



Cisco Prime Service Catalog 10.0 Reporting Guide

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About this Guide

Objectives

The *Cisco Prime Service Catalog Reporting Guide* explains the reporting capabilities provided by Cisco Prime Service Catalog, and how to make best use of those capabilities. It gives you an understanding of the overall lifecycle of service request data, including how it is extracted, transformed, and loaded into the Service Catalog Advanced Reporting Data Mart. This understanding is essential when you design services: you must ensure to collect the data, via service forms, that is required for any reports you intend to provide your end-users.

This guide also explains the prebuilt reports that come with Service Catalog, and how to use them; as well as how to build your own reports.

Audience

This guide is intended for the service designers who are creating the service requests that will collect the data; the system administrators responsible for configuring and scheduling the extract, transformation, and load (ETL) process that populates the Data Mart; and the report designers who will create and publish the reports to be consumed by end-users.

Document Organization

The *Cisco Prime Service Catalog Reporting Guide* is divided into the following two chapters:

- [Chapter 1, “Advanced Reporting Data Mart”](#): This chapter describes the Reporting and Advanced Reporting capabilities provided with Service Catalog.
- [Chapter 2, “Data Mart Schema”](#): This chapter outlines the contents and relationships of the query subjects used by the IBM Cognos reporting tools (Query Studio and Report Studio, represented as Ad-Hoc Reports and Report Designer in the Service Catalog Advanced Reporting module).

Conventions

This document uses the following conventions:

Convention	Indication
bold font	Commands and keywords and user-entered text appear in bold font .
<i>italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
[]	Elements in square brackets are optional.
{ x y z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.
Choose Menu item > Submenu item from the X menu.	Selections from a menu path use this format. For example: Choose Import > Formats from the File menu.



Note

Means *reader take note*.



Tip

Means *the following information will help you solve a problem*.



Caution

Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.



Timesaver

Means *the described action saves time*. You can save time by performing the action described in the paragraph.



Warning

Means ***reader be warned***. In this situation, you might perform an action that could result in **bodily injury**.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.





Advanced Reporting Data Mart

- [Overview, page 1-1](#)
- [Reporting Architecture and Components, page 1-4](#)
- [Running Reports, page 1-6](#)
- [Advanced Reporting Module, page 1-16](#)
- [Best Practices for Service Design and Reporting, page 1-36](#)
- [Key Performance Indicators \(KPIs\), page 1-44](#)
- [Metrics and Attributes, page 1-34](#)
- [Standard Reports Design, page 1-48](#)
- [Data Mart Administration, page 1-51](#)

Overview

This chapter describes the Reporting and Advanced Reporting capabilities provided with Service Catalog.

Service Catalog comes with a dedicated reporting environment for business intelligence. The environment consists of multiple components, each of which is optimized for a particular task or set of users. These components are listed below.

- **Prebuilt reports** are a set of production quality reports which provide an analysis of service, requisition, and task-level performance.
- **Key Performance Indicators (KPIs)** are a set of graphs which can be displayed on the application portal, to allow instant access to data on trends within the system.
- **Ad-Hoc Reports** allows business users to construct queries based not only on data available in the standard reports (regarding task, service, and requisition performance) but also on data from fields in custom-designed dictionaries included in the site's service forms.
- **Report Designer** allows business users to modify standard reports and to create new reports incorporating not only requisition, task, or service-related data but the service-form data (individual dictionaries and fields) that is customized for each service.
- The **Custom Java Provider** allows the Service Catalog person profile information to be used as a Cognos namespace. This provides integrated, Single Sign-On access to all reporting tools for all users registered in Service Catalog, with the reporting privileges assigned to them by the administrator.

These reporting capabilities are seamlessly integrated into the Service Catalog framework, but are implemented using tools from the IBM Cognos Series 8 Business Intelligence (BI) solution toolset. These tools are summarized below.

- **IBM Cognos 8 Connect** allows Service Catalog to display Cognos reports and other reporting objects.
- **IBM Cognos 8** provides production-quality reports to business users and nontechnical users. Such users can use Cognos 8 capabilities to print reports or save output in formats suitable of Office or other applications.
- **IBM Cognos Query Studio** (presented to users as “Ad-Hoc Reports”) allows users to perform ad-hoc queries on the reporting data.
- **IBM Cognos Report Studio** (presented to users as “Report Designer”) allows users to modify existing reports or produce new reports. It is recommended for technical users or power users, who can understand the relationships among different types of data stored in the Service Catalog database.
- **IBM Cognos Data Manager** is the tool used by Cisco engineers to produce the programs that extract data from the transactional database and load it into the dedicated reporting environment.
- **IBM Cognos Framework Manager** is used by Cisco engineers to define the data level and business level views of the information which are available to end users for ad-hoc reports and queries.
- **IBM Cognos Event Studio** defines events, triggered by the value of data in the reporting database. When an event occurs, users can be notified by means such as e-mail or running an exception report. The application does not come with any preconfigured events, but allows Advanced Reporting user to define their own events, based on contents of the data mart.

This chapter does not describe in detail the usage of the Cognos toolset. Rather, it concentrates on the data provided in the Service Catalog reporting and query environment, and how the Cognos tools can be used to generate reports to support business processes. For detailed information on the Cognos toolset, Service Catalog users are urged to take training courses from Cognos.

In this Chapter

Section	Description
Overview, page 1-1	Describes the contents of this chapter
Reporting Architecture and Components, page 1-4	Describes the components of the Service Catalog reporting solution
Running Reports, page 1-6	Describes how to run prebuilt reports, provided as part of the Standard Reports Package and gives a brief description of the report inventory
Advanced Reporting Module, page 1-16	Describes the Service Catalog data mart implemented via the Custom Reports Package and the ad-hoc reports and query capabilities available for building reports including form data as well as other requisition and task-related data
Best Practices for Service Design and Reporting, page 1-36	Discusses best practices for configuring reportable dictionaries and services, and for changing the definitions of reportable objects
Key Performance Indicators (KPIs), page 1-44	Describes the key performance indicators and how to integrate these into a Service Catalog dashboard

Section	Description
Metrics and Attributes, page 1-34	Describes measures and attributes available in the reporting options and how to effectively measure service volume delivery and task delivery performance
Standard Reports Design, page 1-48	Gives the database design for all tables used to construct standard reports and KPIs
Data Mart Administration, page 1-51	Provides additional information on the administration and configuration of the Service Catalog data mart

Reporting and Advanced Reporting Modules

The reporting and advanced reporting capabilities are packaged and licensed as two modules which are available separately.

Reporting

The Reporting module is bundled with a basic Service Catalog license. The Reporting module provides a set of prebuilt reports on service design, organizational entities, and on transactions (requisitions and tasks) processed through Service Catalog. This module also provides a set of Key Performance Indicators (KPIs), charts which can be configured to appear on each user's reporting dashboard. The following sections discuss capabilities provided by the Reporting module:

- [Reporting Architecture and Components](#)
- [Running Reports](#)
- [Key Performance Indicators \(KPIs\)](#)
- [Metrics and Attributes](#)
- [Standard Reports Design](#)

Advanced Reporting

The Advanced Reporting module may be licensed as an add-on to a basic Service Catalog license. The Advanced Reporting module includes a data mart for Service Catalog, as well as tools for building simple queries and more complex reports based on data in the data mart.

The following sections discuss capabilities provided by the Advanced Reporting module:

- [Advanced Reporting Module](#)
- [Best Practices for Service Design and Reporting](#)
- [Metrics and Attributes](#)
- [Data Mart Administration](#)

Reporting Architecture and Components

Overview

This section describes the architecture of the Service Catalog reporting solution. It can be read by anyone curious about how the Cognos components are used and the role each plays in the solution. It can safely be skipped by those interested primarily in how to use the Service Catalog reporting solution to run the prebuilt reports supplied in the Standard Package or in generating their own ad-hoc reports or queries.

Data Mart Architecture

In general, it is not “best practice” to allow users to run reports in the same environment in which a transactional system such as Service Catalog is operating. The resource requirements for running reports, ad-hoc queries, and other in-depth analyses are vastly different from resource requirements for running a transactional system that responds acceptably to online users. Therefore, data that forms the basis for reports and in-depth analyses is typically extracted from the transactional system and loaded into an environment dedicated and optimized for reporting.

The Service Catalog dedicated reporting environment consists of two “packages,” whose contents and usage are explained in detail in the rest of this chapter.

Standard Reports Data Package

The Standard Reports Package supports the prebuilt reports and KPIs. A variety of output options provide information on task-, service-, and requisition-based measures and trends. In addition, reports on the structure of the Service Catalog data, including persons, organizations, service teams, and service groups, are available. All data used in the prebuilt reports is also available in the Custom Reports package. Over time this package is merged with the Custom Reports package.

Custom Reports Data Package

The Custom Reports Data Package provides a “dimensional” model which allows ad-hoc reports on task, service and requisition-related data. In addition to the measures and attributes available in the Standard Reports package, data entered by users into the customized service forms configured at each site is available. This “form data reporting” (FDR) provides visibility into all attributes of all dictionaries and services which the service designers have designated as “Reportable”.

Refreshing the Data Mart

The data mart must be loaded with data from the transactional systems on a regular basis in an Extract-Transform-Load (ETL) process. That is, data is extracted from the transactional system; transformed into a format that is optimized for reporting (rather than for online transactions); and then loaded into the data mart.

The ETL process is “incremental”. Only the data that has been changed or created since the last time the data mart was refreshed are processed in the next ETL cycle. Users can continue to access the data mart and run reports while the refresh process is running. However, the response time for some reports may be adversely affected. Running the ETL process has no or very limited impact on the response times in the transactional database.

The refresh process is typically scheduled to run automatically at regular intervals. We recommend that the data mart be refreshed every 24 hours, ideally at a period of limited user activity.

Details on the executables required as part of the ETL process and scheduling the process for execution are given in the *Cisco Prime Service Catalog Installation Guide*. Details on the Cognos and Service Catalog components involved in this process are given in the section of this guide in the [“Data Mart Administration” section on page 1-51](#).

Standard Reports Package

The Standard Reports Package consists of a set prebuilt reports and key performance indicators (KPIs) that are supplied with Service Catalog and the database tables required to support generation of these reporting objects. These prebuilt objects meet many business unit requirements for the reports generated from operational data.

Database Tables

The database which supports the Standard Reports Package contains both detail tables and summary tables.

The detail tables provide a “denormalized” view of the database. Each table provides all the data that appears on a corresponding report. This means that running each report is optimized, so no report needs to access related data in lookup tables. It also means, however, that these tables CANNOT be combined in a report with other tables, since there are no relationships between the tables: each table is a complete, denormalized view of one type of fact about the OLTP system, to the specified level of detail. Further, no drill-up or drill-down, to different levels of detail, is possible.

The summary tables contain aggregated or summarized data. Presummarizing data eliminates processing delays that would otherwise occur if summary reports needed to aggregate data in real-time, in response to a report request. As for the detail tables, each summary table should be used only for its dedicated reports or KPIs—no summary tables can be joined to other tables to support ad-hoc reporting requirements.

Prebuilt Reports

The prebuilt reports that are included in the Standard Reports Package are created using the Report Studio tool and included in the Reporting module. The default report display format is set to HTML; but this delivery format, as well as other runtime parameters, can be modified when the reports are run. If the reporting solution includes Report Designer, users are able to view the definitions of the prebuilt reports and, if desired, modify the definition or create new reports to better meet corporate requirements.

Service KPIs

The service Key Performance Indicators are generated using JFreechart API's (JFreechart is not part of the Cognos product suite, but is open source software). The charts are generated on demand, by reading from the summary data tables created for each KPI.

Service Catalog Data Mart – Advanced Reporting

The Advanced Reporting module allows users to build custom reports and queries from data in the Service Catalog data mart, capturing data from Service Catalog.

Service Catalog Data Mart

The Service Catalog Data Mart is based on the Custom Reports Data Model package. This package gives users access to a data mart which includes service, task, requisition and effort-related information, such as the task performer or the duration of a task. The custom reports package differs from the standard package in important ways:

- The custom reports package does not include any prebuilt report or KPIs. It is meant strictly for ad-hoc reports and queries.
- The custom reports package allows access to form-based data, data derived from the dictionaries and attributes which are displayed and entered on user-configured service forms.
- The custom reports package is organized as a “dimensional model,” a flexible data model with the relationships among the different types of data, which encourages building ad-hoc reports and queries. This model is described in detail in the [Advanced Reporting Module, page 1-16](#).

Running Reports

Overview

This section gives basic information on how to run reports, and how to configure the Service Catalog dashboard to display KPIs. Instructions on running reports apply both to the standard (prebuilt) reports and any custom reports that were developed using the Advanced Reporting options and published to the public or private folders.

Accessing Reporting Options

All reporting options are integrated into the Service Catalog menus. The Reporting and Advanced Reporting options appear on a user's drop-down menu, provided that a permission which grants rights to execute these options has been granted to the user. Details on role-based access are given in the [“Data Mart Administration” section on page 1-51](#).

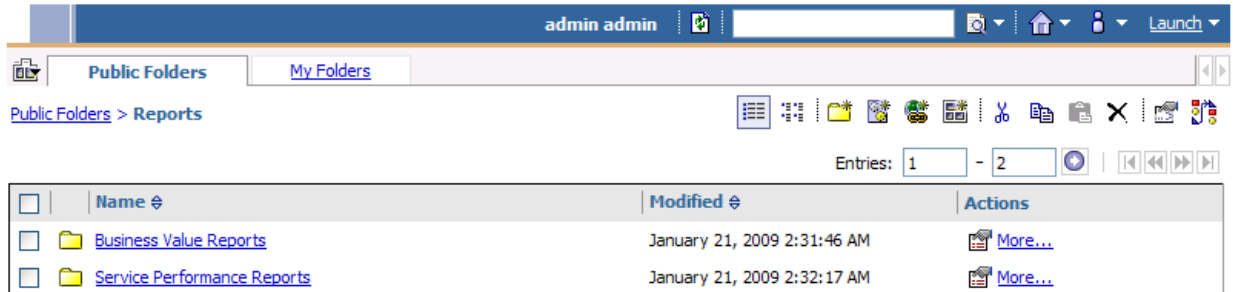
Reporting options are accessible from the Service Catalog menu:

The Reporting menu option provides the following options:

- Reports – the ability to run all prebuilt reports and to modify or copy reports (as appropriate to each user's privileges)
- Dashboards – the ability to configure the dashboard displayed by each user's portal to include specified KPIs

Reports

Choose **Reporting > Reports** to display the Reports home page, as shown below.



Reports Title Bar

The title bar at the top of the Reports page includes user options, as summarized in the table below and explained in detail in the following sections.

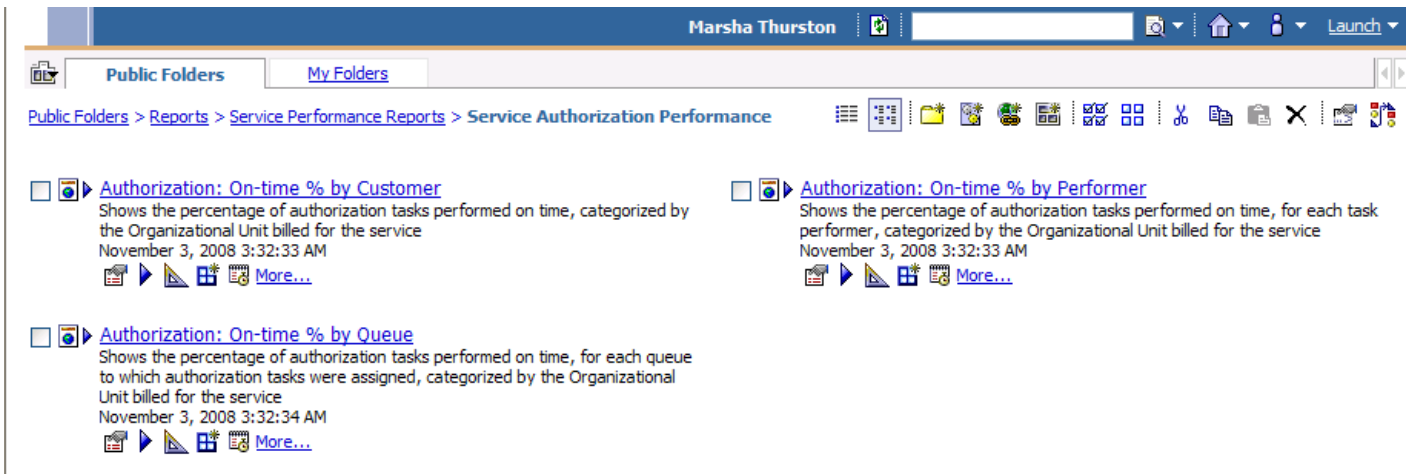
Option	Explanation
	Refresh the current page
	Search for the text entered in the name of a report
	Home; return to the Reports home page or set the current page as your home page
	My Area; review or modify your watch items, preferences, or schedules
	Start the Event Studio or, for Report Administrators, Cognos Administration modules or define report drill-downs

Folders and Reports

All reports options are available in the “Public Folders” folder. The home page shows the top-level report folder: Service Performance Reports.

The page initially appears in “List” view—only the folder title is shown, with a “More...” link providing access to reporting options. Especially for new users, it might be more useful to display Reporting pages in “Details” view, to see a brief description of each folder or report, and to have handy some of the more common options. To switch the view, simply click the “Details View” icon—the second from the left in the icon bar at the top right of the page. (Viewing and other preferences may be saved, as explained in the section on Preferences.)







