. Reporting Workbench actions work within the framework of other security. The only actions you will see at the top of a Workbench report are the actions you could accomplish by going to the Epic menu and selecting the option from there.



User A has the application user security to access the menu option Bulk Orders. When this user runs the Pediatric Patients report, the action Bulk Orders is available for them to use.

User B does not have the application user security to access the menu option Bulk Orders. When this user runs the Pediatric Patients report, the action Bulk Orders does not appear as an available action.

Extension-Based Actions

Extension-based actions are records in the HGA master file. They execute M code when clicked. This could include setting a flag in a record or populating data in a record.



After running the report Heart Evaluation Patients, you review each of the patients returned as possible recipients of a heart transplant. Once you review the list, you can select all of the patients and click the **Mark as Reviewed** action in the toolbar. This updates all of the resulting patient records in one click.

Unlike an activity action, this extension-based action doesn't jump you to a location in Hyperspace. You would not be able to find a menu option to accomplish this.

If a user and an extension-based action share an *action group*, the user can complete the extension-based action wherever it appears. Action groups are arbitrary categories used to control access to extension-based actions. To control access to extension-based actions, you must:

Assign Extension-Based Actions to Reports

Assign extension-based actions to templates and reports on the Actions tab of the **Analytics System Settings** activity.

Identify the Action Groups on Extension-Based Actions

Extension-based actions are records in the HGA master file. To view the action groups on an extension-based action, find the record in the **Record Viewer** and look to I HGA 30, which lists the action groups.

Assign Action Groups to Users

Assign action groups to users on the **Reporting Workbench** form of **User Security**.

Exercise 1: What a User Can Do

In this exercise, you will explore how the security class assigned to a user affects what functionality the user has available. You will observe how a user acquires the ability to do certain things in Reporting Workbench that they couldn't do before when their Reporting Workbench security class changes.

1. Log in to Hyperspace as Brandon, your Clinician.
2. Navigate to the **Analytics Catalog**.

3. Find a template in the **Analytics Catalog**. Is your clinician able to create reports from existing templates?
Yes. The clinician is able to create a new report from a template in the Analytics Catalog.
4. Create a new report from any template in the **Analytics Catalog**.
5. On the **Report Settings** window, navigate to the **General** tab.
6. Is your clinician able to save private reports?
Yes. The clinician is able to save a private report.
7. Is your clinician able to save public reports?
No. The clinician is not able to save a public report.
8. On the **Report Settings** window, navigate to the **Override** tab.
9. Is your clinician able to override any of the default values, like hours to keep results or queue order?
No. The clinician is not able to override any of the default values on the Override tab.
10. **Close** out of the **Report Settings** window without saving.
11. Log out of Hyperspace.
12. Log in to Classic as Lorena, your Cogito Tools Administrator.
13. You will now change the Reporting Workbench Security Class assigned to your Clinician user.
Search for and open the **User Security** activity.
14. Open your Clinician's user record.
15. Navigate to the **Reporting Workbench** form (under **Cogito**).
16. What Default security class does your clinician currently have assigned?
RW Power User.
17. Change the **Default security class** to "RW Administrator".
18. Save and Close your Clinician's record in **User Security**.
19. Log into Hyperspace as Brandon, your Clinician.
20. Navigate to the **Analytics Catalog**.
21. Find a template in the **Analytics Catalog**. Is your clinician still able to create reports from existing templates?
Yes. The clinician is still able to create a new report from a template in the Analytics Catalog.
22. Create a new report from any template in the **Analytics Catalog**.
23. On the **Report Settings** window, navigate to the **General** tab.
24. Is your clinician able to save private reports?
Yes. The clinician is able to save a private report.
25. Is your clinician able to save public reports?
Yes. The clinician is able to save a public report.

26. On the **Report Settings** window, navigate to the **Override** tab.
27. Is your clinician able to override any of the default values, like hours to keep results or queue order?
Yes. The clinician is able to override any of the default values on the Override tab.
28. **Close** out of the **Report Settings** window without saving.
29. Which Reporting Workbench Security class allows a user to do more things in Workbench, the RW Power User security class or the RW Administrator security class?
The RW Administrator security class.

This is the end of the exercise.

Controlling Content

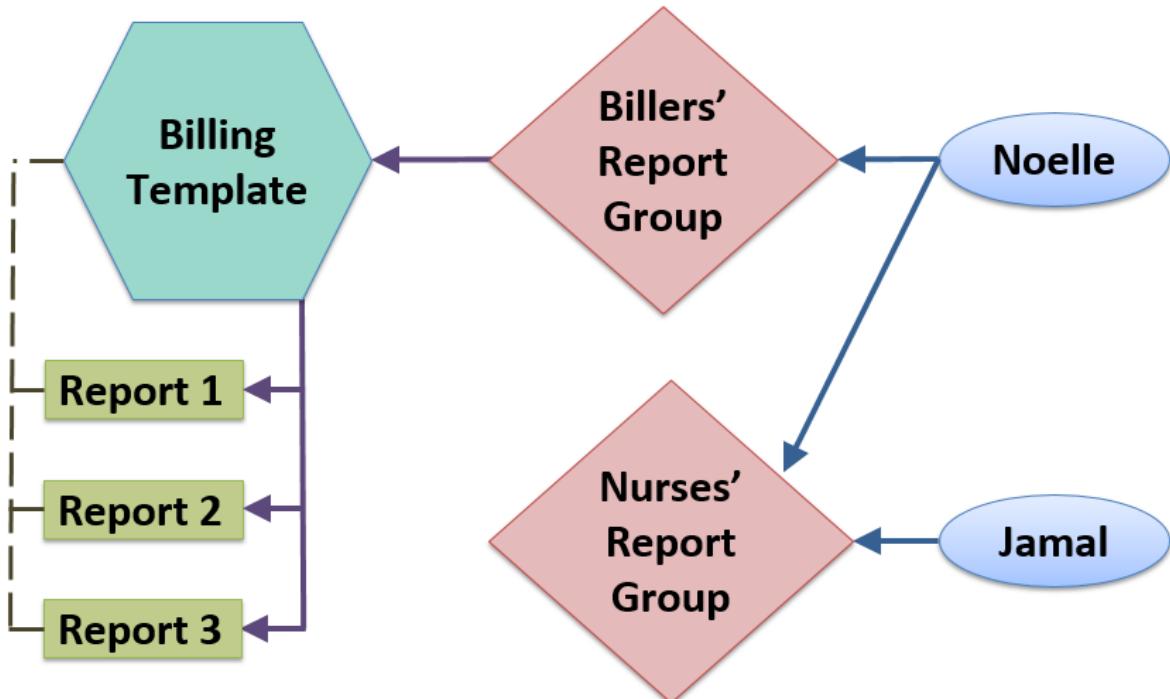
Not every user can view the same dashboards, query the same SlicerDicer data models, and run the same reports. In this section you will define who can access the content you build.

Report Groups

Report groups are the primary means of distributing Cogito content. A user is granted access to content if:

- The user has a security class that grants them the appropriate functionality to view/run that content
- The user and content share at least one report group

For example, consider the following diagram:



In the diagram, Noelle and Reports 1, 2, and 3 share the Billers report group, but Jamal shares no report groups with the reports. Noelle would be able to view and run the reports, but Jamal wouldn't.

Assign users their report groups on the **Reporting Workbench** form of the **User Security** activity. The remainder of this lesson will cover how to assign report groups to each type of Cogito content.

Workbench Content

If a user and a Workbench report share any report group, then the user can find the report in the Analytics Catalog. By default, reports inherit their report groups from their template.

Determine Who May See a Template and its Reports

Assigning a report group to a template is just one part of making a template available to users. For a template to be available, it must be configured. For a template to be configured, it must have:

- One report type assigned to it
- At least one report group

Report types are used to categorize templates. The **Types/Groups** tab of the **Template Manager** lists available report types and report groups.

Users can only create and run reports from the configured templates that are available in the Analytics Catalog. To define a template's report type and report group(s), find and select that template on the **Configuration** tab of the **Template Manager**.

Select type	<i>An old way of organizing templates. Template type is no longer used in the Analytics Catalog but is still a required setting on the template.</i>
Select groups	<i>Which users have access to the template in the Analytics Catalog. All the users that have the report group you enter here assigned to their user record will be able to access the template.</i>
Set queue order	<i>(Optional) Select the queue order used when users run reports made from this template. Reporting Workbench attempts to use the queues in the order in which you list them. If none of the listed queues are running, then the report will not run. If no queues are specified, Reporting Workbench will use a default queue order.</i>

Report-Level Overrides

You can assign report groups at the report level instead of the template level if the users in the group shouldn't have access to all reports made from a template.

Keep in mind that groups assigned at the report level override the groups set at the template level for that report. Groups assigned at the report level often lead to more long term maintenance, so use this option with caution.

You can assign a report group to a public report in the Analytics Catalog. Find the report and open it for editing. On the **General** tab, in the **Report Access** section, you can see the report groups inherited from the template and add in report level overrides.

Dashboards

You can distribute dashboards to large groups of users with the same report groups or user type, and/or assign individual dashboards to specific users for ease of setup and maintenance.



In previous versions, dashboards were distributed using user role. This is no longer recommended, but if your organization currently uses this distribution method, it will still be supported in the current version of Epic.

Distribute Dashboards by Report Group

New in February 2019, if a user and a dashboard share any report group, the user can view the dashboard. Assign report groups to dashboards either by:

- editing the dashboard's details in the **Metadata Editor**, or
- listing the report group on the **Access** form in the **Dashboard Editor**.

Distribute Dashboards by User Type

Epic builds and maintains user types. They are used to broadly describe a user's responsibilities and capabilities in the system. Examples include Nurse, Biller, and Physician. You can see the logic used to assign a user type in the [User Types Setup and Support Guide](#).



For example, a user type of pharmacist is assigned if a user has:

- a Willow security class or
- a linked provider record with Pharmacist? (I SER 8215) set to 1-Yes or
- Willow security point 1-Verification.

If a user and a dashboard share a user type, the user can access the dashboard. For most users, the system automatically assigns user types upon login, but your organization can also explicitly assign user types to user records. This is done on the Employee **Demographics** form of **User Security**.

Assign user types to dashboards in the same places that you assign report groups.

Distribute Dashboards by User Security

Sometimes report groups and user types are insufficient for your desired dashboard distribution strategy.



For example, you may want everyone working in a certain department or with a specific user template to have access to a given dashboard. While you could create a new report group specifically for users in that department, this tactic could eventually create a large number of very specific report groups that would be difficult to maintain.

Setting up access to dashboards through user records or user templates is another option to distribute dashboards. In this section, we'll focus on the user level. The methods described for user records are applicable for assigning dashboard access to a user template.

To grant access to a dashboard on the individual user record, you must access the Radar form of that user's record in **User Security**.

Additional dashboards	<i>List individual IDM records which can be accessed by this user.</i>
Override user role dashboard list	<p><i>If this box is checked, this user no longer gets access to dashboards based on their user roles and/or type. They only get access to those IDM records listed in the Additional Dashboards form plus those granted through the user's Report Groups.</i></p> <p><i>This is NOT a recommended setting. If enabled, any future dashboards developed and distributed by user role or type would not be distributed to this user.</i></p>

Components

If a user and a component share any report group or user type, the user can add the component to any dashboard view. Assign report groups and user types to components on the **Distribution** form of the **Component Editor**.



From the Designer UI or the **Dashboard Editor**, a builder can add any component to a **Source** dashboard, regardless of the report groups attached to that component or user. Report groups only control what components a user can add to their own dashboard *views*.

Components on Shared Dashboards

When an end-user creates and shares a dashboard, it follows slightly different rules than a source dashboard created by an administrator. These **User-created** dashboards can only be built out of components that the builder has access to in the **Analytics Catalog**. This means the builder and the components *must* share a report group.

But what happens when the dashboard is shared? For every component on the dashboard, there are two possible outcomes:

1. If the component is a graph or table component based on a Workbench report or a SlicerDicer session, the component will always be visible, but the *content* of the component will only be displayed if the viewing user has access to that content.
2. Any other component will only be displayed if the viewing user has access to the component itself.



Example: Farooq, the end user, builds a dashboard containing components A, B, and C.

- This means Farooq shares a Report Group with each of components A, B, and C.
- Assume that component A is a SlicerDicer graph component.
- B is a workbench table component.
- C is a message board component.

Farooq shares the dashboard with Veronica.

- She does NOT have access to component A, B, or C.
- She does NOT have access to the workbench report that component B is based on.
- She does have access to the SlicerDicer data model that component A is based on.

Veronica views this dashboard.

- Component A will appear and display the SlicerDicer graph
- Component B will appear but will show an error message indicating the report's data cannot be shown
- Component C will NOT appear

SlicerDicer Data Models

If a user and a SlicerDicer data model share any report group or user type, the user can select the data model in SlicerDicer.

In the [Cogito Security and Distribution Strategy](#) Galaxy document, the [Automatic User Type and Specialty Assignments](#) section outlines how different user types are assigned and what data model access is granted if a user has that user type.

A handful of user types need to be manually assigned. For information on manually assigning user types, reference the [Data Models with Manually Assigned User Types](#) section of the Cogito Security and Distribution Strategy Galaxy document.

If a user doesn't have any user types, they can access the Patients data model.

Exercise 2: Report Groups

In this exercise, you will explore how report groups assigned to a user, template, report and component affect what reports and templates a user can see and what components a user can add to a dashboard

view.

1. Log in to Classic as Lorena, your Cogito Tools Administrator.
2. Search for and open the **User Security** activity.
3. Open your Clinician's user record.
4. Navigate to the **Reporting Workbench** form (under **Cogito**).
5. What report groups does your clinician have? List the report groups here:
Clinical, Clinical - Management, HIM and Privacy - Management.
6. Close your Clinician's user record.
7. Search for and open the **Template Manager** activity.
8. Find the following templates on the **Configuration** tab of the **Template Manager**. Use the information you find there to determine whether or not your clinician will be able to find each of the templates in their Analytics Catalog.

Template	In Clinician's Analytics Catalog?
OR Case Report [215]	Yes
Guarantor Account Search [40006]	No
OR RW Turnovers [242]	Yes

9. Close the **Template Manager** and navigate to the **Analytics Catalog**.
10. Find the following reports in the **Analytics Catalog**. Click the pencil icon for each of these reports and navigate to the General tab of the Report Settings window to determine whether or not your clinician would be able to find each of these reports in their **Analytics Catalog**.

Report	In Clinician's Analytics Catalog?
Anesthesia Professional Billing [8789]	Yes
HIM Idle Deficiencies [2852]	Yes

11. Find the following components in the **Record Viewer**. Use the information available in the **Record Viewer** and the hints below to determine whether or not your clinician would be able to add each of these components to a dashboard view.

- Components are records in the IDB master file
- Item 150 (Item 150 in the IDB master file) stores the report groups assigned to a component. This is the same information found on the **Distribution** form of a component in the **Component Editor**.

Component	Clinician Can Add to their View?
COG170 ## Sample Links and Reports (where ## is your two digit user number)	Yes
TRN HP Care Gap Maintenance Report Links [98200017]	Yes
MR NSR RW Upcoming Cases - Next 3 Days [1431000003]	No

12. If you have time, check your work! Log in to Hyperspace as your Clinician and use the **Analytics Catalog** to confirm your clinician can or cannot see the templates, reports and components in the exercise.

This is the end of the exercise.

Managing Security

You can use the RW User Security Management template to search user records who meet reporting-related criteria, like what report groups they have or what dashboards they can access. From the results, you can select one or multiple EMP records and click the Manage RW User Security activity in the toolbar to change their default Reporting Workbench security class, their report groups, and their actions groups.

The screenshot shows a table titled "Temporary report setting [449459] as of Thu 3/28/2019". The table has columns: User Name, User ID, User Record Status, and User Record Type. There are two rows of data:

User Name	User ID	User Record Status	User Record Type
SHEHULK, BRANDON	600200	Active	User
WHITECOAT, WALT	TRN080	Active	User

RW User Management Template results

Manage Default User Security

Use this activity to change the default Reporting Workbench security class, report groups, and action groups assigned in a user's record.

Manage SA User Security

Use this activity to change the Reporting Workbench security class, report groups, and action groups for a particular service area override for the users. You can also use this activity to add or delete service area overrides. Most of the time you will use the Manage Default User Security option instead.



If a user is linked to a template, you have to change the template record. You will see an error telling you that you can't change the user record itself. This can be done by changing the report to find EMP records of the type: template when building the search.

Reviewing the Chapter

Review Questions

1. True or False. A new Reporting Workbench security class must be created for each user.

2. True or False. Only administrators with the right security can build a report from an unconfigured template.

3. What must be assigned to a template so that the template is considered configured?

4. What activity can you use to find a list of all configured templates?

5. Which of the following is a way to grant users access to a specific dashboard?
 - A. Alter the Radar security class of the users who should see the dashboard
 - B. List appropriate user types on the dashboard in the Dashboard Editor
 - C. By listing a dashboard directly in a user record or linked template
 - D. List appropriate report groups on the dashboard in the Dashboard Editor

Review Key

1. True or False. A new Reporting Workbench security class must be created for each user.

False. A Reporting Workbench Security Class can be assigned to multiple user records. It is recommended to reuse security classes as often as possible.