Each folder name is presented as a hyperlink; clicking on that link shows the folder contents, which may include both folders and reports themselves. As you click through the folders to find the report of interest, the “bread crumbs” (directly under the “Public Folders” tab) are updated to reflect the navigation path. For example, the “Authorization: On-time % by Customer” report is in the “Service Authorization Performance” folder, as shown below:







Running a Report

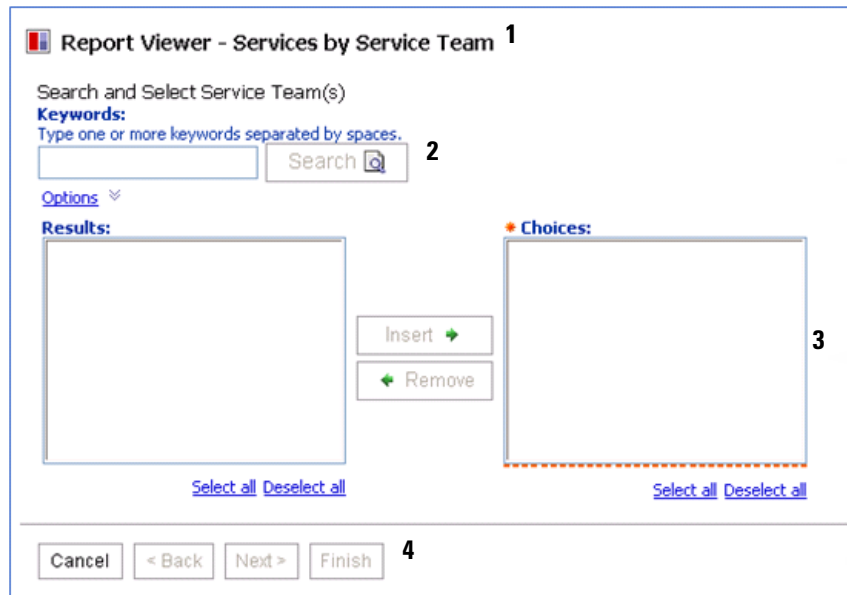
Drill down through the report folders until the report you are interested in appears. Click the report name to run the report with its default output format (HTML).

In addition, the following reporting options may be available via the icons directly underneath the report name and the More link.

Reporting Option	Explanation
 Set properties	Change properties of the report. Available only to report administrators (for Public Folders) or for owners of report views on My Folders.
 Run with options...	Present an option page before running the report. The option page allows adjustment of the print output format.
View report output versions	View the output of a report that was previously saved. Available only if the report has saved output.
View most recent report	View the most recent output of a saved report. Available on the More... page only if the report has saved output.
 Open with Report Studio	Open the report in Report Studio (Report Designer), to modify or review the report definition. Available only to Report Administrators or owners of the report who have permission to run Report Designer.
 New schedule...	Schedule the report to be run automatically. Available only to Report Administrators or owners of the report. Other users are able to view the schedule.
 Create a shortcut to this entry...	Available only via the More... option. Create a shortcut to the report on any folder to which you have write permission.
 Create a report view of this report...	Create a view of the report, saving it to your private folders. This allows you to modify the properties of the report, to schedule it, or to save output versions.

Reporting Option	Explanation
 Move...  Copy...  Delete	Only Report administrators can modify public reports or folders. However, report users may copy reports to their private folders or create private views of the reports, and manipulate these.
 Add to bookmarks...	Available only via the More... option. Add a bookmark to the current report to browser favorites.

When you run a report, a parameter screen always displays, to allow you to specify criteria for data to be included in the report. The filter criteria vary from report to report. A parameter screen might look like the sample below.



1	Report Title	3	Parameters
2	Keyword Search (% for all)	4	Action buttons

Follow the procedure below to run a report:

- Step 1** Enter “%” to specify that all applicable data should appear on the report. If you are familiar with the report and its filters/parameters, you could enter a value here, but this is not necessary. If you enter “%,” all available filtering options appear in the “Results” box below. For example, in the report of Service by Service Teams, the Results box would list all service teams.
- Step 2** To specify the report contents, choose the Results (in this case service teams) that you want included in the report and click **Insert**. This will move those options to the Choices box. The asterisk indicates that at least one choice is required.
- Step 3** If the option selection is complete for this report, the Finish button at the bottom of the screen is enabled. Click **Finish** to run the report.

- Step 4** Alternatively, some reports require multiple filters. For example, a report organized by People might ask you to first specify the Organizations to appear on the report, then specify people of interest within those organizations. In this case, the “Next” and “Previous” buttons are enabled. Click **Next** to display the next set of Choices, and choose the Results you want. When parameters for all filters have been specified, the Finish button becomes enabled. Click **Finish** to run the report.

Report Pages

A report displays in a series of pages. Hyperlinks at the bottom of each page allow you to navigate through these pages. The number of rows displayed on a page may be modified by setting the corresponding report property. An icon bar at the top of the report page displays available options:



These options are summarized in the table below and explained in detail in the following sections.

Reporting Option	Explanation
Keep this version ▼	Save the report output, by emailing the report or saving its output, or create a view of the report.
	Run the report again.
	Drill down/drill up; these links are not enabled.
	Go to any related links that have been defined for this report. Report administrators or owners may add links; by default, none are defined.
	Indicates the current output format for the report and allows you to rerun the report in an alternate format. Default format is HTML; PDF, XML, and Excel formats are also available.
Add this report ▼	Add a shortcut to this report to your private pages or create a bookmark to the report in your browser.
Watch new versions ▼	Allows you to designate that an e-mail alert should be sent to you (the report owner) whenever output for this report is saved; available only if you have previously saved report output.
	Return to the Reports home page.
	Return to the page from which you invoked this report.

To return to the page from which you selected the report, click **Return** at the top right of the page. To run the report again, click the **Run** icon.

Saving a Report View

A “Report View” is a copy of a report. Customizations can only be applied to a report for which the user has edit permission. By default, only Report Administrators have edit permission to the prebuilt reports. Therefore, a primary reason for creating a report view is to create a private copy of the report to which

a user's customizations can be applied. Typical customizations include the ability to save the report filter criteria (parameters) previously entered; to schedule the report, either one time or on a recurring basis; to save previously run versions of the report output; and to change the report properties such as the default output format.

To save a report as a report view, click **Keep this version**, then **Save as Report View**. Saving the report view automatically saves the current report output.

Save as report view

Specify a name and location for this entry. A report view shares the same report specification as the source report.

Name:

Report View of Service Volume: Request Activity by Service

Location:

☒ Public Folders > Reports

☐ My Folders

[Select another location...](#)

OK

Cancel

Saving Report Output

If you have edit permissions for a report, or have created a private report view, you can save generated report output. The report delivery format can be set either when you run the report, via the Run with options, or as part of the report properties. In order to send a report via e-mail, the report output must be saved. Report output is also saved if the report is scheduled to run at a later time.

The View Saved Reports icon is added to the set of icons available for a report when saved report output exists. Saved report output is identified by the date and time the report was run. The Manage versions link allows you to delete versions that are no longer required.

View report output versions - Ariba Services by Dictionary Help ×

Select an output version to view by clicking on a Format hyperlink.

Version:
February 4, 2009 7:28:13 AM ▼ [Manage versions...](#)

Entries: 1 - 1 ⚙ ⏪ ⏩

Formats	Languages ▼	Actions
HTML	English	

Close

The Report properties include entries for each report's Run history (the number of saved reports to keep) and Report output versions (the number of different output formats for each saved report).

<p>Run history: Setting the number of occurrences to zero (0) saves an unlimited number of occurrences.</p> <p><input checked="" type="radio"/> Number of occurrences: <input type="text" value="5"/></p> <p><input type="radio"/> Duration: <input type="text"/> Day(s) <input type="button" value="v"/></p>	<p>Report output versions: Setting the number of occurrences to zero (0) saves an unlimited number of occurrences.</p> <p><input checked="" type="radio"/> Number of occurrences: <input type="text" value="1"/></p> <p><input type="radio"/> Duration: <input type="text"/> Day(s) <input type="button" value="v"/></p>
--	---

Emailing Report Output

Two e-mail delivery options available are:

- Include the report (as an attachment) in the e-mail. This is the default behavior when the report properties are set to “Send the report to me”, so the option is not available.
- Include a link to the report in the e-mail—the recipient must be Service Catalog users with permission to run reports.

There are several ways to e-mail report output to both the person who runs the report and additional participants.

- Click **Run with options** and choose **Send me the report by email**. To specify additional recipients, click **advanced options** and, under the Delivery options, click **edit the options** for the “Send the report by e-mail” option.
- Run the report, and click **Keep this version > Email this report**.

Services by Dictionary

Set the email options - Ariba Services by Dictionary

Specify the recipients and contents of the email. To add recipients, click [Select the recipients...](#) or type the email addresses separated by semi-colons. To include an HTML report as the message body, leave the Body box empty and select the report as the only attachment.

To:
Marsha Thurston (Marsha Thurston);

Cc:

[Select the recipients...](#) [Show Bcc](#)

Subject:
Report: Ariba Services by Dictionary

Body: [Change to plain text >>](#) **B** **I** **U**

☒ Include a link to the report

OK Cancel

The recipients may either be typed directly, separated by semicolons, or chosen from the list of reporting users. When choosing recipients:

- Click **Select the recipients**. The “Select recipients (Navigate)” page appears.

Select recipients (Navigate) - Groups by Organizational Unit [Help](#) [X](#)

Navigate the folders or search to find the users, groups, roles, contacts, or distribution lists to use as recipients. Select the entries you want and click an arrow button to update the Selected entries list. [Search](#)

Available entries
Directory
☒ Show users in the list

Entries: 1 - 3 [Refresh](#) [Previous](#) [Next](#)

<input type="checkbox"/>	Name
	Cognos
	newScale
	TrustedSignOn

To →
Cc →
Bcc →

Selected entries
 Entries: - [Refresh](#) [Previous](#) [Next](#)

<input type="checkbox"/>	Name	To	Cc	Bcc
No entries.				

[Remove](#)

- Check **Show users in the list** then click on the Service Catalog namespace (directory) in the list of Available entries on the left side of the page.
- A list of roles (which have an associated reporting capability) and individual users (who have been granted one of those roles) appears in the Available entries column. You can browse through that list, choosing the recipients for the e-mail, then click To, Cc, or Bcc to choose those entries as recipients.
- Alternatively, to find a particular user, you can click the Search link at the top right of the page. The “Select recipients (Search)” page appears.

Select recipients (Search) - Groups by Organizational Unit [Help](#) [X](#)

Navigate the folders or search to find the users, groups, roles, contacts, or distribution lists to use as recipients. Select the entries you want and click an arrow button to update the Selected entries list. [Navigate](#)

Available entries
[Directory](#) > [newScale](#)
 Find text in: [Name field](#) ▼

jared [Search](#) [Advanced](#) ▼

Results: Entries: 1 - 1 [Refresh](#) [Previous](#) [Next](#)

<input type="checkbox"/>	Name
<input type="checkbox"/>	... > Jared Roberts (Jared Roberts)

To →
Cc →
Bcc →

Selected entries
 Entries: - [Refresh](#) [Previous](#) [Next](#)

<input type="checkbox"/>	Name	To	Cc	Bcc
No entries.				

[Remove](#)



- Leave Name field as the Find text in: option; the other options (including description) do not work with the Service Catalog directory, nor do any of the Advanced options other than the default which is automatically in effect.
- Enter all or part of the person's first name, then click **Search**. All people matching the criterion specified appear and can be chosen as recipients.

Other Reporting Options

Other reporting options are available, for example, to allow reports to be delivered in other output formats such as PDF, HTML or Excel, or to schedule reports to be run on a regular basis. More information on these options can be obtained from materials on IBM Cognos 8.

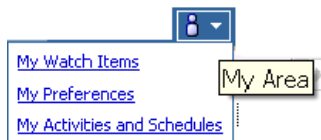
User Preferences

Cognos offers two ways of viewing the reports and folders, represented by icons at the top right of each page. The selected view is highlighted.

	The “Details View” includes a brief description of each report.
	The “List View” is the default view. Once you become familiar with the reports, folders, and their contents, you may want to switch to this view, which simply lists the contents of the current folder, as shown below.

	Name	Modified	Actions
<input type="checkbox"/>	Authorization: On-time % by Customer	January 8, 2007 3:43:11 AM	More...
<input type="checkbox"/>	Authorization: On-time % by Performer	January 8, 2007 3:43:16 AM	More...
<input type="checkbox"/>	Authorization: On-time % by Queue	January 8, 2007 3:43:22 AM	More...

Rather than setting this view manually, the Preferences page allows you to set preferences that are used whenever you use the Reporting module. To set preferences, click the My Area link to the top-right of the menu bar, then My Preferences.



The General tab of the Set Preferences page appears.

Entries at the top of the page allow you to change the default view (List or Details) and to further customize that view.

[General](#)
[Personal](#)
[Portal Tabs](#)

Specify your settings.

Number of entries in list view:

Report format:

Separators in list view:

☒ Show the Welcome page at startup
☒ Show a summary of the run options

Style:
 [Preview](#)

☐ Show hidden entries

Portal

Default view:
☐ List
☒ Details

Number of columns in details view:

Entries at the bottom of the page pertain to the user's location/locale. The time zone is used when scheduling reports. The default time zone is the time zone where the reporting server is located. In a distributed implementation, users need to set the time zone to their current location in order to easily schedule reports to be run.

Regional options

Product language:

- ☒ Use the default language
☐ Use the following language:
 English

Content language:

- ☒ Use the default language
☐ Use the following language:
 English

Time zone:

- ☐ Use the default time zone
☒ Use the following time zone:
 (GMT-08:00) Pacific Time: Los Angeles, Tijuana, Vancouver

There is no support for rendering of non-English form data or facts table content at this time. The product and content languages should be set to the default language which is English.

Prebuilt Reports Inventory

Service Catalog reports (available in the top-level public folder Service Performance Reports), and the folder in which each is located, are summarized in the table below.

The Service Authorization and the Service Delivery reports include any ad-hoc tasks that were initiated in the authorization and service delivery moments, respectively. They do not include any tasks that were part of requests that were cancelled, either by the user or by a service team manager cancelling delivery of the request.

Report Title	Folder	Description
Aging of Requests by Performer	Daily Request Management	Effective for investigating or reporting on the number of open and late tasks for an individual
Aging of Requests by Queue	Daily Request Management	Effective for investigating or reporting on the number of open and late tasks for a queue
Authorization: On-time % by Customer	Service Authorization Performance	Effective for investigating or reporting on the authorization on-time performance by a customer (OU)
Authorization: On-time % by Performer	Service Authorization Performance	Effective for investigating or reporting on the authorization on-time performance by individuals
Authorization: On-time % by Queue	Service Authorization Performance	Effective for investigating or reporting on the Authorization on-time performance by queues
Services by Dictionary	Service Design Details	Administrative report for managing the use of dictionaries
Functional Positions	People, Roles & Groups	Administrative report which lists all functional positions

Report Title	Folder	Description
Groups by Organizational Unit	People, Roles & Groups	Administrative report which lists groups and shows their Organizational Unit
Groups by People	People, Roles & Groups	Administrative report which lists People and shows their groups
Organizational Units by Group	People, Roles & Groups	Administrative report on groups and their organizational units
Organizational Units by People	People, Roles & Groups	Administrative report on people and their organizational units
Organizational Units by Queues	People, Roles & Groups	Administrative report on queues and their organizational units
People by Groups	People, Roles & Groups	Administrative report listing people and their groups
People by Organizational Unit	People, Roles & Groups	Administrative report listing people and their organizational units
Queues by Organizational Unit	People, Roles & Groups	Administrative report listing queues by organizational unit
Service Delivery: On-time % by Performer	Service Delivery Performance	Effective for evaluating or comparing the performance of individuals in performing their work
Service Delivery: On-time % by Queue	Service Delivery Performance	Effective for evaluating or comparing the performance of queues in performing their work
Service Delivery: On-time % by Service	Service Delivery Performance	Effective for evaluating the on-time performance for services and their related tasks
Service Pricing Details	Service Design Details	Administrative report for managing the pricing information for services
Service Volume: Request Activity by Service	Service Volumes & Activity	Effective for measuring and monitoring total service request activity within service groups
Service Volume: Request Activity Details	Service Volumes & Activity	Effective for investigating or reporting on the status of individual service delivery transactions
Service Volume: Request Activity Summary	Service Volumes & Activity	Effective for measuring and monitoring total service request activity within specific reporting periods
Service Volume: Request Trend by Service	Service Volumes & Activity	Effective for measuring and monitoring service request activity trends by service group and calendar quarter
Services by Service Team	Service Design Details	Effective for managing expenditures for services against an established budget

Advanced Reporting Module

The Advanced Reporting module provides the ability to write ad-hoc queries and reports. The module includes three options:

- The Home page provides shortcuts for running the Standard reports, without having to choose the Reporting module from the Service Catalog drop-down menu.
- The Ad-Hoc Reports tab provides access to IBM Cognos Query Studio, for writing queries against the data mart.
- The Report Designer tab provides access to IBM Cognos Report Studio, for writing professional quality reports against data mart.

Users must be granted appropriate permissions to access the Ad-Hoc Reports and Report Designer options.

This section offers instructions on how to access the Advanced Reporting Module and detailed information on the contents and structure of the Service Catalog data mart.

Accessing the Advanced Reporting Module

To use the advanced reporting capabilities, from the Service Catalog drop-down menu, choose the **Advanced Reporting** module.

The Home Page of the Advanced Reporting option displays the three predefined public folders.

- The Reports folder offers an alternate path to the prebuilt reports accessible as part of the Reporting module. Custom-designed report views and any new reports created via Ad-hoc Reports or Report Designer will also typically be stored on subfolders of the Reports folder.
- The remaining folders (Custom Reports Data Model, Standard Reports Data Package) are “packages” which are used by Report Designer and Ad-Hoc Reporting, allowing you to build queries and reports against the Service Catalog data mart.

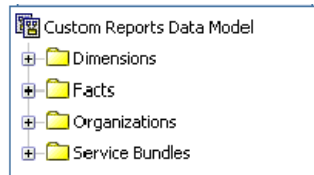
Typically, you will click a tab corresponding to the Ad-Hoc Reports or Report Designer option. These options start the Cognos Query Studio and Report Studio components respectively. You will then be asked to choose which of the two reporting package you want to use.


To access the data mart, choose the **Custom Reports Data Model** by clicking on the name. If you are using Report Designer, you will then be asked to specify the type of report you would like to create. Specify a list (it is the easiest). If you are using Ad-Hoc Reports, Query Studio automatically opens for a list report. The Custom Reports package appears in the left-hand pane, labeled “Insertable Objects”.

The data mart is configured as a “dimensional model”.

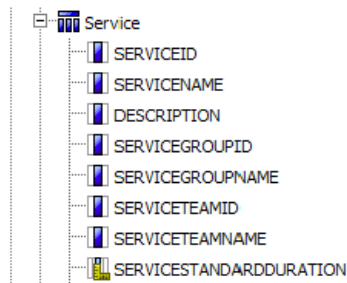
- The basic transactional data in a dimensional model is called a “**fact**”. Facts in the data mart include the tasks, requisitions, and effort entry. Each fact may include several measures—numeric quantities. For example, the estimated duration of a requisition is a measure, as is the actual duration.
- Each fact has relationships to one or more “**dimensions**” – descriptive attributes that can be used to choose or filter the rows in the related fact. For example, dimensions that describe the task-based facts include the task performer as well as the date the task was closed. Dimensions, in turn, are usually shared across multiple facts. For example, the service dimension may describe both a task and a requisition.
- Each fact, together with its related dimensions constitutes a “**star schema**”.
- In addition to star schemas, the Custom Reports Package includes other tables to provide complete coverage for potential reports and queries users might need to formulate about form, dictionary and service-based data, as well as the organizational structure at the site.



The dimensions and facts are grouped within the corresponding folders. In addition, the Organizations folder holds data on the organizations, groups, and people in use at the site. The Service Bundles folder holds data on the service bundles and child service which were associated to the parent service to form the bundle.



As you expand the folders, all of the dimensions and facts become visible. Each object designated by the  icon is a “query subject” which groups a related set of fields or “query items”. Expanding the query subject will show its query items.

A query item can be a unique identifier, an attribute or a measure/metric, as indicated by the icon to the left of the item name:



	Attribute
	Metric

Metrics are numbers which can be used in arithmetic expressions. By virtue of an item being defined as a metric, its value can be aggregated (for example, averaged, totaled or counted) to provide report totals or subtotals when the report or query has several levels or groups. In addition, metrics can be used in a wide variety of arithmetic, analytic, and percentage calculations, as specified by the report designer and provided by the Cognos tools.

A list of all query subjects and the query items which comprise each subject, with a description of each query item, is given in the tables at the end of this section.

Dimensions

The Custom Reports Package includes the following types of dimensions:

- Static dimensions are available in all installations, and are listed directly under the Dimensions folder. These dimensions describe customers, performers, dates, and other information related to tasks and requisitions.

- The DictionaryData folder lists all dimensions based on dictionaries which were specified as Reportable, and were therefore loaded into the data mart. Each reportable dictionary is available in the DictionaryData folder. Each dictionary query subject includes all fields in the dictionary, whether they were hidden or not in any or all services. One or more dictionary dimension can be joined with any fact, providing a flexible reporting and filtering mechanism.
- The ServiceData folder contains all services which were specified as Reportable, and were therefore loaded into the data mart. Each service query subject contains all fields in all dictionaries used in the service, provided that the number of fields allowed per service is not exceeded; if so, the dictionaries and fields are omitted from the service. The service query subjects are not, strictly speaking, dimensions; they should not be combined with a fact for reporting purposes. Instead, using a service query subject as your report object provides a shortcut to reporting on all dictionaries and fields in the service.
- The Service Bundles folder contains all the service bundles and the child services which were associated to service bundles. These dimensions cannot be joined with any facts or dimensions which are available in the package.

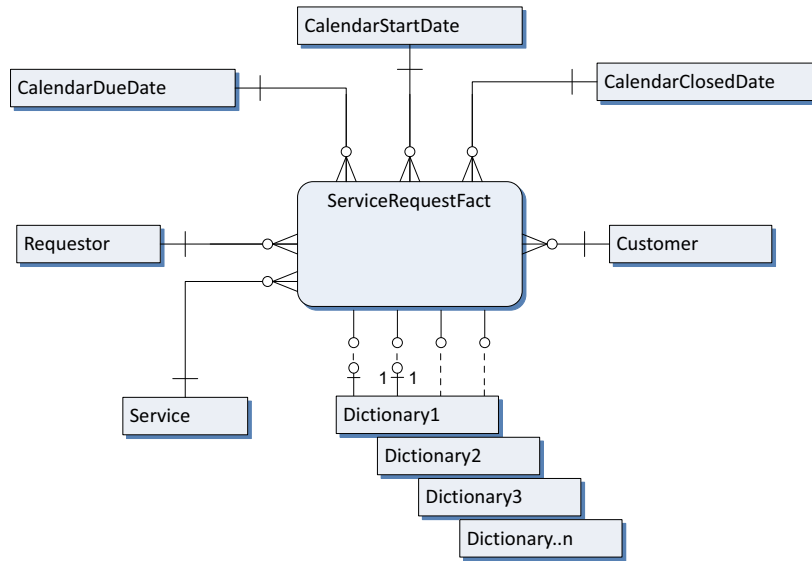
You generally use the dimensions in conjunction with a fact table, to include additional data about the fact in your query or report, or to filter the output of the query or report by detailed criteria.

Facts and Star Schemas

Requisitions – ServiceRequestFact

The ServiceRequest fact holds data related to requisition and the requested services. The date and duration attributes that are included in the fact are for the service request and not for the requisition (a shopping cart that can contain multiple requests). This fact includes metrics about the performance—whether the request was in compliance with its SLA, for example, or its actual or estimated duration, as well as links to all dimensional information about the request, including its initiator, the customer and any reportable dictionaries included in the service ordered.

A star schema diagram showing the ServiceRequest fact and related dimensions is shown below.

Figure 1-1 Service Request Star Schema Diagram

Task-Based Facts

The Service Catalog data mart provides five views of the task-based facts. Two of these views (RequisitionTaskFact and ServiceTaskFact) are provided primarily for backward compatibility with previous versions of Advanced Reporting. They may freely be used; however, they do not contain some metrics and counts which may be useful for many reports.

Each view is optimized by grouping certain sets of tasks. Reports and queries which need to interrogate tasks will perform best if they are based on the task-based fact which best meets the report's requirements.

Task-based facts are summarized below.

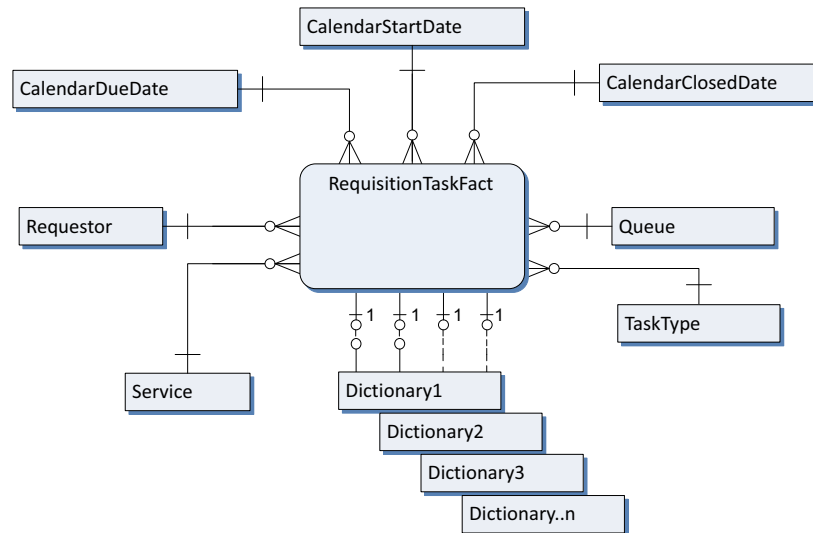
Fact	Usage/Description
All Tasks	All tasks performed during fulfillment of a service request.
Authorization Tasks	All authorization and review tasks.
Delivery Tasks	All delivery tasks, including ad-hoc tasks.
RequisitionTask Fact	All tasks which are performed at the requisition level and not at each service task level. These include financial authorizations, departmental authorizations, and departmental reviews. If sites do not use any of these authorization types, this fact table is empty. This query subject is provided primarily for backward compatibility with previous versions of the Service Catalog data mart.
ServiceTask Fact	Data related to service-level tasks. These include service group authorizations and reviews; service delivery tasks; and ad hoc tasks. This query subject is provided primarily for backward compatibility with previous versions of the Service Catalog data mart.

When creating a report or query, always use the Fact table whose contents best match the type of tasks to be included in the report. Fact table contents are summarized in the table below.

	Financial Authorization	Department Authorization	Department Review	Service Group Authorization	Service Group Review	Delivery Tasks	Ad-Hoc Tasks
All Tasks	X	X	X	X	X	X	X
Authorization Tasks	X	X	X	X	X		
Delivery Tasks						X	X
ServiceTask Fact				X	X	X	X
RequisitionTask Fact	X	X	X				

The same dimensions are related all task-based facts with the exception of the “Service”, which is not relevant to RequisitionTask facts. A star schema diagram showing the relationships is shown below.

Figure 1-2 Task-BASED Star Schema Diagram



The ServiceTaskFact and RequisitionTaskFact facts have been deprecated. It is recommended that report designers use other facts to build all custom reports.

Effort Expenditure – TaskEffortEntry Fact

The TaskEffortEntry Fact holds data related the effort expended for each task. Effort entry is available by category, such as labor or material. Since some implementations have opted to not require effort entry, there may be no data available for this fact.

Organizations

The Organizations folder contains information on the groups, organizations, and people configured at the site. Query subjects in this folder cannot be joined with dimensional or fact data, but only with each other. Corresponding query items can be found in query subjects within the Dimensions and Facts folders.

Data Mart Dimensions

All query items (attributes of both facts and dimensions) available in the Dimensions folder of Custom Reports package are summarized in the tables in this section. This list does not include any dictionary or service-based form data, which, of course, will vary from site to site.

Customer

The customer dimension describes the person who is the recipient of the service which was ordered.

The semantics of the query items which comprise this query subject may be modified if custom mappings to Person attributes have been applied as part of directory integration. The descriptions given below are the defaults that are expected by Organization Designer. Some of these fields may be blank, if they are not used at a particular site.

Query Item	Description
CustomerID	Customer ID
Customer Full Name	Full name of the customer, in First Name Last Name format
CustomerFirstName	First name of the customer
CustomerLastName	Last name of the customer
CustomerUUID	Organizational Unit ID of the customer's home OU
CustomerOUName	Name of the customer's home organizational unit
CustomerBuilding	Building in which the customer is located
CustomerBuildingLevel	Building level/floor on which the customer is located
CustomerOffice	Office of the customer
CustomerCubic	Customer cubicle number
CustomerStreet1	First line of the street address of the customer
CustomerStreet2	Second line of the street address of the customer
CustomerCity	City in which the customer is located
CustomerStateProvince	State in which the customer is located
CustomerZip	Zip code of the customer
CustomerCountry	Country in which the customer is located
CustomerLoginName	Login name of the customer
CustomerEmailAddress	Email address of the customer
Work Phone	The work phone of the customer
Cust_SupervisorID	ID of the customer's supervisor

Query Item	Description
Supervisor Full Name	Full name of the customer's supervisor, in First Name Last Name format
Cust_SupervisorFirstName	First name of the customer's supervisor
Cust_SupervisorLastName	Last name of the customer's supervisor
Cust_SupervisorEmail	Email address of the customer's supervisor
Cust_SupervisorLoginName	Login name of the customer's supervisor
Customer Status	Customer status; valid values are "Active" and "Inactive"

Dictionary

The dictionary dimension may be used to describe the dictionary in which a form field was entered.

Query Item	Description
DictionaryID	Dictionary ID
DictionaryName	Name of the dictionary
DictionaryGroupID	ID for the dictionary group to which this dictionary belongs
DictionaryGroupName	Name of the dictionary group
DictionaryServiceItemFamily	Service Item family name for a particular dictionary
Is Reportable	Flag that indicates whether the dictionary is designated as reportable (1) or not (0). Reportable dictionaries will have corresponding query subjects under the "DictionaryData" folder.

Keyword

The keyword dimension may be used to list keywords associated with a particular service.

Query Item	Description
KeywordID	Unique identifier for the keyword
Keyword	The word or words by which catalog users can search for services to order

Performer

The performer dimension describes the person who performs a task. This includes delivery, ad-hoc, and authorization/review tasks.

The semantics of the query items which comprise this query subject may be modified if custom mappings to Person attributes have been applied as part of the directory integration process. The descriptions given below are the defaults that are expected by Organization Designer.

Queue

The queue dimension describes the queue to which a task was assigned.

Query Item	Description
QueueID	ID of the queue to which the task was assigned
QueueName	Name of the queue
Queue Status	Status of the queue – “Active” or “Inactive”
QueueOUID	Identifier of the organizational unit which services the queue
QueueOUName	Name of the organizational unit of the queue
Work Phone	Work phone of the queue
Email Address	Email address of the queue

Requestor

The requestor dimension describes the person who ordered the service.

The semantics of the query items which comprise this query subject may be modified if custom mappings to Person attributes have been applied as part of directory integration. The descriptions given below are the defaults that are expected.

Query Item	Description
RequestorID	ID of the person who requested the service
Requestor Full Name	Full name of the requestor, in First Name Last Name format
RequestorFirstName	First name of the requestor
RequestorLastName	Last name of the requestor
Requestor Status	Status of the requestor – “Active” or “Inactive”
Work Phone	The work phone of the requestor
RequestorOUID	Organizational Unit ID of the requestor's home OU
RequestorOUName	Name of the requestor's home OU
RequestorBuilding	Building number/name in which the requestor is located
RequestorBuildingLevel	Building level/floor of the requestor
RequestorOffice	Office of the requestor
RequestorCubic	Requestor cubicle number
RequestorStreet1	First line of the street address of the requestor
RequestorStreet2	Second line of the street address of the requestor
RequestorCity	City in which the requestor is located
RequestorStateProvince	State in which the requestor is located
RequestorZip	Zip code of the requestor
RequestorCountry	Country in which the requestor is located
RequestorLoginName	Login name of the requestor
RequestorEmailAddress	Email address of the requestor
Req_SupervisorID	ID of the supervisor of the requestor

Supervisor Full Name	Full name of the supervisor, in First Name Last Name format
Req_SupervisorFirstName	First name of the supervisor
Req_SupervisorLastName	Last name of the requestor's supervisor
Req_SupervisorEmail	Email address of the requestor's supervisor
Req_SupervisorLoginName	Login name of the requestor's supervisor

Service

The service dimension includes a hierarchy (service team, service group, service) for organizing data relating to the service for which a requisition was ordered or a task was performed. Service attributes can be used in conjunction with any fact table to qualify or filter the fact data.

Query Item	Description
ServiceID	Service ID
ServiceName	Name of the service
Description	Brief description for the service
ServiceGroupID	ID of the service group to which the service belongs
ServiceGroupName	Name of the service group to which the service belongs
ServiceTeamID	ID for the service team responsible for the service
ServiceTeamName	Name of the service team responsible for the service
ServiceStandardDuration	Standard duration specified in the service definition
ServiceDurationUnits	Units in which the standard duration is displayed
ServiceHoursPerBusDay	Number of hours per business day
EstimatedCost	Estimated cost for the service
PublicationDate	Publication date for the service
ExpirationDate	Expiration date for the service
IsInactive	Flag that indicates whether the service is active (0) or inactive (1)
Is Reportable	Flag that indicates whether the service is designated as reportable (1) or not (0). Reportable services will have corresponding query subjects under the "ServiceData" folder
Is Orderable	Flag that indicates whether the service is designated as orderable (1) or not (0)
Price	Service Summary Price

Service Bundles

The Service Bundles query subject provides access to all Service Bundles in the application repository.

Query Item	Description
Service Bundle ID	Unique identifier for the service bundle
Service Bundle Name	Name of the service bundle
Description	Brief description of service bundle

Query Item	Description
Service Group Name	Name of the service group to which the service bundle belongs
Service Team Name	Name of the service team responsible for the service bundle
Standard Duration	Standard duration specified in the service bundle definition
Durations Units	Units in which the standard duration is displayed
Hours per Business Day	Number of hours per business day
Price	Service bundle price
Service Bundle Status	Status of the service bundle
Is Reportable	Flag that indicates whether the service bundle is designated as reportable (1) or not (0). Reportable services will have corresponding query subjects under the “ServiceData” folder
Is Orderable	Flag that indicates whether the service bundle is designated as orderable (1) or not (0)

TaskType

The task type dimension may be used to provide the description of a task type.

Query Item	Description
TaskTypeID	Task Type ID
TaskTypeName	Description of the task type

Task types are listed below.

ID	Task Type
0	Delivery Task
1	Financial Authorization
2	Departmental Review
3	Departmental Authorization
4	Service Group Authorization
5	Service Group Review
6	Ad-hoc Task for Delivery
7	Ad-hoc Task for Authorization
8	Ad-hoc Task for Review

CalendarClosedDate

The CalendarClosedDate dimension provides a hierarchy for structuring queries about the date a requisition or task was closed. Using query items in this dimension provides an easier way to filter or group by dates, rather than having to choose a complete date and use an expression to extract, for example, just the month or week you are interested in.

Query Item	Description
ClosedDateID	Date a task or requisition was closed, in the format YYYYMMDD; for example, 20081225
Full Date	Complete date in the format dd-Mon-yyyy; for example, 25-Dec-2008
Day Month Name	The month and day of the month; for example, Dec-25
Week of Year	Week of the year, in the format Weekn-yy; for example Week1-08
Calendar Year Month	Month of the calendar year in yyyy-nn format, where yyyy is a four-digit year and nn is a number between 1 and 12; for example, 2008-12
Calendar Year Quarter	Quarter of the calendar year in yyyy-Qn format, where yyyy is a four-digit year and n is a number between 1 and 4; for example, 2008-Q4
ClosedWeekDay	Day of the week on which the item was closed, where 1=Sunday and 7=Saturday
Day of Week Name	Day of the week (Sunday-Saturday) on which the item was closed
ClosedDateWeekStartDate	Starting date (Sunday) of the week in which the item was closed
ClosedDateWeekEndDate	Ending date (Sunday) of the week in which the item was closed
ClosedDateMonth	Month in which the item was closed
ClosedDateMonthName	Name of the month in which the item was closed
ClosedDateQuarter	Calendar quarter in which the item was closed
ClosedDateYear	Calendar year (YYYY) in which the item was closed

CalendarDueDate

The CalendarDueDate dimension provides a hierarchy for structuring queries about the date a requisition or task was due. The same date formats are available as for the CalendarClosedDate dimension.