2. True or False. Only administrators with the right security can build a report from an unconfigured template.

False. If a template is unconfigured no one will be able to see the template in the Analytics Catalog.

3. What must be assigned to a template so that the template is considered configured?

To be considered configured a template must have one and only one type assigned to it and at least one group assigned to it.

4. What activity can you use to find a list of all configured templates?

Template Manager.

5. Which of the following is a way to grant users access to a specific dashboard?

- A. Alter the Radar security class of the users who should see the dashboard
- B. List appropriate user types on the dashboard in the Dashboard Editor
- C. By listing a dashboard directly in a user record or linked template
- D. List appropriate report groups on the dashboard in the Dashboard Editor

b, c, d

Study Checklist

Make sure you can define the following key terms:

- Security class
- Security point
- User record
- Action groups
- Activity-based action
- Extension-based action
- Report group
- Report type
- Report queue
- User type

Make sure you can perform the following tasks:

- Assign a security class to a user
- Modify a security class
- Assign action groups to a user
- Change security settings for a single user
- Change security settings for a group of users
- Configure a template

Make sure you fully understand and can explain the following concepts:

- What security classes control
- The difference between an activity-based action and an extension-based action
- How report groups will impact the templates available to end users
- What is required for a user to find a report, dashboard, or component in the Analytics Catalog
- How to determine which users have access to a given SlicerDicer data model

Cogito Build

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Introduction

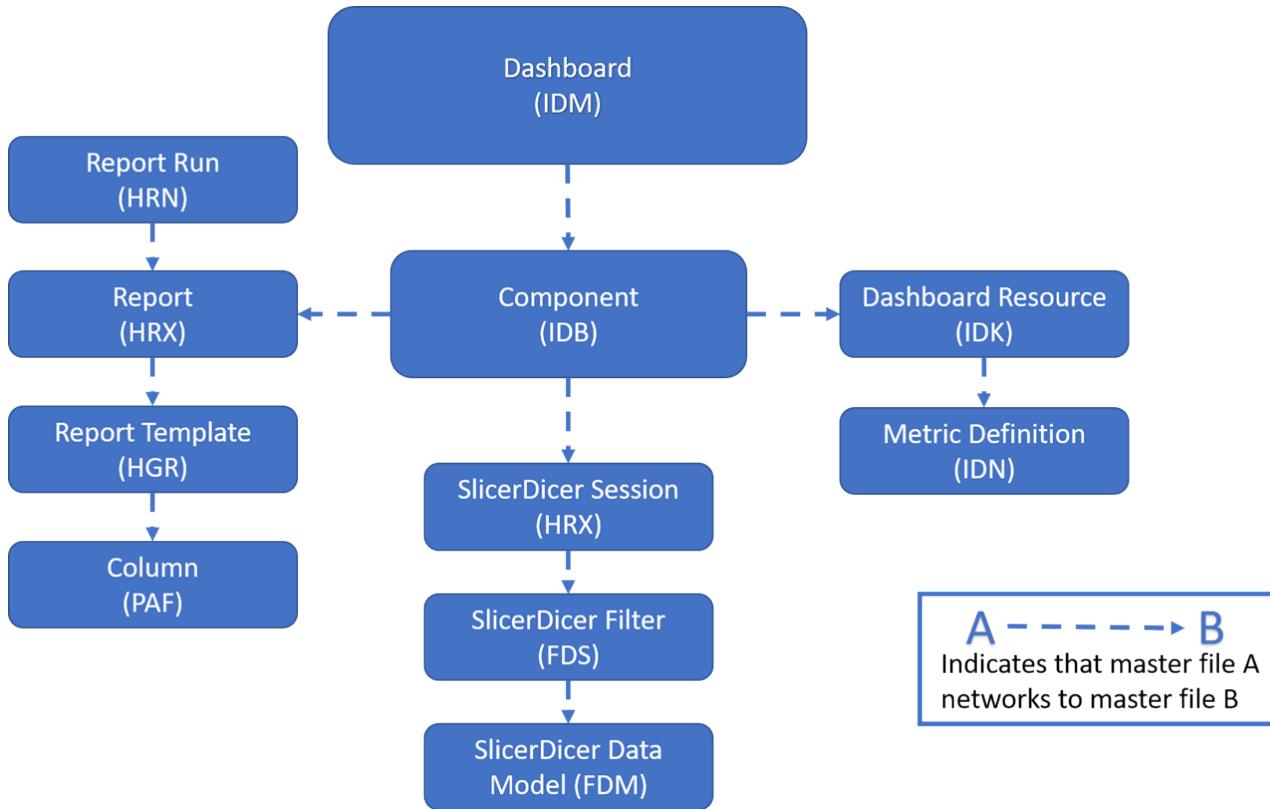
When building in Cogito, you must be aware of where the records you build are stored and how they relate to each other. Seeing how these records fit into the whole of the Cogito data model ensures the records are built in the correct order, maintained appropriately, and can be successfully migrated from one environment to another without compromising functionality.

By the End of This Lesson, You Will Be Able To...

- Define common master files used in Cogito
- Find relationships between reports, dashboards, components, and SlicerDicer sessions
- Build related records in the correct order

Cogito Data Model

Cogito's reporting infrastructure relies on a core set of related master files to store reporting resources.



Build Order

In Chronicles, the direction of the networked path between records can be used to guide the order in which to build those records. In general, if record A points to record B, then record B needs to be built before record A.



Write in Workbook

If you want to build a dashboard containing a metric-based component, what records do you need, and in what order should they be built?

IDN, then IDK, then IDB, then IDM

Editors

Records in each master file can be built or modified in the following ways:

Master File	Where built	Hyperspace, Classic, or both?
IDM	Dashboard Editor or Designer UI	Dashboard Editor in Classic. Designer UI in both.
IDB	Component Editor	both
HRX (RW)	Analytics Catalog > Create New Report > Report Settings	both
HRX (SlicerDicer)	SlicerDicer > Save Session	both
IDK	Resource Editor	both
HGG	Tag Editor	Classic
PAF	Column Editor	Classic
IDN	Metric Editor*	both
FDS	No Hyperspace Editor, built in Text*	N/A
FDM	No Hyperspace Editor, built in Text*	N/A
HGR	Template Editor*	Classic

* Not covered in this course

Dashboards - IDM

Dashboards can be used to display results from all of the different Cogito reporting tools. A dashboard does not directly point to any other record except for its list of components.

Components

I IDM 2520 is part of a related group which networks to all of the components (IDB records) on a dashboard.

Components - IDB

What a component networks to varies by component type. Components can reference:

- IDK records
 - Dashboard resources (for displaying data collected by the metric framework)
 - These can be table or graph components
- HRX records
 - SlicerDicer sessions
 - Graph components only
 - Workbench reports
 - These can be in links to reports in a link component or report listing component
 - Table and graph components can display data from the results of a given report

Depending on the type of component, there are many different items in the IDB record which can network to other master files.

Data Resources

I IDB 16500 is used in components with a data source of Dashboard Resources. It is part of a related group, and is networked to the dashboard resources (IDK records) used by components displaying data retrieved using the metric framework.

Report ID

I IDB 53060 is populated for link types of Report [6] on a Link component. This item is part of a related group listing all the links in the component, and serves as a networked path to Workbench reports (HRX records) referenced in the component.

Report

I IDB 11500 is populated for Table and Graph components. It is a single-response item networked to a Workbench report (HRX record) which generated the summary being displayed by the component.

Dashboard Resource - IDK

Though somewhat ambiguously named, dashboard resources are used as a data source for metric-based Radar components (IDB records). They control how the metric data is summarized and displayed.

Dashboard resources point to the actual metric definition (IDN record) to be displayed, but can also link to Workbench reports (HRX records) from the dashboard.

Metric definition ID	<i>I IDK 400 is populated for every IDK record displaying metric framework data. It is a single response item which points to the metric definition (IDN) used to retrieve and store the data displayed by this IDK.</i>
RW report	<i>I IDK 2001 is populated only on IDK records which are configured to link out to Workbench reports. It is part of a related group of links, and networks to each Workbench report (HRX record) linked in the IDK.</i>

Metric Definitions - IDN

Epic-released and custom built metric definitions are stored in the IDN master file. IDN records do not have any items which network to the IDK, IDB, or IDM records which actually display their data.

Report Runs - HRN

Every time a Workbench report is run, an HRN record is created. This set of results can reference either the report which generated it, or the template used to build the report. It also stores a list of the columns displayed in the results.