CalendarScheduledDate

The CalendarScheduledDate dimension provides a hierarchy for structuring queries about the date on which a task which was allowed a scheduled start date was actually scheduled to start. If no explicit scheduled start date was specified, the scheduled date is the same as the start date.

The same date formats are available as for the CalendarClosedDate dimension.

CalendarStartedDate

The CalendarStartedDate dimension provides a hierarchy for structuring queries about the date a requisition or task was started. This is the actual start date.

The same date formats are available as for the CalendarClosedDate dimension.

Data Mart Facts

The query subjects in the Facts folder provide information about the tasks and service requests logged via the application service catalog.

ServiceRequestFact (Requisitions)

The ServiceRequestFact provides information about services ordered. Folders group metrics for On-Time and Request Status Counts.

Query Item	Description
RequisitionEntryID	Unique ID for the service request
RequisitionID	Unique ID for the requisition (shopping cart) in which the service was requested
ServiceID	Service ID for the service
Service Bundle ID	Service ID of the service bundle
Requestor ID	Unique ID for the service requestor (initiator of the service request)
Customer ID	Unique ID for the customer (recipient) of the request
Status	Current status of the service request
Quantity	Service quantity that was requested
Price	Price of the service
Started Date	Date the service request was started
Due Date	Date the service request is/was due
Closed Date	Date the service request was closed
Started DateTime	Date and time when the service was requested
Due DateTime	Date and time when the service delivery is due
Closed DateTime	Date and time when the service request was closed
Default Duration	The configured duration required to deliver the service; specified in hours
ActualDuration	The actual duration taken to deliver the service
ServiceOnTimeFlag	Flag that indicates whether the service request was completed on time (1) or late (0)
ServiceStandardComplianceFlag	Flag that indicates standard compliance for the service request
Completed On-Time Request Count	1 if the current request was completed on time, zero (0) otherwise; count is automatically totaled when requests are grouped on a report
Completed On-Time Percentage	Percentage of requests that were completed on time
Standard Compliance Percentage	Percentage of requests that were completed in compliance with their SLAs
Submitted Count	Number of requests submitted; since requests are not added to the data mart until they are submitted, this will always equal the number of requests

Query Item	Description
Cancelled Count	Number of requests that were cancelled by the user
Completed Count	Number of requests whose delivery plan has been completed
Ongoing Count	Number of requests submitted but not yet closed
Rejected Count	Number of requests rejected by an approver
Delivery Cancelled Count	Number of requests whose delivery was cancelled by a service manager
Service Request Status	Current status of the service request
Billed Organizational Unit	Organizational unit to be billed for the service
Submitted Date	Date the request was submitted

Task-Based Query Subjects

The All Tasks, Authorizations Tasks, and Delivery Tasks Facts have the same component query items.

- All Tasks provides information about all tasks, including all delivery tasks, reviews and authorizations, performed to complete a service requisition.
- Delivery Tasks provides information about delivery tasks, including ad-hoc tasks.
- Authorization Tasks provides information about reviews and authorizations.

Query Item	Description
Task ID	Service Task ID
Task Name	Name of the service task
Display Order in Service	The order in which the task is executed within the service's workflow
Task Type ID	Type ID of the task
Requisition ID	Corresponding Requisition ID of the task
Requisition Entry ID	Corresponding Requisition Entry ID of the task
Service Bundle ID	Unique ID for the service bundle in which this task is performed, if it was executed as part of a child service
Service ID	Unique ID for the service for which the task is performed; null (blank) for requisition-level approvals, which do not pertain to a particular service.
Performer ID	Unique ID of the performer who performed the task
Queue ID	ID of the queue to which the task is assigned
Status	Current status of the task
Started Date Time	Date and time when the task will be/was started
Due Date Time	Date and time when the task is/was due
Completed Date Time	Date and time when the task is/was completed
Scheduled Date Time	Date and time when the task is/was scheduled to be completed

Query Item	Description
Planned Effort (Hours)	Planned effort specified for the task in the service definition
Planned Duration (Hours)	Configured duration for the task to be performed, in hours, as specified by the service designer
Actual Duration (Hours)	Actual duration taken for the task as performed, in hours, as calculated by the system, based on the customer's calendar
Performer's Actual Duration (Hours)	Actual duration taken for the task as performed, in hours, as calculated by the system, based on the performer's calendar
Completed Task Count	Indication of whether a task has been completed; 1 if the task has been completed, 0 if it has not
Completed On-Time Task Count	Indication of whether a task was completed on time; 1 if the task was completed before its scheduled completion date, 0 if it was not
Completed On-Time Percentage	Percentage of tasks completed on time; for each individual completed task, this is either 100% or 0%; the computation applies as tasks are summarized
Late Open Task Count	Number of tasks still open that are late
Standard Compliance Percentage	Percentage of tasks that were completed within their specified duration

RequisitionTaskFact

The RequisitionTaskFact provides information about requisition-level authorization and review tasks performed to complete a service requisition. This query subject is provided for upward compatibility with legacy systems only; the All Tasks, Service Delivery Tasks, or Authorizations Tasks query subject should be used, as appropriate.

ServiceTaskFact

The ServiceTaskFact provides information about delivery tasks, ad-hoc tasks, service group authorizations and service group reviews performed to complete a service requisition. This query subject is provided for upward compatibility with legacy systems only; the All Tasks, Service Delivery Tasks, or Authorizations Tasks query subject should be used, as appropriate.

TaskEffortEntryFact

The TaskEffortEntryFact provides information about effort expended in the performance of a task.

Query Item	Description
EffortEntryID	Unique ID for the effort entry
ServiceTaskID	Unique ID identifying the task on which this effort was expended
EnteredDate	Date the effort was logged
Description	Description of the effort

Query Item	Description
Category	The category in which the effort was expended
ContributorID	Person ID of the person who performed the task for which effort entry was required
Contributor Full Name	Full name of the contributor in First Name Last Name format
ContributorFirstName	First name of the person who performed the task for which effort entry was required
ContributorLastName	Last name of the person who performed the task for which effort entry was required
EffortQuantity	Number of units of effort expended
EffortCost	Total (extended) cost of the effort entry – unit cost multiplied by quantity
EffortUnitCost	Unit cost of each unit of effort
UnitType	The unit of measure for the effort entry

Organizations Folder

The Organizations folder contains query subjects which allow you to report on organizations, groups, people, and the relationships among these entities. These query subjects cannot be joined to the transactional (fact) data. Instead, you should use the organization or person information in the appropriate dimension—Customer, Performer, or Requestor—to include such items in reports that also include data on tasks or service requests.

Group

Groups provide a container for disparate sets of people or organizations, allowing you to assign permissions or tasks to a single group rather than to the individual group members. To view members of a group, or see the groups with which a person was affiliated, a report could contain items from the Group and Person query subjects.

Query Item	Description
Group Name	Name of the group
Group Status	Status of the group – Active or Inactive
Parent Group Name	Parent of the group
Description	Description of the group

Person

The Person query subjects provides access to all people in the repository, regardless of the role (Customer, Performer, Requestor) they have played in the processing of service requests.

Query Item	Description
Person ID	ID of the person who requested the service
Person Full Name	Full name of the person, in First Name Last Name format
First Name	First name of the person

Query Item	Description
Last Name	Last name of the person
Home Organization Unit Name	Name of the person's home OU
Building	Building number/name in which the person is located
BuildingLevel	Building level/floor of the person
Office Number	Office of the person
Cubicle Number	Person cubicle number
Street Address1	First line of the street address of the person
Street Address2	Second line of the street address of the person
City	City in which the person is located
State or Province	State or province in which the person is located
Zip or Postal Code	Zip or postal code of the person
Country	Country in which the person is located
Login Name	Login name of the person
Email Address	Email address of the person
Supervisor ID	ID of the supervisor of the person
Supervisor Full Name	Full name of the supervisor, in First Name Last Name format
Supervisor First Name	First name of the person's supervisor
Supervisor Last Name	Last name of the person's supervisor
Supervisor Email	Email address of the person's supervisor
Supervisor LoginName	Login name of the person's supervisor

Organizational Unit

The Organizational Unit query subjects provides access to all organizations in the repository.

Query Item	Description
Organizational Unit Name	Name of the organizational unit (OU)
Description	Description of the OU
Organizational Unit Type	Type of OU – Service Team or Business Unit
Organizational Unit Status	Status of the OU – Active or Inactive
Parent Organizational Unit	Parent of the OU, if an organizational unit hierarchy has been set up

Service Bundle Folder

The Service Bundle folder contains query subjects which allow you to report on service bundles, associated child service and the relationship among these entities. A service bundle consists of one parent and one or more child services.

Service Bundle

The Service Bundle query subject provides access to all service bundles in the repository.

Query Item	Description
Service Bundle ID	Unique identifier of the service bundle
Service Bundle Name	Name of the service bundle
Description	Brief description of service bundle
Service Group Name	Name of the service group to which the service bundle belongs
Service Team Name	Name of the service team responsible for the service bundle
Standard Duration	Standard duration specified in the service bundle definition
Durations Units	Units in which the standard duration is displayed
Hours per Business Day	Number of hours per business day
Price	Service bundle price
Service Bundle Status	Status of the service bundle
Is Reportable	Flag that indicates whether the service bundle is designated as reportable (1) or not (0). Reportable services will have corresponding query subjects under the “ServiceData” folder
Is Orderable	Flag that indicates whether the service bundle is designated as orderable (1) or not (0)

Service

The Service query subject provides access to all child services which are part of a service bundle.

Query Item	Description
Service Bundle ID	Unique identifier of the service bundle
Service ID	Unique identifier of the parent service of the service bundle
Service Name	Name of the service
Description	Brief description of the service
Service Group Name	Name of the service group to which the service belongs
Service Team Name	Name of the service team responsible for the service
Standard Duration	Standard duration specified in the service definition
Durations Units	Units in which the standard duration is displayed
Hours per Business Day	Number of hours per business day
Price	Service price
Display order in Bundle	Display order in the service bundle
Service Status	Status of the service
Is Reportable	Flag that indicates whether the service is designated as reportable (1) or not (0). Reportable services will have corresponding query subjects under the “ServiceData” folder.
Is Orderable	Flag that indicates whether the service is designated as orderable (1) or not (0)

Metrics and Attributes

Metrics and attributes in the data mart are derived using the computations explained below.

Task Duration

Three measures of task duration are available in the task-based fact tables:

- **ActualDuration** measures the elapsed number of work hours, according to the customer's calendar, that it took for the task to be performed.
- **PerformerActualDuration** measures the elapsed number of work hours, according to the performer's calendar, for the task to be performed.
- **DefaultDuration** is the number specified by the service designer which designates the amount of time a task should take.

Assume, for example:

- The performer's calendar specifies 9-hour work days
- The task became active at 9 am on a Monday (a work day)
- The performer finished the task at 10 am the following day

In this case, the **PerformerActualDuration** would be 10 hours.

Task On-Time Flag

A task is determined to be on time by comparing the time it was completed (**CompletedDateTime**) to the time it was scheduled to be completed (**ScheduledDateTime**). Duration (actual and default) is not used directly in this computation, although, of course, it was originally used to compute the due date and time.

Task Standard Compliance Flag

A task is determined to be in compliance with its Operating Level Agreement (OLA) by comparing the performer actual duration (number of work hours between the time it was started and the time it was marked as completed) to the default duration designated for the task. The task is in compliance (the **StandardComplianceFlag** is 1) if the actual duration is less than the default duration.

Service Standard Compliance Flag

A service is determined to be in compliance with its Service Level Agreement (SLA) by totaling the actual duration of all component tasks and comparing this total to the default duration designated for the service. (Default duration is the **Standard Duration** which is configured by the service designer on the General Tab for the service). The service is in compliance (the **StandardComplianceFlag** is 1) if the actual duration is less than the default duration.

The service default duration is entered and maintained manually and not validated against the component tasks of the service. Service designers should review the default duration, to ensure that it correctly reflects the default workflow, in terms of tasks completed and their durations, anticipated for the service.

Service Start Date and Time

STARTEDATE and STARTEDDATETIME for a service are initially set to the time when the customer submits the service request. STARTDATE and STARTEDDATIME values are updated as soon as authorizations are completed and the delivery moment begins. This means that before completion of authorizations STARTEDATE (TIME) refers to the time the request was submitted; after completion of authorizations it refers to the data and time the delivery moment began. All computations regarding standard compliance and task due dates use the actual delivery plan start date.

Rescheduling a Task

When a task is rescheduled:

- The new/rescheduled due date for the task is used for on-time calculations for that task.
- There is no effect on the due date/on-time calculation for the service.
- The new duration for the task is used in the calculation of standard compliance for the task.
- The new duration for the task is not used in the calculation of standard compliance for the service.

Creating Reports and Queries

Detailed instructions on using Query Studio and Report Studio are in the User Guides supplied by IBM/Cognos, which are available from the vendor's web site. This section addresses concerns specific to the Service Catalog data mart and the framework that allows query and report builders access to that data mart.

Both tools allow equivalent access to the query subjects and query items exposed in the custom package. Reports or queries are created simply by dragging items from the Insertable Objects pane at the left of the page to the Reporting pane. As each item is added to the report, Cognos automatically adjusts the underlying SQL that is used to retrieve data for the report. To do so, Cognos relies on the relationships defined in the custom package through which the data mart is exposed. This package includes relationships between the dynamically defined dictionary-based dimensions and all fact tables. These relationships rely on database "inner joins"; information on a task or requisition (from the corresponding fact query subject) will appear in a report containing dictionary-based information only if the dictionary was used in the service to which the requisition or task applies.

Because Query Studio is an easier tool to use than Report Studio, especially for new users, We recommend that users start with Query Studio. If they are unable to implement the functionality for the required report, they may save the query and subsequently edit and enhance it in Report Studio; all queries created in Query Studio are upward compatible with Report Studio.

In particular, the following types of requirements should be implemented using Report Studio:

- Reports that need to display a "percent of total", for example, percentage of tasks of a particular type that were on time or late.
- Reports that need to list requisitions with dictionary data, but have the dictionary data blank for services in which the dictionary was not used; this can be implemented via master-detail reports in Report Designer.
- Reports with complex filters, for example, in which either one or the other of a condition may apply for data to be included in the report. (In Query Studio, all filters are logically AND'ed, so that all conditions must be satisfied for a row to be included in the report.)

Running Custom Reports and Queries

When report designers create custom reports or queries, they may save them either to the Public folders (the Reports folder is the root public folder) or to their private folder (“My Folder”). Reports saved to the private folders are runnable/accessible only by the person who developed them.

Reports saved to the public folders are accessible/runable by any person who has a role that allows access to the reports. These inherited permissions can be overridden Cognos Administration options, which allow the Report Administrator to remove permissions to execute a report from the standard roles and assign that permission to any person or custom role that has access to run reports.

In addition to being run from the Reporting module folders, reports are also accessible via hyperlinks. Service designers may embed appropriate links in service descriptions, e-mail notifications or other areas of the application. The format of the link is:

```
http://<CognosServer
Name>/crn/cgi-bin/cognos.cgi?CAMNamespace=TrustedSignOn&b_action=xts.run
&m=portal/report-viewer.xts&method=execute
&m_obj=/content//report[@name='<ReportName>']
```

Tips and Techniques for Developing Reports

These tips and techniques apply to the data and relationships in the Service Catalog data mart. As stated above, for general instructions on using the IBM Cognos reporting tools, please consult appropriate IBM Cognos documentation or third-party books on the IBM Cognos Business Intelligence solution.

Requisition and Task Dates and Times

Within the Service Catalog transactional database, all dates are stored in GMT/UTC format. However, users are largely unaware of this fact, since the date is automatically converted to their preferred time zone when it is shown in a module such as My Services or Service Manager.

The Service Catalog data mart, too, holds all dates in GMT/UTC. This may be a bit jarring at first, since this is not the time zone in which most users are accustomed to seeing their data. Report designers have two options:

- Set user expectations so they are not surprised to see dates in GMT/UTC.
- Use expressions available within Report Studio to convert the dates to a more familiar time zone. (Only one time zone can be chosen, since Cognos is not aware of the individual user’s preferences.)

As an example of the second option, consider a customer whose corporate headquarters are in the Central time zone of the United States. An expression to subtract 6 hours from the stored date/time displays the date/time column in the expected time zone. The expression might look like:

```
[Query].[DUEDATETIME] - 000 06:00:00.000
```

Best Practices for Service Design and Reporting

The Ad-Hoc Reporting module allows the extraction to a data mart of requisition (form data) from dictionaries and services which their designers have designated as “Reportable”. The service design methodology for designing dictionaries and services must consider:

- Criteria for determining which services/dictionaries should be designated as reportable

- Design guidelines for reportable objects
- Configuring the data mart to support these design decisions
- The effects of changes in dictionary and service design on the data mart

What does it mean to make items “Reportable”?

Any dictionary or service may be designated as reportable.

Dictionaries

A “reportable” dictionary appears as a query subject in the DictionaryData folder of the Service Catalog data mart. Dictionary fields are listed in the dictionary dimension in the order in which they are specified in the dictionary. Any fields exceeding the limits on the number of each type of field (character, date, number) are excluded from the data mart. The names of the data mart query items will match the field names specified when the dictionary is defined.

Making dictionaries reportable provides the maximum flexibility for reporting on dictionaries used in multiple services. You can freely write reports containing data from the dictionaries, the desired fact table and any relevant dimensions.

Follow these guidelines when naming reportable dictionaries and their component fields:

- Standardize dictionary names and field names, since these names are now exposed to more people.
- Develop and adhere to site-wide standards for capitalization and style.
- Field labels for dictionaries used in multiple forms need to be consistent. In fact, the field label should closely resemble the field name. The field name is exposed in the dictionary dimension. The field label would be exposed in the service dimension, if used.