Source Report	<i>I HRN 41 is only populated for results generated by a report run. It is a single response item networked to the Workbench report (HRX record) which created these results.</i>
!	Some temporary HRN records can be created during build and testing while previewing templates. These temporary HRN records will not network to any Workbench reports (HRX records) since they were created directly from a report template (HGR).

!	There is another HRN item which networks to HRX. I HRN 40 will also be populated on many report runs, but it should not be used as a link to the source report. This item references the report settings used at run time, which is a temporary record.
---	---

Parent report template	<i>I HRN 1120 is populated for every report run. It is a single response item networked to the report template (HGR) which was used to create the Workbench report (HRX record) which generated the run.</i>
Output display columns	<i>I HRN 1103 is populated for all report results which display columns. It is part of a related group listing all the columns (PAF records) selected when the report was run.</i>

Reports - HRX

Workbench reports are all stored as HRX records. These reports reference the templates from which they were built, and list the columns to be displayed in the results. There are many other types of reports also stored as HRX records, including SlicerDicer sessions and various application reports.

HGR report ID	<i>I HRX 1120 is populated for all HRX records that are built from report templates. It is a single response item which networks to the report template (HGR record) the report was built from.</i>
Selected Fields	<i>I HRX 415 is populated for any Workbench report with Selected Columns. It is part of a related group which lists all the columns (PAF records) currently selected on the Display tab of the Report Settings window.</i>

Report Templates - HGR

A report template is stored as an HGR record. Many other records reference the report template, but it doesn't contain networked lists of all reports or runs generated from it. A report template does, however, list all of its available and default columns.

Available columns	<i>I HGR 108 is populated for all templates with available columns. It is a multiple response item networked to the columns (PAF records) available for selection when building a report from the template. Some available columns may be additionally listed as default or required.</i>
Default Columns	<i>Default columns are listed in I HGR 110.</i>
Required Columns	<i>Required columns are listed in I HGR 109.</i>

Columns - PAF

Columns are stored in the PAF master file, but they do not store any references to the reports or templates which use them.

SlicerDicer Sessions - HRX

The populations, slices, measures, and visualizations built in SlicerDicer are all saved in a single SlicerDicer session. SlicerDicer sessions are also stored in the HRX master file. These records are identified as SlicerDicer sessions if I HRX 30 (Report type) stores the value: SlicerDicer Session [82102]. SlicerDicer sessions list all of the SlicerDicer Filters used in generating the population.

SlicerDicer criteria

I HRX 82001 is populated only for SlicerDicer sessions. It is a multiple response networked item which displays SlicerDicer Filters (FDS records) used as criteria by this session.

SlicerDicer Filters - FDS

Every slice, measure, or criterion used by SlicerDicer is an FDS record. These records each list the different SlicerDicer data models in which they can be used.

Supported Data Models

I FDS 1500 is populated for every FDS record that is enabled for use in SlicerDicer. It is a multiple response networked item which lists the SlicerDicer Data Models (FDM records) in which a user could find and use this SlicerDicer Filters.

SlicerDicer Data Models - FDM

Epic-released and custom built data models are stored as FDM records. Data models do not list their available SlicerDicer Filters (FDS records).



There are items in FDM which network to FDS:

- I FDM 4000 and
- I FDM 84000

While both items are in related groups, neither actually lists available SlicerDicer Filters. They are used to define the initial measure which will appear when using the data model. This is usually a count of record IDs.

Reviewing the Chapter

Review Questions

1. What is an HRX record?

2. When looking at a PAF record in the Column Editor or Record Viewer, how could a user determine which templates/reports include this column?

Review Key

1. What is an HRX record?

A Workbench report, a SlicerDicer session, or one of the many other application reports stored in HRX

2. When looking at a PAF record in the Column Editor or Record Viewer, how could a user determine which templates/reports include this column?

They couldn't. PAF records don't contain a reference to the reports or templates which use them.

Study Checklist

Make sure you can define the following key terms:

- IDM master file
- IDB master file
- IDK master file
- IDN master file
- HRN master file
- HRX master file
- HGR master file
- PAF master file
- FDS master file
- FDM master file

Make sure you can perform the following tasks:

- Find the networked paths between Cogito master files to identify related records
- Document the record IDs of every record used by a given dashboard

Make sure you fully understand and can explain the following concepts:

- In what order should records be built for a given project using Cogito reporting tools

Appendix A: Complete your Training Track

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Epic expects everyone who works with Epic software to demonstrate a specific level of content mastery. To aid in understanding these expectations, this appendix will point you to various guidelines, resources, and steps to continue your learning.

Where Should I Start?

Read on to learn about key resources to help you complete your train track.

Epic's Training Guide

Epic has Training Guides that are updated regularly with training information:

- [Epic's Training Guide - Epic Community Member](#)
- [Epic's Training Guide - Consultant](#)

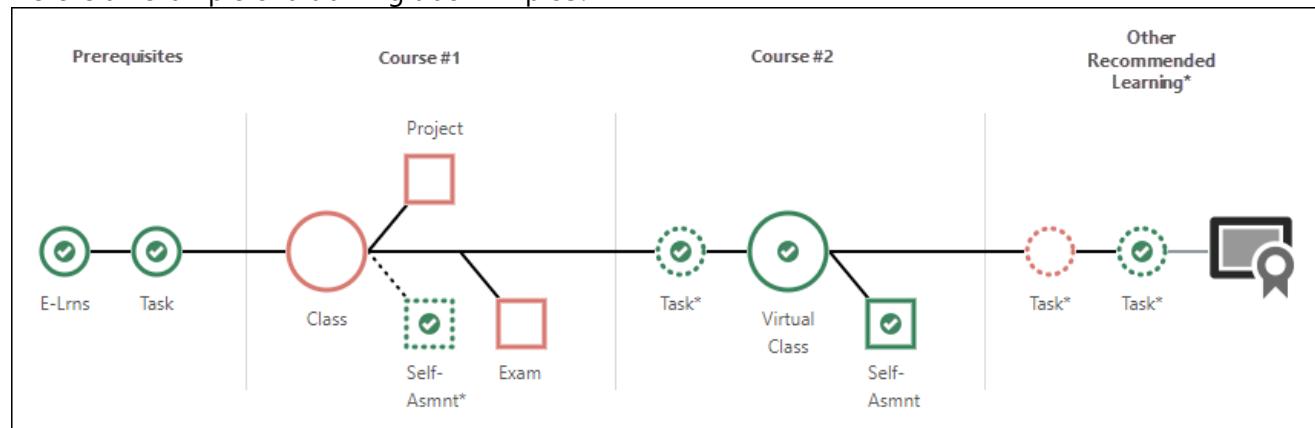
These documents contain information on:

- The training statuses available and their score and attendance requirements.
- The types of assessments used in training, including projects and exams.
- Maintaining your training certificate.
- Good Install and Honor Roll program requirements (Epic Community Member guide only).

EpicU

EpicU logs your training track progress and provides links to training materials. To access your training track via EpicU, go to the [Training Home](#). Training tracks are listed in the section **Your In-Progress Certificates**. When you click on the link for one of your training tracks, the track opens in EpicU.

Here is an example of a training track in EpicU.



- Each checkmark indicates you've completed a requirement.
- The shapes with dotted lines are recommended learnings/assessments.
- You can click on each requirement in the diagram to jump to more details in the track below.
- In the details below the diagram, you'll find links to materials, dates to upcoming classes, and buttons to help you complete tasks and mark requirements as complete.

Note: Once you complete your training track, it will not immediately disappear from **Your In-Progress Certificates**. However, it will appear in the **Your Completed Certificates and Badges** section of the

[Training Home.](#)

If you've already earned the "Proficient Self-Study" status for your training track, your requirements might not be accurate in EpicU. Contact your trainers if you have questions about requirements.

How Do I Get Help?

For questions about the process, the courses, your assessments, or projects, send an email to CogitoTrainingSubmissions@epic.com.

Send Helpful Details in Your Email

The email address above sends emails to a queue which is monitored by a member of the application's training team each day, meaning it is a more efficient way to get your questions answered compared to trying to find a single person to email. When sending an email, it is helpful if you can provide some additional information right away:

- What companion, chapter, and page(s) you are referencing
- If you are asking about something you see in the system, include the following:
 - The name of the environment you are working in (for example: Project May, Study May A)
 - Companion or task name, section header, page number, and step
 - The User ID you are logged in as
 - The patient name or MRN, if applicable
 - Any configuration you did that the trainer may need to look up
 - What troubleshooting you previously tried that didn't give you the intended results

Other Email Contacts

Below are a few other common resources you may need. When in doubt, you can always email the training team and a trainer will help you find the right support.

I have questions about...	Who should I contact?
Logging into the UserWeb	UserWebSupport@epic.com
Troubleshooting issues when launching a cert environment or a Virtual Training environment	Preparing for a virtual class? Be sure to review How to Prepare For Virtual Training first. Still having issues? Contact your trainers. If you already received a pre-class email you can reply to that email. Otherwise, consult the email address at the beginning of these training materials.
Accessing or viewing e-learning lessons	E-LearningSubmissions@epic.com
Registering for class	Registrations@epic.com
Signing up for a proctored exam or finding a proctor	Exams@epic.com
Requesting an exam review for a proctored exam	Reply to your exam score email
Understanding Continuing Epic Education requirements (Application Essentials and New Version Training)	ContinuingEpicEducation@epic.com
Understanding how to best build at my organization	Your Epic representative(s)
Principal Trainer (TED) certificates	TEDcerts@epic.com

What Studying Resources Are Available?

As you study to complete your assessments, you should employ study strategies and use your resources to make the most of your time.

- For study strategies, read the document [How to Study: Tips for Before and During Your Epic Exam](#).
- For additional resources, see the information below.

Training Materials

Electronic copies of your training materials are available for download from EpicU. Follow these steps to find materials.

1. Go to the [Training Home](#).
2. Find the **Your In-Progress Certificates** section.
3. Click the link for the relevant course of study.
4. In EpicU, expand the various sections to find links to course materials.
5. Click the links to open the documents in Galaxy.
6. You can download any of these materials from Galaxy.

You can also search for training materials directly on [Galaxy](#). Ensure your **Version** filter is set to **Epic's Latest**, and search for the course ID or name.

Updates to Epic Training Materials

When you start tasks on your training track (for example, beginning a project or signing up to take an exam), they will be on the version of Epic being currently trained. This means that the version of Epic you are being assessed on may not match the version of Epic you were trained on.

The [Training Home](#) lists when training versions change in the **Important Dates** section. If you do not finish your training track by the dates listed for the version you were trained on, you can continue to work on your training track on the current version of training.



Note: Project and exam scores have expiration dates listed in the "Expires" column of the **Important Dates** tables. If you do not finish all of the tasks in your training track by that date, any completed project, exam, or self-assessment completed on that version will expire. This means you will have to redo the expired project, exam, or self-assessment on the current version of training. Your class attendance does not expire, so you will not have to re-attend a class if a score expires.

Use the following document to find out what differences there are (if any) between the version you were trained on and the version of the task you're completing: [All Training Companion Change Log](#).

When you access the change log, you can find the changes listed per training companion. Check each

companion that is part of your training track for a list of changes.

How to Request Access to Epic's Cert Environments

Epic's cert environments allow you to complete projects and study. Using the steps below, you can request access to these environments. If you already have access, you'll be able to confirm that access during the request steps.

There might be some additional setup you have to do in order to access a cert environment. For example, you may need to work with your IT team to confirm you have the current version of Citrix installed. For a full overview of this process, view the [EA001 Using Epic Access](#) e-learning lesson.

Below are the basic steps to obtain access to a Study and/or Project environment.

1. Go to the [Training Home](#) on the UserWeb.
2. Under the **Certificate Resources** section, select **Cert Environment Request**.



- You can see any environments currently assigned to you.
- You can request new Study and/or Project environments.
 - NOTE: You will only be assigned one environment per version.

A screenshot of a web page titled 'Cert Environment Access'. It has a red header bar. Below it is a box labeled 'My Environments' with a sub-link 'Training Environment Access'. A note says 'The expiration date for my environments is Jul 9, 2022'. Below this is a large red button labeled 'Request New Environments'. A note below it says 'I will be nearest to the following location when accessing the environment:' followed by a dropdown menu set to 'United States'. A section for 'I need environment access for the following reasons:' contains two checked checkboxes: 'To practice for an exam or review training companion material' and 'To complete a project'. At the bottom is a 'Submit' button.

3. Once you submit your request, close your web browser.

4. Open a new browser tab and go to Epic Access:
 - Most learners: Go to access.epic.com.
 - If you selected a country in Europe or the Middle East: Wait 15 minutes; then go to EUaccess.epic.com.
 - The system takes up to 15 minutes to process access requests for Europe or the Middle East.
5. Log in, using the same credentials you use to log in to the UserWeb.
 - If prompted, provide your 6-digit authentication code. (If you haven't configured multi-factor authentication, click the [Learn More](#) link.)
 - You might be prompted to log in again; use the same credentials you use for the UserWeb.
 - You have completed this step when the site displays "Home" and "Apps" at the top of the page.
6. Consider using the **Check Your Setup** option before you start using cert environments. This will confirm if your device meetings all the requirements.
7. Click the icon to launch the corresponding application.
 - Use **Study** icons for self-study or after-class practice.
 - Use **Project** icons for projects or when explicitly told to use Project environments.
 - Use **Virtual Training** icons only during virtual classes, or when explicitly told to use them.
 - If your training materials instruct you to find an icon you don't see, use the search field to find it. To add the icon to the Home screen, click the star in the icon.



Technical Difficulties?

If you're experiencing technical difficulties, such as your computer asking you, "How do you want to open this file?" when you click an icon, see [this article on Galaxy](#). If you still experience issues or have questions on training materials (including training user IDs and passwords), use the email address listed at the beginning of this training companion.

Study and Project Environments

As you study, it is important to work in the system to deepen your knowledge of how the system works and how your actions impact end user workflows. There are two types of environments available for you to work in.

- **Study environments** are available for you to complete build and user workflows like those you saw during class.
 - The users, patients, and pre-built records you used during class are available in Study environments.

- Study environments refresh every Friday at 10:00 PM Central Time (or 10:00 PM European Central Time for EUaccess). This means that anything you complete on a Friday will be removed by Saturday morning.
- **Project environments** are available for you to complete required projects for grading.
 - Many of the users you used during class are available in the Project environment. Refer to your project instructions to see if there are specific users listed that you should use for project build and testing. If none are listed, you may log in as the same users from class.
 - Project environments do not refresh. Instead, Project environments are created and are available until their retirement date, which is displayed as you log in to a Project Hyperspace or Project Classic session. The retirement date is also listed at training.epic.com in the **Important Dates** section. Generally, Project environments are used solely for projects. Only use the Project environments for projects or if your training companion specifically tells you do so.

Note: You may also have **Virtual Training** icons. If you do, only use them during virtual classes, or when explicitly told to use them.

To access Study and Project environments, you may have to request access first. If you're not sure if you have access, use the steps in "How to Request Access to Epic's Cert Environments." If you already have access, you can find the environments following the steps below:

1. Go to Epic Access.
 - Most learners: Go to access.epic.com.
 - Learners in Europe or the Middle East: Go to EUaccess.epic.com.
2. Log in, using the same credentials you use to log in to the UserWeb.
 - If prompted, provide your 6-digit authentication code. (If you haven't configured multi-factor authentication, click the [Learn More](#) link.)
 - You might be prompted to log in again; use the same credentials you use for the UserWeb.
 - You have completed this step when the site displays "Home" and "Apps" at the top of the page.
3. Confirm each Study or Project icon's name contains the *month* of the version listed on the first page of this companion.
 - If your training materials instruct you find an icon you don't see, use the search field to find it. To add the icon to the Home screen, click the star in the icon.
4. Click the Study or Project icon to launch the corresponding application.
 - Throughout the training materials, the steps and exercises will specify when to use these icons (for example, log in to Hyperspace). If you're uncertain which icon to use, email your trainers.



Technical Difficulties?

If you're experiencing technical difficulties, such as your computer asking you, "How do you want to open this file?" when you click an icon, see [this article on Galaxy](#). If you still experience issues or have questions on training materials (including training user IDs and passwords), use the email address listed at the beginning of this training companion.

Sample Exams

If a course has a required proctored exam for grading, it will also provide an optional sample exam. Sample exams are a great way to test your knowledge and become familiar with Epic's online testing platform. Sample exams are not full exams, but are a selection of questions similar to those you will see during your proctored exam. Like all other non-proctored assessments, sample exams can be taken up to twice per day, with an unlimited number of attempts overall. To access a sample exam, follow these steps:

1. Access your training track in EpicU by going to the [Training Home](#) > **Your In-Progress Certificates** > select the relevant training track.
2. Find the section of the track with **Sample Exam (Recommended)** in its title.
3. Click the **Take Assessment** link.

Alternatively, you can access sample exams through the [Course Catalog](#). Use the appropriate application and/or role filters to locate your training track. Within the relevant course card, expand the **Sample Exam (Recommended)** header to find the link to the sample exam.

When you submit your sample exam, you will receive a score email within a few minutes. Sample exam score emails are only sent to you, the learner. Within the score email, there is a link to the sample exam's answer key.