Follow these guidelines when constructing dictionaries to be reportable:

- If a dictionary is reportable, all component fields appear in the data mart, including fields hidden in various services. If a hidden field needs to be kept hidden from users in all contexts, place it in a separate dictionary that is not reportable.
- Be sure to configure the reserved dictionaries (Customer and Initiator) to contain only fields that are used in your services. Any fields included in these dictionaries will appear in the data mart.
- A field name should match its contents. For example, if a field is called “date”, it should be a Date data type, with only valid dates or date-times allowed as the field values. Failure to do so could result in a confusing user interface. For example, the presence of any nonvalid date value in the field means that the Cognos reporting and query tools prevent users from applying date calculations.
- Similarly, fields which contain numbers should be stored as a Number data type, and an appropriate size and decimal precision applied. This ensures that numeric calculations can be applied and may eliminate the need to format the field in the reporting or query tool to ensure a user friendly and consistent display.

Once a dictionary has been made reportable, it will initially appear as noneditable in Service Designer. You can change the “Reportable” value to “No” in order to edit the dictionary definition. This behavior is a double-check, to ensure you are aware of the consequences of changing the definition of a dictionary that has been made reportable:

- Added fields are added to the dictionary data in the data mart. Any service requests submitted before the field was added will simply have no values for the field.

- Deleted fields will remain in the corresponding query subject in the data mart. Field values are blank for any requests submitted after the date the field was deleted.
- You can freely change the length assigned to any field.
- You cannot change the data type assigned to any field. This will cause the ETL process that loads the data mart to fail. If this must absolutely be done, you will need to recreate the form data component of the data mart and reload all data. Procedures for doing so are available from the Cisco Technical Assistance Center (TAC).

Services

Making a service “reportable” means that the service appears as a query subject in the ServiceData folder. The service record consists of all **reportable** dictionaries in the service. Any fields exceeding the limits on the number of each type of field (character, date, number) are excluded from the data mart. The names of the data mart query objects are derived from the field labels as specified when the form for the service is designed. When a reportable service includes two fields with identical labels, the ETL process adds the dictionary fields to the data mart with query item names of *Dictionary_Label_1*, *Dictionary_Label_2*, and so on.

A service bundle can be designated as reportable. Making a service bundle reportable means that service bundle appears as a query subject in the ServiceData folder. The service bundle record consists of all dictionaries which were associated to the child services as well as the service bundle itself.

If the child services which were attached to the service bundle are also reportable, the child services record consists of the dictionaries which were associated with the respective child services.

In addition to the guidelines for reportable dictionaries, follow these guidelines when constructing services to be reportable:

- Do not assign two fields in different dictionaries in the same service the same label. Since labels are used to name the corresponding query items in the data mart, the labels for fields used in the same service should be unique.

Choosing Objects to Make Reportable

Since each customer site will obviously have a different set of dictionaries and services, there can be no hard-and-fast rules as to how to decide which of these to make reportable. However, the following guidelines may help you decide which objects to include in the data mart.

Dictionaries

Dictionaries with dates or numbers in them might be good candidates for inclusion in the data mart.

Dictionaries consisting wholly or partly or very large text fields, designed to hold descriptions or explanations, are not good candidates for inclusion; such fields would be truncated at the maximum character size specified when the data mart is built.

Dictionaries deemed critical to the business need to be included. This would typically include the Customer and Initiator dictionaries since they include information that is not in the corresponding person-based dimensions or is more current than the information that was in Organization Designer.

Services

Including a service essentially provides you a shortcut to reporting on all the dictionaries in a service without having to know identify those dictionaries individually (that is, as separate dimensions/query subjects.) This is especially useful for users particularly interested in one service only, or who are infrequent users of the query tools and need a quick-and-dirty way to report on items of interest.

Making services reportable has the following drawbacks, which may mitigate against having dimensions derived from services in your data mart:

- If the service contains two fields with the same name (from different dictionaries) they appear as Dictionary1_FieldName and Dictionary2_FieldName in the query subject based on the service. Fields which are not ambiguously named simply have the field name.
- Some services contain so many dictionaries, with so many fields, that the service-dimension configuration must be greatly adjusted from the default number of fields allowed. Typically, this means increasing the number of character, date, or numeric fields to be the highest number required for any one service to be made reportable. SQLServer documentation warns that this may adversely affect performance, because it would entail “row chaining”.

Configuring the Data Mart

The Service Catalog data mart can be installed without any customization. However, this “least common denominator” approach is unlikely to meet the reporting requirements of most sites. Therefore, the recommended procedure is to review the best practices presented above, in conjunction with the site's dictionary and service configuration. Using the following section as a worksheet, analysts can determine the desired data mart configuration for their site. These configuration parameters can then be used to configure Advanced Reporting.

These parameters correspond to many of the properties that must be specified when the data mart is installed. For a detailed explanation of the installation and configuration parameters used to configure the data mart and customize its installation please see the *Cisco Prime Service Catalog Installation Guide*.

Number of Dictionary and Service Tables

When you create the data mart, you specify the maximum number of dictionary and service dimensions the data mart will contain. Each of these dimensions will correspond to a separate table in the data mart. The number of dictionaries or services can be increased after the data mart has been installed. However, to avoid this step, be sure to create the data mart with enough tables to accommodate current requirements and enhancements that are planned for imminent deployment.

There is no “magic bullet” for determining how many tables of each type need to be created. Some guidelines are given in the previous section. Service designers need to review all dictionaries, determine which ones they want to include in the Data Mart, and designate those as Reportable by choosing **Yes** in the Reportable drop-down menu in the **Service Designer > Dictionaries** component.

Service Catalog tracks the number of service and dictionary tables which have been designated as Reportable and created in the data mart, so that the specified number is not exceeded. If you subsequently decide that a dictionary (or service) should not be reportable, you may change the corresponding Reportable field to **No**. This removes the source dictionary or service from the ETL job

which loads the data mart. The query subjects are still available in the reporting framework; the table which holds the dictionary or service data is NOT available for use with another dictionary or service, and still counts as one of the number of tables in use.

Parameter	Default Value	SiteValue
NUMBER_OF_SERVICE_TABLES	100	
NUMBER_OF_DICTIONARY_TABLES	100	

Data Type Conversions

All data in the data mart is stored as either a character (text) string; a number; or a date (with time component). Data from internal dictionaries is converted to the appropriate type, as shown in the table below.

Data Mart Column Data Type	Internal Dictionary Data Types	Database-Specific Implementations
Number (Numeric)	Number	Oracle – NUMBER
	Money	SQL Server - FLOAT
Date	Date	Oracle – DATE
	Date and Time	SQL Server - DATETIME
Character (Varchar – variable length character strings)	Text	Oracle – VARCHAR2
	Person	SQL Server – VARCHAR
	URL	
	Account	
	Phone	
	SSN	
	Boolean	

A Person data type is represented in the data mart as a combination of the person's first name and last name, as shown in the “Select a Person” window on a service form. A Boolean data type is represented by the strings corresponding to “yes” and “no” as shown in the radio button representation of the data type.

Data from external dictionaries is converted into the appropriate type. For example, all numeric fields, regardless of magnitude or precision, are converted into the Number type of the target database shown in the table above. Graphic and large object (LOB) data types in external dictionary tables are not supported and are ignored when the data mart is created or data is loaded via the ETL process.

Number of Columns in the Dictionary and Service Tables

As part of the data mart configuration, designers specify how many of each type of column (character, numeric, or date) should be created in the dictionary and service tables. All dictionary tables must have an identical composition, in terms of the number of each type of column allowed. The same holds true for service tables.

**Note**

SQLServer cautions against having tables with a row length greater than 8k (8192) bytes. This would impose a significant constraint on the size of the service dimension tables. Since no such limits are present in Oracle, you can increase the number of columns of each data type and the size of the text column up to a 32k total row size limit.

An option for increasing the number of columns in the dictionary and service tables is to decrease the size of the character (VARCHAR) columns from its default value of 200 characters (specified via the DATA_STRING_MAX_SIZE property described below.) Since the maximum size of character columns applies to all dictionaries (and services), be cautious if you decide to decrease this value. Any textual data longer than the specified size is truncated.

The number of columns of each type cannot be changed after the tables have been created by the Install process.

Parameter	Default Value	SiteValue
NUMBER_OF_DICTIONARY_VARCHAR_FIELDS	40	
NUMBER_OF_DICTIONARY_NUMERIC_FIELDS	10	
NUMBER_OF_DICTIONARY_DATE_FIELDS	10	
NUMBER_OF_SERVICE_VARCHAR_FIELDS	80	
NUMBER_OF_SERVICE_NUMERIC_FIELDS	20	
NUMBER_OF_SERVICE_DATE_FIELDS	20	

Maximum Size of Character Fields

The maximum size of character fields in the data mart dictionary and service tables is set, by default, to 200 characters. This is the size of all character (text) fields in all tables—both dictionaries and services. This property can be changed after the initial data mart installation only by running a script available from Cisco Technical Assistance Center (TAC).

Character fields accommodate data represented on service forms as single-line (text) and multi-line (textarea) fields, as well as radio buttons. One or more selections from check boxes and multi-select drop-down lists are all included in the same data mart character field, with options separated by commas. Care should be taken both when setting the maximum size of character fields. If the size is too small, data may be severely truncated; this typically affects description and comments fields. If the size is too large, performance of both the ETL process and generating reports may be adversely affected.

Parameter	Default Value	SiteValue
DATA_STRING_MAX_SIZE	200	

Do the Math

Follow the procedure below to determine how to configure the data mart to support the site's reportable dictionaries and services:

- Review the reporting requirements, to determine how many dictionaries and how many services should be reportable.
- Review the selected dictionaries (and services, if any) to determine the maximum number of each type of field (Character, Numeric, Date) required.

- If your requirements for the number of fields per dictionary (or service) exceed the defaults, multiply the number of fields of each type times the size allocated to the data type (the `DATA_STRING_MAX_SIZE` for character data, 7 bytes for each date field and 20 bytes for each numeric field). If the result exceeds the row size limit for the target database, review your requirements.
- Note your settings and ensure that the system administrator has access to this data when installing Advanced Reporting.

Changing Dictionaries (and Services)

The service design methodology must also consider how best to accommodate changes to previously deployed dictionaries and services. These considerations need to include both the effects on the Service Catalog transactional system and effects on the data mart.

Assume that:

- A dictionary is reportable and has been used in a service that has been ordered, and
- The data mart (and its metadata) has already been built and populated for those requests.

What are the effects of changes to the dictionary on the configuration of the data mart? These effects manifest in two ways:

- Changes to the reporting metadata, that is, the dictionary and service-based dimensions, and their component fields, available as query subjects and query objects in Ad-Hoc Reports and Report Designer.
- Changes to the data loaded into the data mart via the Extract-Transform-Load (ETL) process.

Adding a field to a reportable dictionary

The next time the data mart load process is run, the job which builds the reporting model (the metadata) adds the field as a query item to the query subject corresponding to the dictionary. The ETL process will now include that field. The field value is populated for requisitions submitted after the change to the dictionary was made, and blank for all requisitions submitted before the date the change was made.

The only caveat with this scenario is that the field cannot be added if the dictionary now exceeds the maximum number of fields allotted for each data type in a dictionary or service-based dimension. (The number of fields is specified when Advanced Reporting is installed. System administrators may customize default values of 60 character fields, 10 date fields, and 10 numeric fields for each dictionary, and 80 character fields, 20 date fields, and 20 numeric fields for each service. Be sure to check with the system administrator if in doubt.)

In both cases, the current software would add the field as the last query item in the query subject representing the dictionary or service. This will probably not correspond to where the field appears on a service form.

Adding a new reportable dictionary

The dictionary becomes a new query subject, and all its fields, query items, as expected. Data is loaded into the dictionary as of the date it was made reportable.

A possible difficulty comes in reporting on requests for an existing service over a time period that spans the addition of the dictionary. If you include fields from the new dictionary in the report, only requisitions that contain that dictionary are included. You would be forced to use the service-based query

subject to generate a report including data from the new dictionary and any old dictionaries that spanned the time period of the change. Conversely, if you had added the fields to the existing dictionary, requisitions that predate the change would also appear on the report, with blank values for the new fields.

Deleting a field from a reportable dictionary

The business view of the data mart is unchanged—that is, the field will continue to appear as a query item in the query subject corresponding to the dictionary. However, the ETL process will no longer load data into that field.

The effect on the data mart is the same as the effect of hiding the field: no further data values are supplied in service requests, or appear in the data mart. However, it may be more efficient to delete the field, both from the service design perspective (the field no longer has to be hidden every time the dictionary is included in a new service) and from the data mart perspective (the ETL process no longer has to load data into the field). Of course, before a field is deleted from a dictionary, thorough testing should be done to ensure that no side effects exist; for example, you must verify that no ISF code refers to that field or no Service Link agent parameters are bound to fields to be deleted.

Deleting a reportable dictionary

Results are similar to those seen when a field is deleted from a dictionary. The dictionary continues to appear as a query subject. However, no additional rows are added to the underlying dimension. An attempt to report on data from that dictionary will, logically, include only requisitions ordered when the service definition included the dictionary.

The number of reportable dictionaries cannot exceed the maximum number specified as part of the Advanced Reporting configuration. Though this number is entered when the data mart is created, it can be increased by the System Administrator while the data mart is in operation. However, since deleting a reportable dictionary does not remove the dictionary from the data mart, this dictionary still counts as one of the allowable dictionaries. Once requisitions using a dictionary have been loaded to the data mart, there is no way to remove the dictionary from the data mart.

Changing a dictionary name

In general, a dictionary name should not be changed once the dictionary has been designated as reportable. The name of the corresponding query subject in the data mart would be changed. However, any reports or queries saved using fields in the dictionary would become invalid and would no longer run. (The report owner or a user having write permission to a report in a public folder would need to edit the Report Definitions of such reports in order to repair them.)

Changing Field Definitions

Changing field names

Changing a field name is like changing a dictionary name—it is possible but not recommended once the field has been included in a reportable dictionary or service. The name of the corresponding query item in the data mart would be changed. However, any reports or queries saved using the previous field name would become invalid.

Changing field types

The data type of the field (for example, number, date, or character) should not be changed. When the dimension corresponding to the dictionary is first created, all of the dictionary fields are mapped to columns of the appropriate data type. This mapping cannot be changed.

A possible approach is to create a new field in the same dictionary of the appropriate type and potentially delete the old field. Reports needing data from both pre- and post-change would need to include both fields.

There are no restrictions on changing the HTML representation (display type) for a field. For example, a text field initially displayed as a set of check boxes could be displayed as a drop-down list with no effects on the data mart.

Changing field lengths

Changing the length of a numeric field is accommodated by the data mart. Any possible side effects are minimal. For example, a format previously assigned to an item in a report may have to be adjusted to accommodate the newly allowed field values.

Changing the length of a text field has minimal effects. If the length were increased to exceed the number of characters allotted to text fields in the data mart (by default, 200), truncation of the data in the field would occur. If a text field were shortened, a possible side effect might be that users abbreviate or otherwise shorten values previously entered in a different format. If a report or query were designed with a group or section heading based on that field, rows might not be grouped as expected.

Specifying field captions

When a dictionary is added to an active form component, service designers can specify a caption for each field in a dictionary in the active form component. These captions appear as the field label on the service form. Service Designer does not enforce a uniqueness constraint on the field captions, since this is allowed within Service Catalog service forms. However, the same caption should not be used for more than one field in the same dictionary if the service is to be reportable. This would result in two query items with the same name, which is not supported.

Deleting a Child Service from a Service Bundle

The business view of the data mart is unchanged—that is, the fields of child service will continue to appear as query items in the query subject corresponding to the Service Bundle. However, the ETL

Key Performance Indicators (KPIs)

Key Performance Indicators (KPIs) provide a quick, handy way to trace trends or statistics that are deemed critical to managing Service Catalog services.

Dashboards

The Dashboard option is part of the Reporting module. It allows you to configure the portal to display up to four KPIs.

Choose **Reporting > Dashboard > Configure Dashboard** button to display a list of available KPIs.

Indicate which KPIs to include by checking the check box to the left of the Report Name in **Select Key Performance Indicators** Page. Choose the order (1–4) that the selected KPIs will display in your dashboard quadrant by using the **Order** drop-down menu. Click **Reset** to clear your choices and start again, or **Cancel** to exit the popup window without making any changes. Click **Save KPI Selection**. Changes are reflected on your Dashboard.

KPIs that measure Service Catalog performance may be specified. If you choose a KPI for a module that you do not have installed, the legend “No data available” appears rather than a graph.

KPI Administration

The KPI Administration option is available on the Advanced Reporting module to users who have the role of “Analytics Administrator”. The KPI Administration option allows the administrator to adjust the appearance or behavior of a KPI. To do so:

-
- Step 1** Choose **Advanced Reporting > KPI Administration**
 - Step 2** Select a KPI on the Select Key Performance Indicators Page
 - Step 3** Once you choose a KPI, its properties appear on the update KPI page
 - Step 4** The only KPI properties that should be changed are those that define the presentation of the KPI. These include
 - Type – the type of chart; options include line; verticalbar; horizontalbar; pie; and bubble
 - Data Color Param 1 through Data Color Param 6 – the colors with which the chart is drawn

Metrics and Attributes

Metrics

Nine metrics are used throughout the reports available in the Standard Reports Package. These are summarized in the table below and discussed in the following section.

Metric Name	Description
Service Volume	The total number of service requests, typically within a defined time period
Service Cost	Derived from the price which is configured for a particular service. Price * Units
Task Volume	The total number of Authorization tasks or Delivery Plan tasks
Task Duration	Elapsed time, in hours, from start to finish, for an Authorization task or a Delivery Plan task
Planned Effort	Derived from the amount of time configured in the Effort field for a particular Plan Task; measured in hours
Actual Effort	Calculated from the amount of time (Effort Entry) entered by the task performer for a particular task
Planning Effectiveness	Calculated as the percent of tasks which were completed within the configured amount of effort hours

Metric Name	Description
On-Time %	The percent of services or tasks completed on or before their calculated due date
Standard Compliance %	The percent of services or tasks completed within their configured duration

Measures of Service Volume: Who is the Customer?

In the way that many customers' services are implemented, the name of the person who is the end customer of a service delivery is stored in the order form for the service. This information is not accessible in the Standard Reports Package and its prebuilt reports. So there are two options for registering the "customer" of the service delivery:

- Many reports refer to the CUSTOMERFIRSTNAME and CUSTOMERLASTNAME fields. If the end customer of a service is stored on the order form, these fields refer to the person who requested the service, and not necessarily the person for whom the service was performed. However, it is your only option for identifying an individual person as the customer.
- The ORGANIZATIONALUNITNAME field refers to the organizational unit that would be "billed" for the service delivery, if costs were being allocated. This is another way of thinking about who the customer is.

The choice is yours; we just want to make sure you are clear on the implications of the choice.

Measures of Task Delivery Performance

Measuring the performance of individuals

Tasks can be assigned to individuals or assigned to queues from which individuals can draw work. The data that is available in the Standard Reports Package and prebuilt reports (specifically the fields PERFORMERID, PERFORMERFIRSTNAME, PERFORMERLASTNAME, PERFORMEROUID and PERFORMEROUNAME in DM_SERVICETASKDETAIL and DM_AUTHORIZATIONTASKDETAIL) can refer to a person under one of three conditions:

- The task has been assigned directly to that individual, and no other person has ever worked on it.
- The task has been assigned to a queue, and the performer is the only person who has ever worked on it.
- The task has been assigned to a queue, and the performer is the last person who worked on it, but there may have been others. In this case, the performance of the person listed in the report is not their own, but is also affected by all the people who previously touched the task. So it is not a fair measure of the performance of the individual named.

The first condition can be distinguished from the data in the Standard Reports Package. However, the second and third cannot. This means that reports that attempt to measure the performance of individuals will only fairly represent their performance if service teams have very clear and consistent rules about not sharing responsibility for tasks. For this reason, a disclaimer appears on all prebuilt reports that measure the performance of individuals.

Which Duration to Use?

Prebuilt reports about the duration of tasks performed during service delivery use the `PERFORMERACTUALDURATION` measure. This measure takes the performer's working calendar into account, so that weekends and other nonworking hours are not counted against their time working on the task. Conversely, the `CUSTOMERDURATIONOFSERVICE` measure makes the calculation taking the customer's calendar into account, making it an inaccurate measure of the performer's work.

When to Use Date vs. Duration-Based Measures

There are two ways to assess whether the delivery team is performing their tasks well. Both are valid, but they have different meanings and uses:

- Is the task late, relative to the promise (Due Date) made to the customer?**
 To make this assessment, reports include the `TASKONTIMEFLAG`, `TASKDUEDATE` and `TASKCOMPLETEDDATE` measures. This is good for determining whether a queue or service team is meeting its promises to customers in terms of absolute dates. It is NOT, however, a good measure of the performance of individuals. Assume that performing a service requires three tasks, done by Persons A, B and C. If you are measuring the performance of Person C, their tasks could be late because Person A or B was late. So this measure is used only to assess the customer service of whole teams or queues.
- Has the task been performed within the standard time we plan for this kind of task?**
 To make this assessment, standard reports use the `TASKSTDCOMPLIANCEFLAG`, `TASKPROJECTEDDURATION` and `PERFORMERACTUALDURATION` measures. This allows you to compare the actual duration spent on performing the task with the standard planned duration for this kind of task. This measure is more appropriate for assessing the performance of individual team members, because focusing on the duration isolates the task performance from any upstream effects: it is entirely possible for a task to be completed late according to its due dates, but with a duration that is equal to or less than the standard duration. That indicates a person who is performing their own work well, but falling behind due to upstream effects.

A solid, customer-focused measurement regime requires BOTH metrics. If you base everything on task duration, you are in effect saying "Who cares what we promised to the customer, as long as we are meeting our internal standards?" On the other hand, focusing only on the dates provides an inaccurate picture of team members' performance, which does not allow you to make the effective resourcing decisions you need to improve your performance for customers.

Attributes

The dimensional attributes used in the report packages are derived from the data maintained in the Service Catalog OLTP database. Attributes are summarized below.

Attributes	Description
Customer*	The person who is the recipient of the service, either when it is ordered directly by the same person or when the service is ordered on behalf of the customer, and the home organizational unit of that customer

Billed*	The organization which is billed for the service. This is the same as the customer for the service unless a different organization is chosen as the Bill To: Customer when the ordered is reviewed (after a request has been saved, but before it has been submitted.) Only an organizational unit that has been designated as Billable can be chosen as the Bill To: Customer.
Performer*	The person (and corresponding home OU) who performed the task. See the “Measuring the performance of individuals” section on page 1-46 for more information.

Standard Reports Design

The Standard Reports Package contains denormalized base data tables. These tables are used as the basis for the prebuilt reports as well as providing summary data tables for populating the KPIs.

Each of these tables is a standalone entity—it is not possible to join a table to any other in order to create a new report or modify an existing report. If you need to make modifications to a standard report, your best bet is to construct the desired report from scratch, using the Service Catalog data mart and the Custom Reports package. This section gives some hints on how to do this for some of the reports, using Ad-Hoc Queries (Query Studio) to construct the query.

People, Roles and Groups





The reports in the People, Roles, and Groups folder can be duplicated by using the query subjects in the Organizations folder (Person, Group, and Organizational Unit) and the Queue dimension. The reports are fairly straightforward and can be generated by inserting the appropriate items on the report and grouping as desired.

For example, the Organizational Units by People report might look like this:






Organizational Units by People

Person	Organizational Unit	Organizational Unit Type
Bernard Castaldo	Architectural and Functional Coatings	Business Unit
Bruce Madison	Global Internet Sales	Service Team
	Global Customer Implementation	Service Team
	Global Customer Specialists	Service Team
	Information Technology	Business Unit
Cheryl Tower	ER Credit Cards	Service Team
	Global Order To Cash	Service Team
	Information Technology	Business Unit
Christina Holzner	APR Product Integrity	Service Team
	Discretionary Work	Service Team
	EM Product Integrity	Service Team
	Global Solution Planning	Service Team

The report definition (viewable under Manage File in Query Studio) to build this report would look like the following figure (with a group specified on the Person Full Name, and the filter defined as a “Search and Select” filter).

Report Definition X	
Provides the expression for each report item. Query Information	
Report Item	Expression
 Person Full Name	[FormETL].[Person].[Person Full Name]
 Person Full Name	[FormETL].[Person].[Person Full Name] in (' <selected people go here>
 Organizational Unit Name	[FormETL].[Organizational Unit].[Organizational Unit Name]
 Organizational Unit Type	[FormETL].[Organizational Unit].[Organizational Unit Type]

The same query items, with a different set of filters, are used in the “People by Organizational Unit” report:

Report Definition X	
Provides the expression for each report item. Query Information	
Report Item	Expression
 Organizational Unit Name	[FormETL].[Organizational Unit].[Organizational Unit Name]
 Organizational Unit Name	[FormETL].[Organizational Unit].[Organizational Unit Name] in
 Organizational Unit Type	[FormETL].[Organizational Unit].[Organizational Unit Type]
 Organizational Unit Type	[FormETL].[Organizational Unit].[Organizational Unit Type] in (?Organizational Unit Type?)
 Person Full Name	[FormETL].[Person].[Person Full Name]

Service Design Details

Like the reports in the People, Roles, and Groups folder, those in the Service Design Details folder are fairly easy to produce. Simply choose the desired items from the Dictionary and Service dimensions and group as desired.

For example, the “Services by Dictionary” report as produced by Ad-Hoc Query could look like this:



Services by Dictionary

Dictionary	Service	Status	Service Group
ACCESS_CONFIRMATION	Shared Folder - Access Request	Active	Security_Administration_Services
	NT Group - Access Request	Active	Security_Administration_Services
ACCESS_INDIVIDUAL_ACCOUNT_INFO	Access to Individual's Personal Accounts	Active	Security_Administration_Services
ACCOUNT_DISABLE	Disable NT and Lotus Notes Account	Active	Security_Administration_Services
ACCOUNT_EXPIRED	Windows (AD) Account - Expired - Extend	Active	Security_Administration_Services

To exactly duplicate the appearance and behavior of the standard report, the following activities are required in Report Designer:

- Modify the report title so it is left-justified.
- Include a Search-and-Select Filter for the dictionary on a prompt page.

Request Management

The Request Management folder includes two aging reports, which break down tasks into “buckets”, based on the number of days late the task is. The buckets are defined as 1–3 days late, 3–7 days late, 1–2 weeks late, and over 2 weeks late. The reports group the late tasks either by queue or by performer.

Aging of Tasks by Queue

Org. Unit	Performer	Task	1-3 days	3-7 days	1-2 weeks	>2 weeks	Total Open	Total Late	Late %
Delhi IT	Delhi IT Queue	Deliver/Install PC	0	0	0	1	1	1	100%
		Setup Phone/Voicemail	0	0	1	0	1	1	100%
	Delhi IT Queue		0	0	1	1	2	2	100%
Delhi IT			0	0	1	1	2	2	100%
Bangaluru IT	Bangaluru IT Queue	Call-Center Review	2	0	0	0	2	0	100%
		Follow-up Resolved Issue with Customer	2	0	0	0	2	0	100%
	Bangaluru IT Queue		4	0	0	0	4	0	100%
Bangaluru IT			4	0	0	0	4	0	100%

This report is essentially a pivot report. The metric that is pivoted is the “age” of the open task. To produce this report:

- Place the appropriate attributes/dimensions on the report work area—the queue organization; the queue name; and the task name for the Delivery Tasks fact.
- Compute the age of the task by taking the difference (in days) between the current date and the task due date.
- Set up a custom group for the four aging buckets.
- Pivot the report using the custom group (Age) as the metric.

Service Volumes and Activity

The Service Volumes and Activity reports give summary information on the number of services requests started within a particular time frame, and the current status of those requests. For example, the Service Volume: Request Activity by Service looks like this:

Service Volume: Request Activity by Service

This report covers the period from Jan 1 2007 to Jun 30 2007

Service Group	Service Name	New Requests	Ongoing	Completed	Cancelled	Delivery Cancelled	Rejected
Ariba_Services	Ariba - Access Request	65	0	40	16	1	0
	Ariba - Problem	355	12	320	2	0	0
Business_Intelligence_BI	Business Intelligence (BI)/Business Warehouse (BW) Reporting - Production Support Service	311	14	233	4	0	0
Call_Center_Services	Customer Information Service	49	1	43	1	1	0
	General Request	1,015	40	888	12	4	0
	Password Reset - Any Application	1,997	3	1,970	16	1	0
	Software Issues	847	22	748	5	1	0
Grand Totals:		4,639	92	4,242	56	8	0

Because of the complexity of the computations (tallying up the counts based on the status of the request), this report needs to be implemented in Report Designer.

Data Mart Administration

This section is intended for use by people who need to know technical implementation details of the Service Catalog reporting solution. These include report administrators, responsible for the reporting environment; support personnel who may need to report issues to Cisco TAC; and analysts and designers who want to investigate the options of customizing or enhancing components of the reporting options.

Role-Based Access

Service Catalog provides role-based access to all reporting capabilities. User profiles are directly accessed in the database via the Service Catalog namespace.

Service Catalog provides a set of base roles which provide access to reporting capabilities. In addition, administrators can define custom roles, which incorporate both base roles and custom roles, to facilitate adding and maintaining users with privileges appropriate to their responsibilities. Each user is able to access the reporting modules based on the base roles that are either directly assigned to the user or a group of which the user is a member or organization (via the Organization Designer module) or included in a custom role which has been assigned to the user/group.

The base roles which provide access to Reporting and Advanced Reporting capabilities are summarized below:

Role	Capabilities	Description
Service Operations Report User	<ul style="list-style-type: none"> View Request Center Reports 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run Service Catalog (Service Performance) reports in the Reporting module
Advanced Reporting –Business Author	<ul style="list-style-type: none"> View Request Center Reports Ad-Hoc Reports 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run all reports in the Reporting module Access to the Ad-Hoc Reports section in the Advanced Reporting module
Advanced Reporting –Professional Author	<ul style="list-style-type: none"> View Request Center Reports Ad-Hoc Reports Report Designer 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run all reports in the Reporting module Access to the Ad-Hoc Reports section in the Advanced Reporting module Access to Report Designer in the Advanced Reporting module
Reporting Administrator	<ul style="list-style-type: none"> View Request Center Reports 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run all reports in the Reporting module Access to the Ad-Hoc Reports section in the Advanced Reporting module Access to Report Designer in the Advanced Reporting module Ability to manipulate the contents of the public folders using the tools in the Advanced Reporting module
Service Team Manager	<ul style="list-style-type: none"> View Request Center Reports 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run Service Catalog (Service Performance) reports in the Reporting module
Service Team Administrator	<ul style="list-style-type: none"> View Request Center Reports 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run Service Catalog (Service Performance) reports in the Reporting module

Role	Capabilities	Description
Analytics Administrator	<ul style="list-style-type: none"> View Request Center Reports Ad-Hoc Reports Report Designer KPI Administrator Report Administrator 	<ul style="list-style-type: none"> Ability to view the KPI dashboard and run all reports in the Reporting module Access to Ad-Hoc Reports in the Advanced Reporting module Access to Report Designer in the Advanced Reporting module Ability to manage public Reporting folders, the dashboard, and Cognos administration Access to KPI Administration in the Advanced Reporting module
Site Administrator	<ul style="list-style-type: none"> All 	<ul style="list-style-type: none"> All Service Catalog and Cognos capabilities in the Reporting and Advanced Reporting modules

Data Mart Source Data

The accuracy and completeness of the data in the data mart is critical. In order to gauge these qualities, it is critical for the source of the data in the data mart to be documented. The table below shows the tables in the OLTP database which contributed to data found in the query subjects available in the Custom Data Mart.

Data Mart Query Subject	OLTP Database Tables
Dictionary Data (user-specific reportable dictionaries)	DefDataDictionary DefObjectDictionaries TxRequisitionEntry
Service form Data (user-specific reportable services)	DefService DefServiceExtension DefDataDictionary DefObjectDictionaries DefData TxRequisitionEntry
Service	DefService DefArea DirOrganizationalUnit
Dictionary	DefDataDictionary DefDictionaryGroup
Keyword	DefKeyword
Group	DirGroup
Organization	DirOrganizationalUnit

Data Mart Query Subject	OLTP Database Tables
Customer	DirPerson
Requestor	DirOrganizationalUnit
Performer	DirNetworkInfo
Person	DirLocation
Queue	DirAddress
ServiceRequestFact	TxRequisitionEntry TxRequisition
ServiceTaskFact	TxRequisitionEntry TxActivity
RequisitionTaskFact	TxRequisition TxActivity
TaskEffortEntryFact	TxBilling DefExpenditureType DefBillingClass DefUnitType DirOrganizationalUnit DirPerson

Service-Form Reporting Metadata

The data mart ETL processes use a set of tables in the data mart database to configure the ServiceData and DictionaryData dimensions that are exposed to users in the Ad-Hoc Reports and Report Designer options. These tables are created when the Custom Reports Package is installed and populated when data is loaded into the data mart.

These metadata tables are not exposed in the Cognos framework. The contents of these tables are used to specify the dynamically defined dictionary and service-based dimensions which appear as the business view of the data in the Custom Reports Project.

These tables are described below. The description for each column uses an abstract data type; the actual data types will vary, depending on the database (Oracle or SQLServer) in which the data mart resides.

DM_FDR_ETLDictionaryMetadata

The DM_FDR_ETLDictionaryMetadata table maps a particular reportable dictionary (identified by its DictionaryID) to the DM_FDR_DICTIONARY_n table in which dictionary data is stored (DictionaryTableName). It also tracks how many date, numeric, and varchar fields are used within that dictionary and consequently, within the corresponding data mart table.

Column Name	Data Type	Description
DictionaryID	Integer	Unique identifier for the dictionary

DictionaryTableName	Varchar(50)	Name of the data mart table where the dictionary data is stored
LastDictionaryDateField	Integer	Last datetime type field used in the dictionary table
LastDictionaryNumericField	Integer	Last numeric type field used in the dictionary table
LastDictionaryVarcharField	Integer	Last character type field used in the dictionary table

DM_FDR_DICTIONARYMETADATA

The DM_FDR_DICTIONARYMETADATA table maps individual dictionary fields (attributes) (identified by DictionaryID and DictionaryAttributeName) to specific columns of the dictionary tables. For example, the attribute “LastName” in the dictionary RC_REQUESTEDBY may be mapped to (that is, actually stored in) the data mart table DM_FDR_DICTIONARYTABLE_10, in the field “Field2”.

Column Name	Data Type	Description
DestinationColumnName	Varchar(100)	Column name of the table where this attribute is stored
DestinationTableName	Varchar(200)	Table name where the dictionary information is stored
DictionaryAttributeName	Varchar(100)	Name of the attribute in the dictionary
DictionaryAttributeType	Varchar(100)	Data type of the attribute in the dictionary
DictionaryID	Integer	Dictionary ID
DictionaryName	Varchar(200)	Dictionary name
DictionaryAttributeID	Integer	Dictionary attribute ID

DM_FDR_ETLMETADATA

The DM_FDR_ETLMETADATA table holds information on configuring the Custom Reports Package that was specified when the Reporting options was installed, as well as data about the data extraction process (ETL) and last update information to for scheduled run of the ETL Process.

Column Name	Data Type	Description
DictionaryTablePattern	Varchar(50)	Pattern for the name of the dictionary tables; by default DM_FDR_DICTIONARY_; specified via Advanced Reporting installation. Dictionary tables will have the specified name followed by a number.
Field Pattern	Varchar(50)	Field pattern for both dictionary and service tables; by default FIELD_.
LastDictionaryTableSequence	Integer	Sequence number of the last dictionary table currently used in the data mart.
LastDictRequisitionID	Integer	Last requisition ID for which data was written to the dictionary table.