Epic Community Members and Consultants: When you're ready to take your proctored exam, you can use the [Proctored Exam Instructions](#) article on Galaxy as a guide for working with Epic's online proctored exams.

Certification Guide

For certification in Cogito, there are several requirements you must fulfill. First, you must attend the [COG170 Cogito Fundamentals](#) class and complete any prerequisite E-Learning lessons. For more information about course prerequisites, review the Introduction lesson of this training companion.

Additionally, there are exam and project requirements that must be fulfilled. To achieve certification, you must complete and receive at least an 80% on the following exam and at least an 85% on the following project:

- Cogito Fundamentals Exam
- Cogito Fundamentals Project

If you already have an Epic 2017 or prior Clarity Data Model certification, an Epic 2017 or prior Caboodle Data Model certification, a Clarity Administration certification or a Caboodle-Clarity Development certification, you may attend the [COG171v Cogito Fundamentals for the Data Model Certified](#) class instead of [COG170 Cogito Fundamentals](#).

Additional information for trainees with Epic 2017 or prior certifications now pursuing Epic 2018 or later version certifications can be found in the [Cogito 2018 Certification Changes](#) document.

Testing Process

Although the exam is open book and open system, it is recommended that you spend time studying the material to make sure that you have a conceptual understanding of topics and are able to use the system. The test is timed and limited to 2 hours. Therefore, you will not have an unlimited amount of time to research each question. To prepare for this exam, review the materials you received in training and spend time practicing in Hyperspace. Hands-on practice is usually the best way to learn the tools and workflows.

The exam consists of true/false, multiple choice, and multiple select answer questions totaling to 60 points.



Because Cogito Fundamentals is such a large and interconnected curriculum, we cannot provide a full breakdown of exam points per chapter.

For example, one question may involve a scenario in which a workbench report (chapter 7) is added to a dashboard component (chapter 3) as a bar graph (chapter 9).

Test-Taking Strategies for Open-Book Tests

The list below contains some study tips and test-taking tips that may help prepare you for this exam.

Study Tips

Practice in the System

There is no substitute for practicing, researching, and doing hands-on work with Cogito. Some people can learn by reading, and perhaps that is you, but overwhelmingly, we've found that people who become certified spend a considerable amount of their allocated practice time writing reports, building dashboards, and working with security. The exercises in each chapter are great places to start.

Keep a List of Your Own Questions

Generate your own questions during your study and practice time. If you can find their answers yourself in the system, you'll often understand them better than if you had just asked somebody for the answer. If you can't find an answer, reach out to co-workers, trainers, and Epic staff.

Answer Practice Questions

There are review questions at the end of each lesson in the companion. Use these to check your understanding of the material. Try attempting these questions until you feel ready to take the exam. Additionally, come up with your own practice questions to quiz yourself with.

With each question (in the material or that you come up with yourself), focus on the testable objective. Why is this question being asked? What kind of skills or knowledge do I need to answer this?

Flashcards

If you're having problems remembering the many details which you've learned, vocabulary, etc. try making flashcards. You can pull them out anywhere if you have 5-10 minutes to spare, and the repetition can be quite helpful. There are many terms that are probably not a natural part of your vocabulary. After you learn these, you'll be able to "speak the language" that enables you to understand and use the software effectively.

For data model exams, an excellent set of flashcards would include a card for each table mentioned in the training companion to test yourself on the granularity and purpose of each table.



Our course content is confidential information. If you are planning to create online flashcards or any other online study tools to help you study, we ask that you ensure that your flashcards are password protected and not available to the general public. We appreciate your help in protecting our intellectual property.

Create an Outline

There are many moving pieces to each section of Cogito. You can make an outline of each chapter that

lists the main sections or workflows, where you need to go to accomplish the task, and the key takeaways. If you include page numbers, this will not only help you study, but provide a quick and easy way to look up information on the exam to double check answers.

Test-Taking Tips

Familiarize Yourself with the Structure of the Exam and Plan Your Time

Look through the questions on the exam to get a feel for how the exam is structured and how long certain questions may take to answer. There may be some longer scenario or multi-part questions throughout the exam or near the end that could take more time to analyze. You may even choose to answer some of the questions you know the answer to in this first pass.

Plan for how you are going to use your allotted exam time. Some people prefer to run through the exam once and answer all the questions they know the answer to off the top of their head, while some people prefer to tackle the longer scenario questions first to get them out of the way.

If you have any remaining time, make sure to go back and check your answers or revisit any questions you were unsure about.

Skip When Needed

If you are having trouble answering a question, bookmark it, and keep going. Answer the questions which are easy for you first and then reassess the amount of time you have left to go back to the questions you have skipped.

Download Electronic Companion

Downloading an electronic version of this companion from the UserWeb can allow you to search for key information faster with CTRL + F.

Appendix B: Cogito Fundamentals Certification Project

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Record Creation - Before You Begin 18 • 4

Introduction

The best way for you to learn an application is to practice in the system. As you do this, both your knowledge of the system and your comfort increase. After doing general practice based on your per-chapter studies, use the certification project as a way to self-assess your comprehension.

We strongly recommend that you do this project before attempting the COG170 Cogito Fundamentals exam.

To learn how your project grade affects your overall score calculation, refer to the [Certification Guide](#) appendix of the COG170 Cogito Fundamentals companion.



The complete project specification (steps you will need to complete the project) for the Cogito Fundamentals project will be emailed to you along with records you will need to complete the project once you complete the steps listed in the next section of this appendix.

Record Creation - Before You Begin

In order to complete your project, you need a unique user you will log in as and modify. Because creating or duplicating a user is taught in classes outside of Cogito Fundamentals, complete the following steps to have the system create a user record automatically. You will also be emailed the project specification after you complete these steps:

1. Request certification environment access at training.epic.com/CertEnvRegistration.
2. Go to Epic Access.
 - Most learners: Go to access.epic.com.
 - Learners in Europe or the Middle East: Go to euaccess.epic.com.
 - Epic staff: Follow the steps on the [Training FAQ](#) wiki
3. Log in, using the same credentials you use to log in to the UserWeb.
 - If prompted, provide your 6-digit authentication code. (If you haven't configured multi-factor authentication, click the [Learn More](#) link.)
4. Find and click the Project <month> Training Magic icon (where month is the month of the version of Epic in which you will get your certification).
5. Select the following from the drop down menus:
 - **Application:** Cogito
 - **Project:** BEGIN Cogito Fundamentals Project
6. Put your initials in the **Initials** field and click **Next**.
 - A. When choosing your initials, do not use any numeric characters. If you use numbers in your initials, you will not be able to begin your project.
7. Wait a moment (as the system generates your records), then check your email.

A message will be sent to you containing the name and ID of the user you will log in as to begin your project:

- User (EMP) record created: Cogito Tools Administrator, <your initials> [####]
 - Your Cogito Tools Administrator has a user ID of '####'
 - Your Cogito Tools Administrator has a password of 'train'

**Error Messages:**

Recall that these project environments are shared environments used by many trainees. Another trainee may also share your same initials. If someone else has already created records with the initials you are trying to use, the system will notify you to try a different set of initials.

Whatever initials you use to begin your project should also be used as you build your records.

**Login Issues:**

If you get an error when trying to log in to the Project environment, check the following:

- Are you logging in with the right user ID and password? Your user ID should be JUST the numbers in the EMP record that was emailed to you.
- Are you logging in to the correct environment? The environment you should be logging in to is listed in the Epic Training Magic Complete email you received.

Your records are now built and linked appropriately. You may now begin your project. If you'd like, print out the project specification that was emailed to you.

Appendix C: SlicerDicer Practice

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Introduction

This appendix is intended to provide additional practice in building populations in SlicerDicer as well as to familiarize you with the different types of filters you may see in the tool.

List Filters

One of the most common types of SlicerDicer Filters is the list filter. List filters can reference a discrete set of possible values defined by their data source in Caboodle. The possible values for a list filter depend on that data source.

- If the SlicerDicer Filter references a column containing a category list from Chronicles, then a user can select from any of the category values in that list which exist in the Caboodle table
 - Category values are defined in Chronicles, but **only** those that exist in Caboodle will be available for selection.
- If the SlicerDicer Filter references a list of records from a master file, then a user can select any record from that master file that has been extracted to Caboodle.
 - This means records created today won't be available for selection until tomorrow.
- If the SlicerDicer Filter references a list that doesn't come from Chronicles, such as a list of string values created during the ETL into Caboodle, then the user will be able to select any value from that list as defined in the ETL.

Exercise 1: Exploring List Filters in the Admissions Data Model

1. Log in to Hyperspace as Violet, your Clinical Administrator.
2. Open **SlicerDicer**.
3. Open the **Inpatient Admissions** Data Model
4. Click **Browse** to add a new criterion to the population.



Notice the card for **Patient Demographics** is a different color. That is because **Patient Demographics** is not a SlicerDicer Filter (FDS record). **Patient Demographics** is a category which is shared by many SlicerDicer Filters. A user can click on the category to see all the FDS records available in it.

5. Select **Primary Diagnosis**.
6. **Primary Diagnosis** is a list filter. Click the magnifying glass to see the list of possible values to apply this criterion.
7. Diagnoses are records in Chronicles in the EDG master file. Do you think the list of available values in this criterion represents every record in the EDG master file in Chronicles?
No. The list of available values is a subset of the EDG records available in Chronicles.
8. Add a couple of diagnoses to your criterion. Does every admission in your population need to have all of the diagnoses you selected as primary diagnoses?
No. For each admission, only one of the diagnoses selected has to be the primary diagnosis in order for that admission to be included.

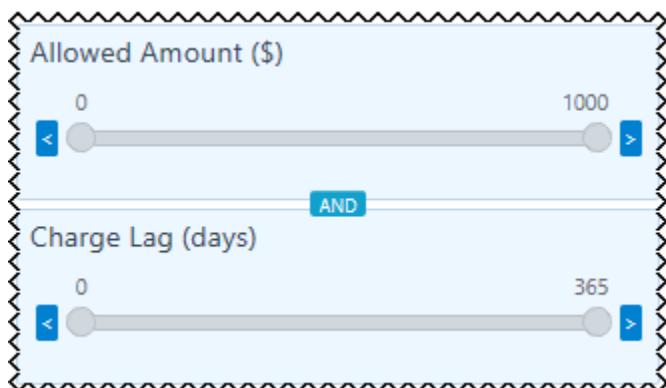
9. Remove the **Primary Diagnosis** criterion from your population.
10. To find out which diagnoses have actually been used in our population, we can slice our population by **Primary Diagnosis**. Add a slice by **Primary Diagnosis**.
11. Grab the top 10 primary diagnoses.
12. In Chronicles, these diagnoses are identified by a record ID (I EDG .1). Does SlicerDicer display the record ID of these values?
No, SlicerDicer displays the name, not the ID of the records.
13. Change the visualization of your session from **Vertical Bar Graph** to **Detail Table**.
14. Click on the first group in your table to expand the group.
15. Hover over the column header and click the green plus sign to add a new display column to your table.
16. Select the SlicerDicer Filter **Discharge Disposition**.
17. Discharge Disposition is also a list filter. It stores values that are extracted from a category item in Chronicles. When you display the values in this list filter, are you shown the category number or the name of the category?
The name of the category
18. Whether based on a list of records or category values, list criterion should always be built to display the name of the value in SlicerDicer, never the number or ID. Click **Start Over**.

Numeric filters

Numeric filters are often used to represent either currency, intervals of time, or clinical measurements such as height, weight, or temperature. They are also the most versatile SlicerDicer Filters for summarization. While a list filter can be used to create a count or percentage measure, numeric filters can support many more summarization functions including:

- Sum
- Minimum
- Maximum
- Average
- Standard Deviation
- Variance

Numeric filters should always include a unit.



Two numeric filters with different units

In this case, **Allowed Amount** is measured in dollars, while **Charge Lag** is measured in days.

When using a numeric filter as a criterion or as a slice, values are selected using a slider bar. The upper and lower bounds of the slider bar can be defined on each SlicerDicer Filter record. In the above example, **Allowed Amount** can be any value from 0 - 1000, while **Charge Lag** can be 0 - 365.

Exercise 2: Exploring Numeric Filters in the Visits Data Model

1. In **SlicerDicer**, open a new population in the **Visits** data model.
2. Add criteria for:
 - **Encounter to Close**
 - **Temperature**, and
 - **Time in Room**

Hint: Try just searching for a SlicerDicer Filter by name instead of clicking through the cards.

3. What are the units of each numeric filter?

- **Encounter to Close**

Day

- **Temperature**

Degrees F

- **Time in Room**

Minutes

4. Click on the value of the upper bound for **Time in Room**. The value should become a data entry field in which you can type a new number.

5. Change the value to 100 and press **ENTER**.

6. What happens when you try to change the value to 60.2?

It changes to 60 automatically.

7. Click in the lower bound of the **Temperature** filter.

8. What happens when you try to change the value to 97.234?

It changes to 97.2 automatically.

9. Every SlicerDicer filter has a different granularity which controls the most specific value it can display. Remove all your criteria from this population.

10. Add a slice by **Age in Years**.

11. Notice that a slicing by a numeric filter does not give you the option to grab top n slices. How many slices are created by default?

4 slices for different age groups and one for patients with no age.

12. Click **Add Stop**. What happens?

The slider bar change and all existing slices change their bounds to keep even.

13. It is possible to click on values in the slider bar to set your own bounds for numeric slices, but SlicerDicer attempts to keep all ranges even if not manually overridden.

14. To remove a stop from the slider, click and drag the stop and you will see a trash can appear to the right of the slider. Drag your highest stop into the trash.

Other Filter Data Types

Boolean

Boolean filters are either true or false. They are commonly used as inclusive or exclusive criteria. Slicing by a Boolean filter will always yield 2 slices, one for true and one for false. The only available measure for Boolean filters is percentage.

Boolean filters have a common naming convention.

Criteria				
Include	Exclude			
Abnormal?	Addendum?	Auto Verified?	Cancel or Redraw Reason	Component
Component Result Text	Correction?	Critical?	Delta?	First Correction Reason
Instrument Error?	Level of Interaction	Non-Component Result Text	Reportable?	Required Data

Boolean filters are easy to spot.

All SlicerDicer Filters that end with a question mark are Boolean filters.



Explore the following data models and filters for examples of Boolean filters:

- Open the **Lab Specimens and Tests** data model. From the **Results** category, add the **Abnormal?** or **Critical?** filter record as a criteria.
- Open the **Hospital Accounts** data model. From the **Insurance Follow-Up Info** category, add the **Open Denial?** filter record as a criteria.

Date

Every Epic-released FDS with a data type of Date is a Column Only filter. This means the dates are used in the Detail Table view in SlicerDicer to view the date of an event, but they are not used as criteria, slices, or measures.

When a user needs to report on data in a specific date range, they do not need to apply a date filter. Instead, they adjust the date range on the entire session, or apply a criterion-specific date range to a list, numeric, or Boolean criterion.



Open the **Lab Specimens and Tests** data model. Browse through the available criteria and note the categories and SlicerDicer Filters available. There are no date categories (**Elapsed Times** are numbers, not dates or times).

In your session, slice by **Specimen Type** and grab the top 5 groups. Change to **Detail Table** view. Expand the first group in your population, hover over the column headers, and click the green (+) to add a display column. Notice, there is now a **Dates and Times** category with relevant dates and times available for display.

Freetext

There are a handful of freetext filters in SlicerDicer, but they are not common. SlicerDicer users search for the entered text as a substring in a larger string item, often entered by a physician or nurse as comments or a note. Whenever possible, it is more efficient to find a discrete data point that can be represented as a list, numeric, or Boolean filter than to build a freetext filter.



Open the **BestPractice Advisory** data model. Add the **Acknowledgement Reason Comment** filter record as a criteria. The search box within the criterion has no selection button - you must type free text into this field. Type the string "okay" and press **ENTER**.

The **Acknowledgement Reason Comment** filter record can also be displayed as a column. Remove **Acknowledgement Reason Comment** as a criteria and slice by **BestPractice Advisory**. Grab the top 3 groups. Change to **Detail Table** view. Expand the first group and add **Acknowledgement Reason Comment** as a display column.

Appendix D: Handouts

Review: Lessons 2-4	20 • 3
Review: Lessons 6-7	20 • 5
Review: Lessons 9-13	20 • 6
Diagrams	20 • 7

Review: Lessons 2-4

These questions are intended to assess your knowledge from Day 1 of the COG170 Cogito Fundamentals class.

1. In the Designer UI, which components can you add to a source dashboard? Any enabled components.
2. How could you change the **Display title** of a component? To change the display title, in the Component Editor update the Display title field on the Display form. You can also change the display title of a component through the designer UI
3. Define the following SlicerDicer terms:
 - Population: a collection of entities in a data model. A population starts with the base and is refined by the criteria
 - Filter: the word filter is used in SlicerDicer to refer to the many data points defined in a data model. Filters can be used as criteria, as slices, as measures, and as display columns in the detail view.
 - Slice: a slice divides up a population in SlicerDicer.
4. Who is the intended audience of SlicerDicer? SlicerDicer is a self-service reporting tool designed for end users.
5. Information in Chronicles is divided into Master Files that contain information about a broad subject.
 - A. Tables
 - B. Master Files
 - C. Contacts
 - D. Lines
6. Which of the following are SQL databases? B: Clarity and C: Caboodle
 - A. Chronicles
 - B. Clarity
 - C. Caboodle

If You Have Time...