Column Name	Data Type	Description
LastProcessedTime	Datetime	Date and time when the ETL to load the custom Reports Package was most recently run.
LastServiceTableSequence	Integer	Sequence number of the last service table used in the data mart.
LastSvcRequisitionID	Integer	Last requisition ID of the service data.
ServiceTablePattern	Varchar(50)	Pattern for the name of the service tables; by default DM_FDR_SERVICE_; specified via Advanced Reporting installation.
DictionaryTotalDateField	Integer	The total number of date fields used for dictionary and service tables.
DictionaryTotalNumericField	Integer	The total number of numeric fields used for dictionary and service tables.
DictionaryTotalVarcharField	Integer	The total number of character fields used for dictionary and service tables.
ServiceTotalDateField	Integer	The total number of date fields used for service tables.
ServiceTotalNumericField	Integer	The total number of numeric fields used for service tables.
ServiceTotalVarcharField	Integer	The total number of character fields used for service tables.

DM_FDR_ETLSERVICEMETADATA

The DM_FDR_ETLSERVICEMETADATA table holds the information about the tables that are used to store information about each reportable service.

Column Name	Data Type	Description
LastServiceDateField	Integer	Last datetime type field used in the service table
LastServiceNumericField	Integer	Last numeric type field used in the service table
LastServiceVarcharField	Integer	Last character type field used in the service table
ServiceID	Integer	Unique Identifier assigned to the service
ServiceTableName	Varchar	Name of the data mart database table where the service data is stored

DM_FDR_SERVICEMETADATA

The DM_FDR_SERVICEMETADATA table holds the Metadata information about which service attributes are populated in which columns of the service tables and, also the usage name of each of the columns.

Column Name	Data Type	Description
DestinationColumnName	Varchar(100)	Column name of the table where this attribute is stored

DestinationTableName	Varchar(200)	Table name where the service information is stored
ServiceAttributeName	Varchar(100)	Name of the attribute in the service
ServiceAttributeLabel	Varchar(200)	Caption of the attribute in the service
ServiceAttributeType	Varchar(100)	Attribute type
ServiceAttributeID	Integer	Identifier for the attribute of the service
ServiceID	Integer	Service ID
ServiceName	Varchar(200)	Name of the service

Dynamically Defined Dimensions

The nature and number of the dictionaries and their attributes which are added to the Custom Reports Package is dynamically determined and may differ greatly at each Service Catalog installation. To support the required flexibility, the database which supports the Custom Reports Package includes a set of abstract data structures, which hold the dimensional data corresponding to the dictionaries, their attributes, and service configuration using dictionary (form) data. Dictionary contents are mapped to these tables via the DM_FDR metadata tables explained above.

DM_FDR_DICTIONARYTABLE_n

A set of tables captures attributes (fields) for each reportable dictionary in the application. The number of these tables is configurable as part of the application installation, as well as the number of columns of each data type (character, numeric, or datetime).

Each table has the name DM_FDR_DICTIONARYTABLE (or alternate pattern supplied via the installation procedure), followed by a numeric suffix, _n. Each table is numbered sequentially, starting with 1. Each instance of this table represents a reportable dictionary.

The DM_FDR_DICTIONARYTABLEs appear in the reporting tools as a set of dimensions within the DictionaryData folder. The name of each dimension is the caption of the corresponding dictionary. (For dictionaries with no caption, the dictionary name is used.) The attributes of the dimension are the fields which comprise the dictionary. The fields are numbered sequentially, starting with 1. The number of each type of field (character, numeric, or datetime) is specified via the application installation procedure.

Column Name	Data Type	Description
DictionaryID	Integer	Dictionary ID
RequisitionID	Integer	Requisition ID
RequisitionEntryID	Integer	Requisition Entry ID
Field1 through Field <i>n</i>	Varchar(200)	Varchar fields to hold dictionary data
Field <i>n+1</i> through <i>n+m</i>	Numeric	Numeric fields to hold dictionary data
Field <i>n+m+1</i> through ..	Datetime	Datetime fields to hold dictionary data

DM_FDR_SERVICETABLE_n

A set of tables captures data for each service which has been designated as reportable. The tables contain all fields in all dictionaries used in the service. The number of these tables is configurable as part of the application installation, as well as the number of columns of each data type (character, numeric, or datetime). Each table is numbered sequentially, starting with 1.

Each table has the name DM_FDR_SERVICETABLE (or alternate pattern, as designated via the installation procedure), followed by a numeric suffix, _n. Each instance of this table represents a reportable service.

The DM_FDR_SERVICETABLEs appear in the reporting tools as a set of dimensions within the ServiceData folder. The name of each dimension is the name of the corresponding service. The attributes of the dimension are the fields which comprise all dictionaries in the service. Fields are added to this table in the order in which their dictionary occurs in the service. Since the number of fields that may be accommodated in each table is limited (specified via the installation procedure, but physically limited by database constraints), the service table may not be complete—some fields, indeed some dictionaries, may be truncated. Therefore, DM_FDR_SERVICETABLEs should be used with care, especially if dictionaries with large numbers of fields are designated as reported, or if a great number of dictionaries are used in the same service.

Column Name	Data Type	Description
ServiceID	Integer	Service ID
RequisitionID	Integer	Requisition ID
RequisitionEntryID	Integer	Requisition Entry ID
Field1 through Fieldn	Varchar(200)	Varchar fields to hold service data
Fieldn+1 through n+m	Numeric	Numeric fields to hold service data
Fieldn+m+1 through..	Datetime	Datetime fields to hold service data

For a service configured with no reportable grid dictionaries, each request for the service (that is, requisition entry) is captured by the ETL process and inserted into the corresponding DM_FDR_SERVICETABLE as one row of data. However, for a service configured with one or more reportable grid dictionaries, the ETL process inserts multiple rows of data into the DM_FDR_SERVICETABLE table. The number of rows inserted corresponds to the greatest number of rows in any of the reportable grid dictionaries.

For example, consider a service with a reportable nongrid dictionary (Employee) and two reportable grid dictionaries (Contact, Address). Assume a request for this service has three rows of data in Contact, two rows of data in Address, and some data in the Employee dictionary. The form data captured in the service table for this service would look the following:

Requisition EntryID	Employee. FirstName	Employee. LastName	Contact. Type	Contact.Details	Address.Line	Address.City	Address.State	Address.Country
NNN	John	Smith	Cell	650-123-4567	3333 Third St.	San Mateo	CA	USA
NNN	(NULL)	(NULL)	Work	408-765-4321	1111 First St.	San Jose	CA	USA
NNN	(NULL)	(NULL)	Email	jsmith@company.com	(NULL)	(NULL)	(NULL)	(NULL)

Data Mart Database Objects

The following table lists the database tables and views used for the Service Catalog data mart and exposed to users via the Custom Reports package. The tables/views are mapped directly to corresponding query subjects.

Data Mart Table/View	Primary Key	Query Subject/Description
DM_DEFSERVICE	ServiceID	Service information (which includes Service Group and Service Team information)
DM_DEFDICTIONARY	DictionaryID	Dictionary information
DM_PERSON	PersonID	Person information
DM_DATE	DateID	Calendar information
VIEW_CUSTOMER	CustomerID	Customer information
VIEW_REQUESTOR	RequestorID	Requestor (initiator) information
VIEW_PERFORMER	PerformerID	Information about the person who performs a task
VIEW_QUEUE	QueueID	The queue to which a task is assigned
VIEW_CALENDARCLOSED DATE	ClosedDateID	The date a task or requisition was closed and the accompanying date hierarchy
VIEW_CALENDAR DUE DATE	DueDateID	The date a task or requisition was due and the accompanying date hierarchy
VIEW_CALENDAR SCHEDULED DATE	ScheduledDateID	The date a task or requisition was scheduled to start and the accompanying date hierarchy
VIEW_CALENDAR STARTED DATE	StartedDateID	The date a task or requisition was started and the accompanying date hierarchy
DM_REQUISITIONENTRY FACT	RequisitionEntryID	Individual requisition entries (services) ordered
DM_SERVICETASKFACT	ServiceTaskID	Tasks performed at the service (requisition entry) level, including delivery tasks, ad-hoc tasks and service group authorizations and reviews
DM_REQUISITONTASKFACT	RequisitionTaskID	Tasks performed at the requisition level, including financial authorizations and organizational unit authorizations and reviews
DM_TASKEFFORTENTRY FACT	EffortEntryID	Effort expended in the performance of a delivery task
DM_FDR_DICTIONARY_n (n=1, 2, 3, ...)	RequisitionEntryID	Corresponding dictionary attribute information
DM_FDR_SERVICE_n (n=1, 2, 3, ...)	RequisitionEntryID	Corresponding service form data attribute information

The tables which comprise the data mart have been indexed to optimize the performance of queries and reports that retrieve data from multiple query subjects. Because of the dynamic nature of the dictionary and service-based dimensions, no additional indexes have been added to these tables.

The indexes provided in the statically defined fact and dimension tables are summarized below.

Data Mart Table/View	Primary Key	Additional Indexes
DM_DEFSERVICE	ServiceID	SERVICENAME
DM_DEFDICTIONARY	DictionaryID	DICTIONARYNAME
DM_PERSON	PersonID	PERSONFIRSTNAME PERSONLASTNAME ISQUEUE
DM_DATE	DateID	(none)
DM_REQUISITIONENTRYFACT	RequisitionEntryID	SERVICEID REQUESTORID CUSTOMERID STARTEDDATE CLOSEDDATE DUEDATE
DM_SERVICETASKFACT	ServiceTaskID	REQUISITIONENTRYID PERFORMERID SERVICEID STARTEDDATE COMPLETEDDATE DUEDATE QUEUEID
DM_REQUISITONTASKFACT	RequisitionTaskID	PERFORMERID STARTEDDATE COMPLETEDDATE DUEDATE QUEUEID

Relationships between the Facts and Dimensions

Requisitions (ServiceRequestFact) are joined to all relevant dimensions (shown in the star schema previously included) via “inner joins”. That means that any attempt to use query items from both the requisition and a dimension will show only those requisitions which have a corresponding row in the dimension. This is generally not a factor for all of the statically defined dimensions, since these are always required for all requisitions. For example, by definition a requisition must have a customer and initiator as well as a requested service and all dates associated with the delivery of that requisition.

This does have implications for writing reports. For example, if you start defining a report by choosing a set of customers, then add requisition data filtered for a particular period, those customers who did not order a service in that period will “vanish” from the report.

It is critically important for the dynamically defined, dictionary-based dimensions. If a dictionary was not used in a particular service, any requisitions for that service will not appear on a report that includes query items from that dictionary-based dimension.

Similarly, for delivery tasks (ServiceTaskFact) and service-level authorizations (RequisitionTaskFact), inner joins relate the fact to all dimension tables except the queue. These facts are joined to the Queue dimension via an “outer join”, which supports optional relationships. This allows the service designer to assign the task to a specific person or functional position, rather than to a queue. If a task was not assigned to a queue, it still appears on the report, but the queue will be blank.

For request-level authorizations (AuthTaskFact), too, the queue is optional. In addition, the service is not relevant, since the authorization is performed at the request level, rather than for any individual services which comprise the request.

Relationships in Organizational Data

The Organizations folder allows you to compose reports on people, organizations, and groups. Service Catalog supports many-to-many relationships between these entities. For example, a person may be a member of many organizations (a business unit and multiple service teams); an organization comprises many people. These relationships are reflected in the data mart design, so you can combine two of these entities on a report and group by either entity. For example, you could report on all organizations, listing their members; or you could choose a person, and list all the organizations to which that person belongs.

Fact to Fact Relationships

Fact-1	Fact-2	Type of Relationship
ServiceRequestFact	ServiceTaskFact	Left Outer Join
ServiceRequestFact	DeliveryTaskFact	Inner Join
ServiceRequestFact	AuthTaskFact	Left Outer Join
ServiceRequestFact	AllTaskFact	Left Outer Join
AllTaskFact	TaskEffortEntryFact	Left Outer Join
DeliveryTaskFact	TaskEffortEntryFact	Left Outer Join
ServiceTaskFact	TaskEffortEntryFact	Left Outer Join

Refreshing the Standard Reports Package

All tables in the reporting database that support the Standard Reports Package are truncated and completely refreshed in every ETL cycle. Report contents are refreshed and available for viewing as soon as the ETL cycle has completed. The prebuilt reports cannot be run while the ETL is in process.

Refreshing the Data Mart

Several Cognos and Service Catalog components are required to refresh the database contents of the Custom Reports Package, which provides the business view of the data mart.

The Service Catalog ETL processes for all packages use Cognos **Data Manager Runtime** components to generate executables that are deployed into the reporting server as part of the application installation procedure. These scripts use **Cognos SQL** to read the data from the OLTP source, allowing for greater degree of portability of the catalog between heterogeneous database environments. Oracle or SQL Server specific code is abstracted to views that are created in the OLTP source. The Data Manager scripts also include User Defined Functions (UDF) to handle the transformation of specially formatted strings stored within the Service Catalog database (which support the internationalization of the software). The UDF also cleanses html tags from the data, if they have been included in dictionary captions or field labels. .

A custom program is required to extract service form field-level data from the Service Catalog requisition record (such data is stored in a proprietary and compressed format, to optimize OLTP performance) into a standard relational format. This program runs on the Service Catalog application server.

Another custom program is required to create and maintain the Custom Reports Data Project. This script uses the **Cognos Framework Manager SDK** to dynamically create the Custom Reports Project, based on the services and dictionaries each customer site has chosen as Reportable. This dynamic structure and content is added to standard data mart facts and dimensions to produce the data mart available in the Custom Reports Project.

The generated executables should be collated in a job stream for batch execution. The exact structure of the job stream will vary depending on which Reporting components are installed and configured: prebuilt reports and KPIs; and the custom reports data mart.

We recommend starting a reporting installation with a once daily refresh of the data mart, typically scheduled during slow times for transactional processing. However, The refresh of the data mart may be scheduled concurrently with online usage of Service Catalog or multiple times per day. Performance for online transactional users would be affected only insofar as the database server load is affected. Some reporting users may report a blip in performance as indexes are rebuilt; however, the effects are generally transient.

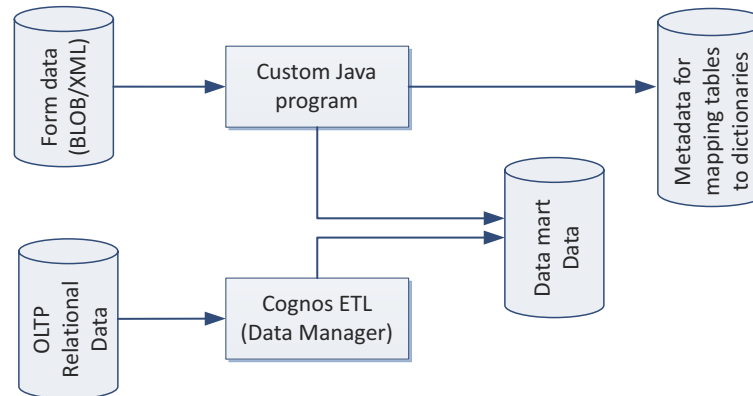
Custom Reports Package

All tables that support the data mart available for Advanced Reporting are incrementally refreshed in every ETL cycle. Therefore, in principle, the data mart remains online during the ETL cycle. However, because of the increased database activity in the database and because indexes on the tables are temporarily unavailable, performance may be adversely affected.

Process Flow for the Custom Reports Package

The process flow used to produce the Custom Reports Package uses the components described above. The most substantive difference is the use of additional Cognos components and custom Cisco-provided code to handle the inclusion of dynamically defined form data (in the form of reportable services and dictionaries) in the data mart.

Data is loaded into the custom reports package by means of both a Cognos (Data Manager) ETL script, and a custom Java program, as shown in the diagram below.

Figure 1-3 CUSTOM Reports Package Process Flow – Part 1

Form Data Custom ETL

The custom Java program not only loads form data from reportable dictionaries and services into corresponding dimensions in the data mart, it also tracks which dictionaries and services have been loaded. On its initial run this program loads all data in the transactional database into the analytical database which supports the data mart. On subsequent cycles it loads data incrementally, that is, only new or modified data in the transactional database is inserted or updated in the data mart.

In addition to actually loading the data, this program also checks for new reportable dictionaries and services and, updates the list of such objects. This information, labeled as “Metadata for mapping...” in the diagram above, is then used by another custom program. This program uses the Framework Manager API to construct the business view of the data that is available to users in Report Designer and Ad-Hoc Reporting, so that the names assigned to reportable dictionaries and their attributes are accurately displayed in the reporting tools.

Data Manager ETL

The DataManager ETL loads statically defined (dimension/fact) data from OLTP database into the corresponding dimensions and facts in the data mart. The load process is incremental. When this process is run for the first time, it loads all available data from the transactional database. On subsequent runs it loads only data which have been inserted or modified after the last run of ETL.

All source tables in the OLTP database have time stamp columns (CreatedOn/ModifiedOn). These columns are updated whenever a new record is inserted or an existing record is modified. The ETL process captures new/modified data by comparing the time stamp columns in the source tables against the date and time the ETL process was last run.

The ETL process has been optimized to handle both inserting new rows and updating existing rows in the data mart. For example, when a service request is submitted, the request and all its tasks would be created in the data mart. When the tasks are subsequently updated, the existing task fact is updated to reflect the new information.

The ETL process runs as follows:

Select Data from the Transactional Database

Select new or changed data from the OLTP database, based on extraction views which include the columns required in the data mart and which filter by comparing the time stamps in the source data to the date and time the ETL process was last run.

Insert Incremental Data into Staging Area Tables

Staging tables in the OLAP database (indicated by the prefix STG) temporarily hold the new/changed data from the OLTP database. Staging tables have one to one correspondence with OLTP tables. These tables are truncated on every run of ETL so they contain only new/ modified data.

Construct Work Area Tables

Work area tables in the OLAP database (indicated by the prefix WRK) hold data extracted and consolidate it from previous ETL runs. Work area tables are used only for transforming data for dimensions whose data is derived from multiple tables in the transactional database. The mapping of source to target tables is given in the [Advanced Reporting Module, page 1-16](#).

Load Data in to the Dimension/Fact Tables

The ETL uses both staging and work tables to insert new/modified data into the appropriate dimensions/fact tables in the datamart. Business views are created on top these tables and these views are exposed as query subjects in the package.

Customizing the Data Mart

Service Catalog includes only runtime licenses for the Framework Manager and Data Manager tools used to populate the data mart. Service Catalog users who have Cognos enterprise development licenses may wish to customize the data mart contents, including additional client-specific data.