7. A number of keyboard shortcuts were used in Lessons 2-4. In the space below, explain what each listed keyboard shortcut does.

Keyboard Shortcut	What does it do?
Ctrl + Click (on a field)	Display the Item Information window including INI + Item # and item characteristics like add type and response type
Alt + = (Mac users: Option + Command + =)	Hard refresh the current Radar dashboard. This will rebuild the dashboard respecting any changes to the IDB or IDM records on the dashboard.
Ctrl + Spacebar	Open the Search bar in the Epic Menu

8. For each of the following items, use the **Item Editor** to look up the add type and response type.

Description	INI	Item	Add Type	Response Type
Date of Birth	EPT	110	<u>No-Add</u>	<u>Single Response</u>
Language Spoken	EPT	146	<u>No-Add</u>	<u>Multiple</u>
Phone Numbers	EPT	94	<u>No-Add</u>	<u>Related</u>
Weight	EPT	1803 0	<u>Response Each Time</u>	<u>Single</u>

9. What does **add type** tell you about an item? How long the data is valid for (record-level or contact-level)

10. What does **response type** tell you about an item? How many lines of data the item can hold

Review: Lessons 6-7

These questions are intended to assess your knowledge from Day 2 of the COG170 Cogito Fundamentals class.

1. What is the difference between a metric definition (IDN) and a dashboard resource (IDK)?

A metric determines how a particular value is calculated, i.e. the definition of the metric. A dashboard resource determines how a particular metric is presented to a user within the frame of a component.

2. When do the Summary Level (e.g. Department or Service Area) and Summary Target specified on a dashboard override a component's settings?

If a component has the data source of Dashboard Resources and uses a dynamic lookup method, then the dashboard's summary level and target will override the component's settings.

3. Look at the dashboard component below. On the Data Source form of this component, is **View as** set to Summary Targets or Resources?

Report Library Utilization EPIC FACILITY							
	Nov 18	Dec 18	Jan	Feb	Mar	Apr	MTD
Runs	1,607	1,354	1,643	1,418	1,576	1,381	–
Public Report Runs	100 %	100 %	99 %	100 %	100 %	99 %	–
Private Report Runs	<1 %	<1 %	1 %	0 %	<1 %	0 %	–
Percent of Unsaved Report Runs	0 %	0 %	<1 %	<1 %	0 %	1 %	–

Resources

4. Why would someone want to use Reporting Workbench in place of SlicerDicer?

Needs today's data, SlicerDicer doesn't contain the data points the user wants, user wants to take many different actions on the data,

5. A report writer creates a new report from an existing template in their Analytics Catalog. They then create a new component to put on their existing dashboard that contains a link to the new report. In which master files will this report writer build new records?

IDB (Component) and HRX (Report)

6. A surgeon regularly runs a Workbench report called "My Upcoming Cases – Next 3 days." Today, they are complaining that they went to the Explore tab, and one of their most commonly used filters is missing! They like to slice the cases by "Anesthesia Type," but it's no longer an option. What might be the reason for this missing filter?

The "Anesthesia Type" PAF column has been removed from the list of Selected Columns in the report.

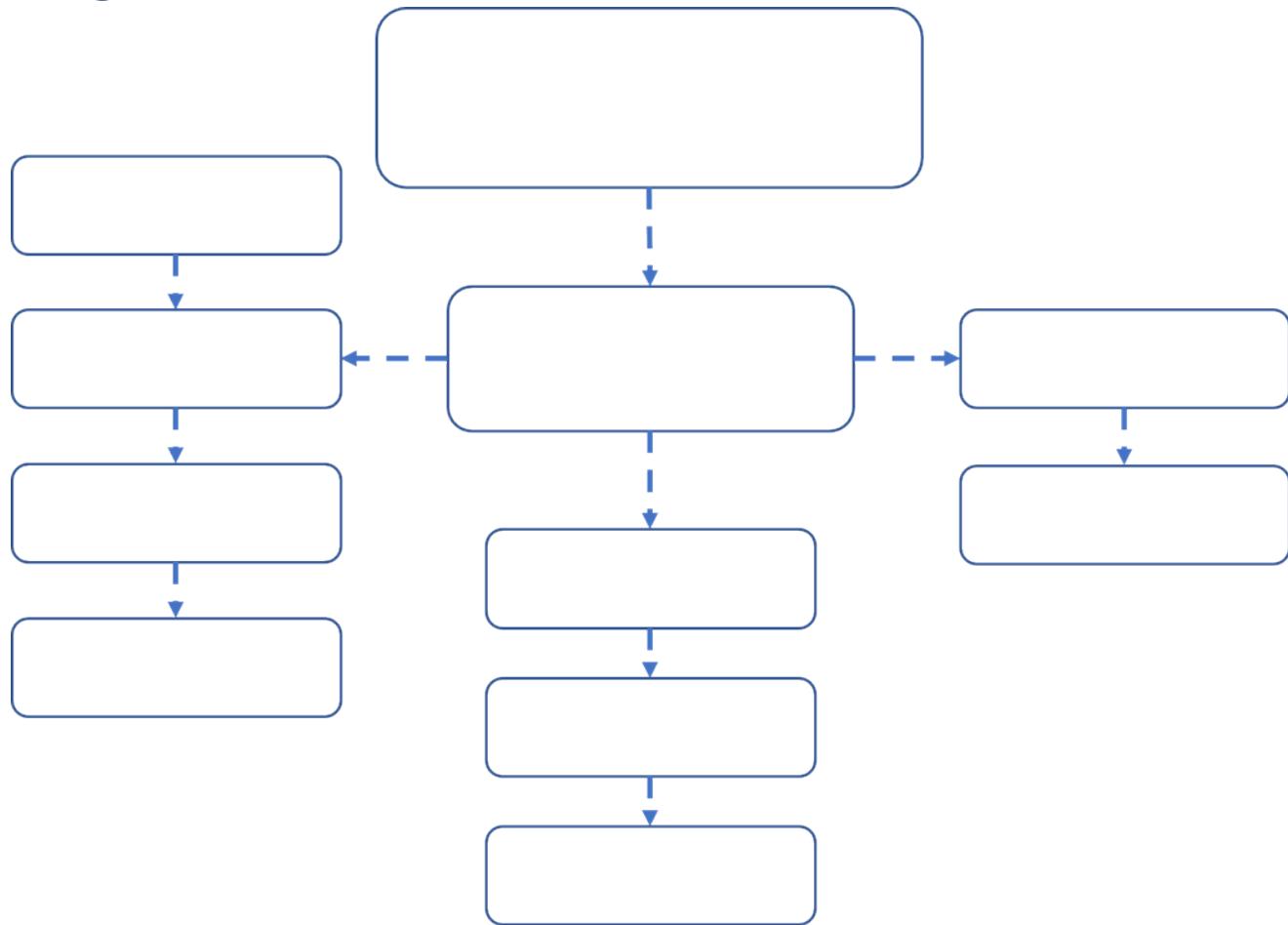
Review: Lessons 9-13

Look at the situations described below. Which of the following - SlicerDicer, Metrics or Reporting Workbench - would best meet each reporting need?

Scenario	SlicerDicer, Metrics or Workbench?
You get a request for a dashboard component that will display how your organization is doing compared to other organizations in the Epic community	<u>Metrics</u>
A user wants to be able to get a list of all patients who are in the ICU right now, and see what medications have been ordered for them.	<u>Workbench</u>
Your organization is pulling 3rd party patient satisfaction data into Caboodle, and wants to give doctors the ability to investigate scores for various types of visit, locations, and procedures.	<u>SlicerDicer</u>
The ED Manager at your organization wants to run a report on demand to see a list of all patients currently waiting in the Emergency department so they can add or remove staff as necessary.	<u>Workbench</u>
A user wants to see the total dollar amount of all medicare denials over the last two months, then see how that line graph changes as they filter out certain procedures or types of encounter.	<u>SlicerDicer</u>
Your department managers want to see how well each department is measuring up to a shared set of KPIs, so they can set achievable goals, and keep an eye on how close they are to meeting them.	<u>Metrics</u>
A scheduler wants to investigate patient wait times before office visits to see if there are any trends in different departments or for different schedule blocks.	<u>SlicerDicer</u>

Having trouble deciding between two options for one of the scenarios? Jot down any follow-up or clarifying questions you may want to ask the requester in order to make the most informed decision.

Diagrams



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