The key to a successful customization is taking into account that the business view of the data, configured via Framework Manager, includes both a static and dynamic component. The static component, specifying the universal facts and dimension, is stored in the file

<App_Home>\cognos\Reports\CustomReportsDataModel\ CustomReportsDataModel.cpf

on the reporting server. The ETL uses that file as the basis for the business view, then generates additional DictionaryData and ServiceData dimensions, depending on which objects have been marked as reportable. Client customizations to the static component may be applied using IBM Cognos Framework Manager. Any such customizations are incorporated into the new business view, generated via the next ETL cycle. Such customizations will have to be reapplied after any application upgrade.



Data Mart Schema

- [Custom Reporting Data Model, page 2-1](#)

Custom Reporting Data Model

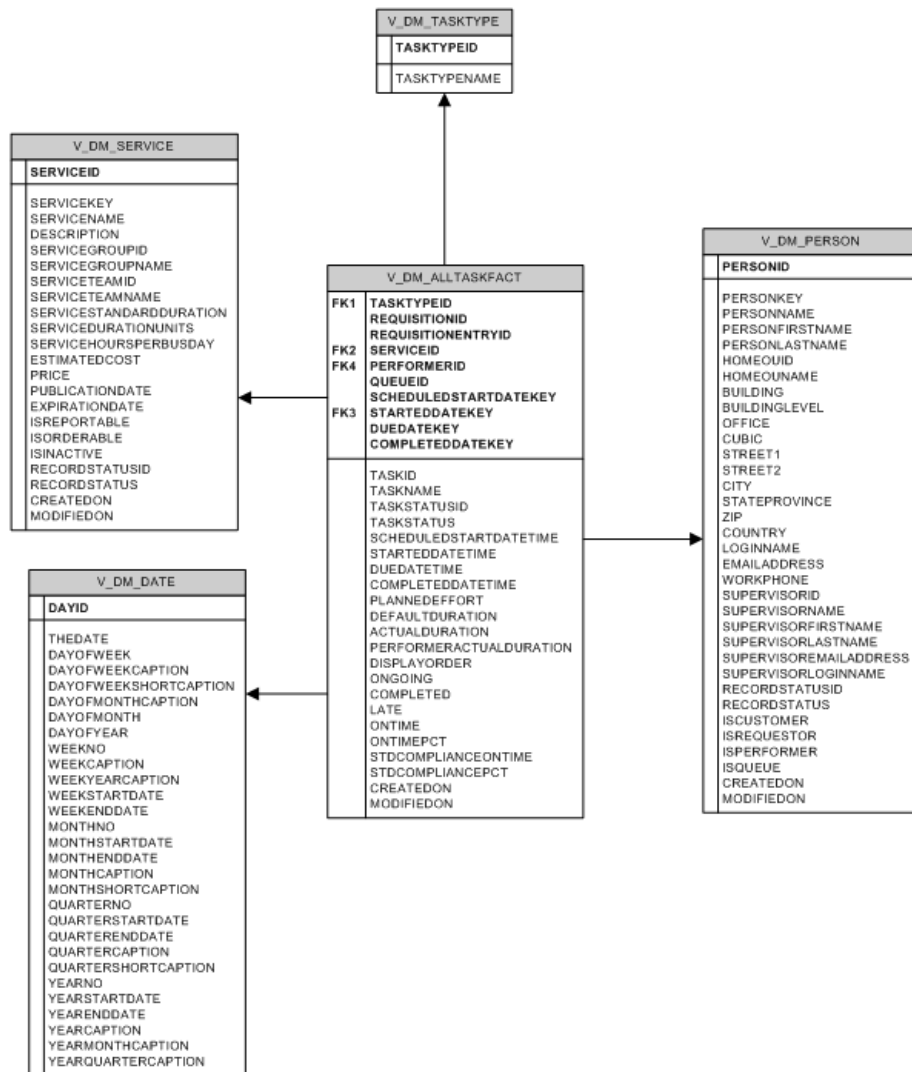
Data Mart Schema Design and the Business View

The data mart schema was designed to be used with IBM Cognos Framework Manager and the business view used by the IBM Cognos reporting tools (Query Studio and Report Studio, represented as Ad-Hoc Reports and Report Designer in the Service Catalog Advanced Reporting module). As such, technical documentation in the Data Mart chapter outlines the contents and relationships of the query subjects, but does not cover the underlying data model, which is not exposed to reporting users or designers.

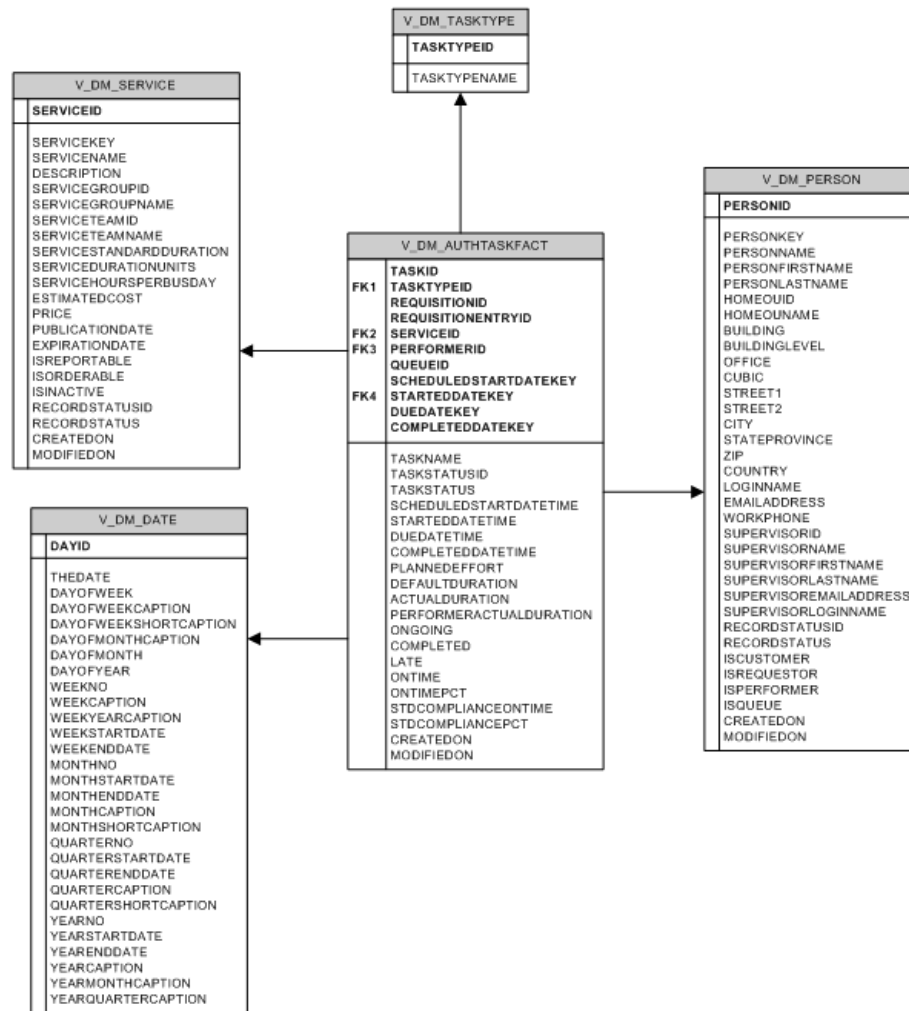
This chapter is meant for technical personnel who wish to investigate the physical data model underlying the business view exposed via the Cognos tools. In particular, it may be useful to map the names for the database objects in the diagrams that follow to corresponding names of query subjects. In the following diagrams:

- The Queue query subject is based on the V_DM_PERSON database view, and is joined to Task views via the QUEUEID column.
- The Performer query subject is also based on the V_DM_PERSON.PERSONID business view and is joined with Task views via the PERFORMERID column.
- The Customer and Requestor query subjects (dimensions) are also based on the V_DM_PERSON database view, and are joined to the Requisition views via the CUSTOMERID and REQUESTORID, respectively
- All date dimensions (CalendarStartDate, CalendarDueDate, CalendarClosedDate and CalendarScheduledDate) are based on the V_DM_DATE business view. They in turn are joined with the Task and Requisition views by the STARTEDDATEKEY, DUE DATEKEY, COMPLETEDDATEKEY and SCHEDULEDSTARTDATEKEY respectively.
- All fact tables also include a join (not depicted in the diagrams) to Bundled Service data, available in V_DM_SERVICEBUNDLE.

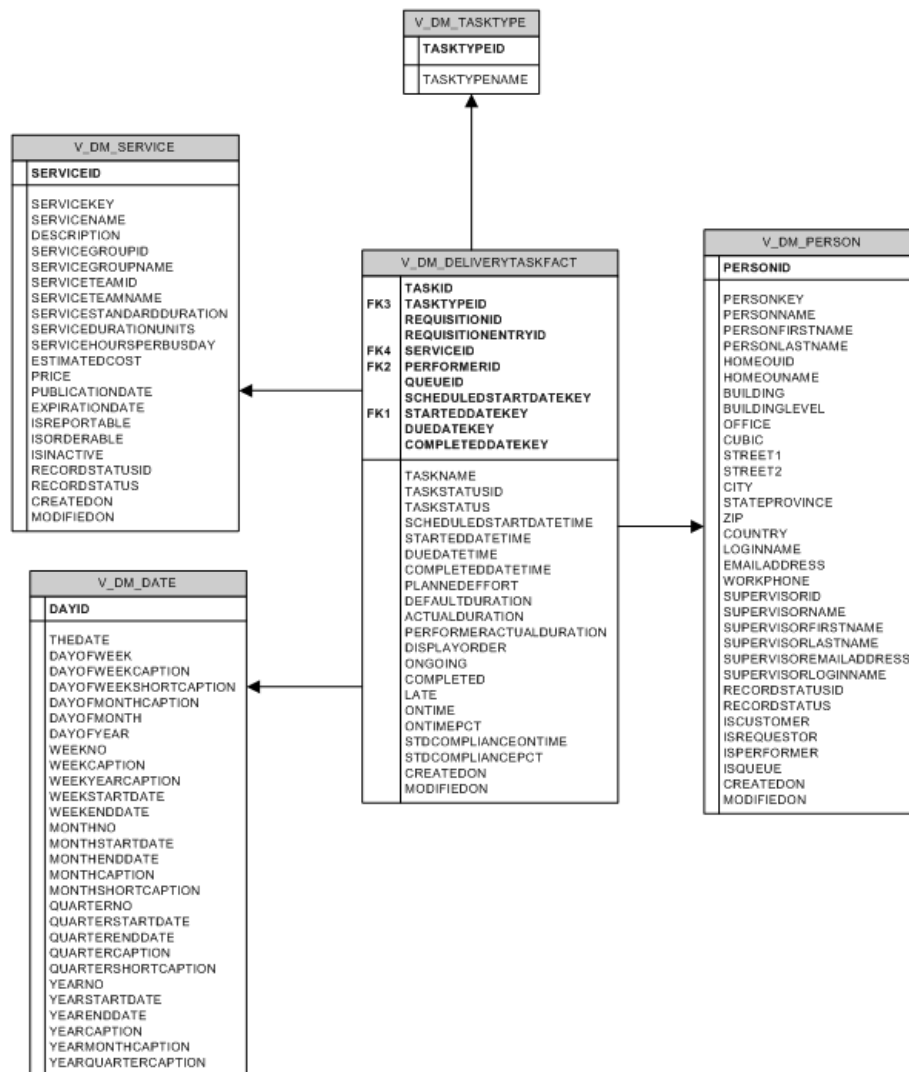
Star Schema Design for AllTaskFact (All Tasks)



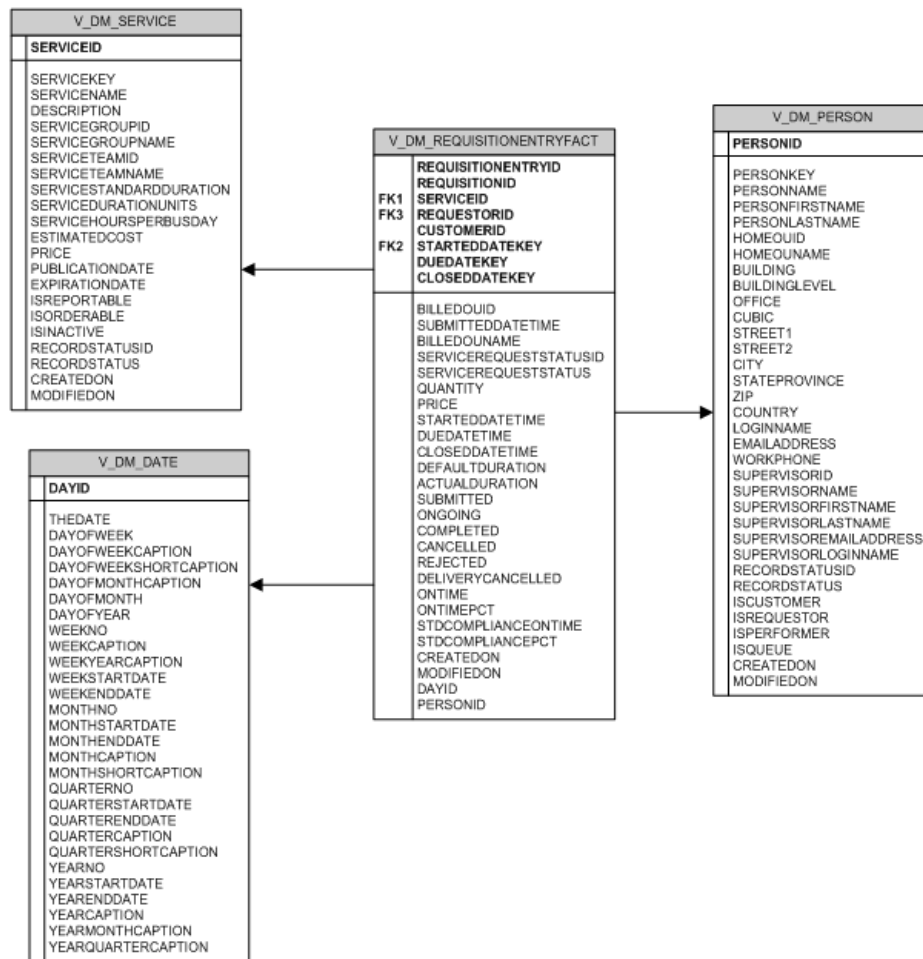
Star Schema Design for AuthTaskFact (Authorization Tasks)



Star Schema Design for DeliveryTaskFact (Delivery Tasks)



Star Schema Design for ServiceRequestFact (Requisitions)



Dictionary and Service-Based Dimensions

The above diagrams are incomplete. All fact tables actually have one-to-many relationships to dictionary- and service-based dimension tables. For services that do not contain any grid dictionaries, the relationships are always one-to-one (see the “DM_FDR_SERVICETABLE_n” section on page 1-58 for more information). These relationships are implemented via the column REQUISITIONENTRYID, which is present in all fact and dimension tables, but is not exposed in the business view's dimensions.

When you create reports using Query Studio or Report Designer with service and task fact tables joined, the task data may appear to be repetitive due to the one-to-many relationships among these tables. You may use the grouping feature in the reporting tool to collapse the identical information.

The dictionary- and service-based query subjects which appear in the data mart under the Dictionaries and Services folders correspond to tables in the physical database named DM_FDR_DICTIONARYTABLE_n and DM_FDR_SERVICETABLE_n, respectively, where

- n is a sequential number starting with 1, and
- the number of tables of each type is determined by the number specified when the Advanced Reporting option is configured.

The mapping between the physical tables and the reportable objects is maintained in the tables DM_FDR_DICTIONARYMETADATA and DM_FDR_SERVICEMETADATA. These tables are populated when an object is designated as reportable, and used by the ETL processes to dynamically adjust the business view of the data mart to include the reportable objects.

If you wish to supplement the use of the IBM Cognos Business Intelligence tools, bypassing the business view offered by the Ad-Hoc Reports and Report Designer modules of Advanced Reporting, you can do so by interrogating those METADATA tables and constructing database VIEWS which match the dictionary- or service-based query subjects. A sample (SQLServer-specific) SQL statement for building a database view of the MemoryDetails dictionary is shown below. This is (obviously) just a starting point for such an effort.

```
SELECT distinct 'CREATE VIEW ' + dictionaryname + ' (' AS SQLColumn,
    'A 0' AS DestinationColumnName
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
UNION
SELECT ' ' + dictionaryattributename, 'A ' + DestinationColumnName
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
    AND DestinationColumnName = 'FIELD1'
UNION
SELECT ' , ' + dictionaryattributename, 'A ' + DestinationColumnName
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
    AND DestinationColumnName <> 'FIELD1'
UNION
SELECT ' , REQUISITIONENTRYID, REQUISITIONID, SERVICEID', 'A Y'
UNION
SELECT ' ) AS SELECT' , 'A Z'
UNION
SELECT ' ' + DestinationColumnname, 'B ' + DestinationColumnName
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
    AND DestinationColumnName = 'FIELD1'
UNION
SELECT ' , ' + DestinationColumnname, 'B ' + DestinationColumnName
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
    AND DestinationColumnName <> 'FIELD1'
UNION
SELECT ' , REQUISITIONENTRYID, REQUISITIONID, SERVICEID', 'B Y'
UNION
SELECT distinct 'FROM ' + DestinationTableName, 'B Z'
    FROM dm_fdr_dictionarymetadata
    WHERE dictionaryname = 'MemoryDetails'
ORDER BY DestinationColumnName
```

Executing that SQL Statement yields a SQL Command like:

```
CREATE VIEW MemoryDetails (
    CurrentMemorySize
    , MemoryType
    , MemorySizeNeeded
    , Reason
    , REQUISITIONENTRYID, REQUISITIONID, SERVICEID
) AS SELECT
    FIELD1
    , FIELD2
    , FIELD3
    , FIELD4
    , REQUISITIONENTRYID, REQUISITIONID , SERVICEID
FROM DM_FDR_DICTIONARYTABLE_18
```



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