

Analytic Applications

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Preface

Welcome to the Primavera® Analytic Applications guide.

Audience and Assumptions

Documentation for analytic applications assumes the reader is a new user of analytic applications (Portfolio Management and Business Intelligence) but is familiar with the business objects and functionality of Primavera products.

- A Portfolio Management user creates portfolios of resources, projects, or other portfolios, key performance indicators (KPIs), views, and scorecard templates.
- A Business Intelligence user provides insight about your enterprise by sorting, pivoting, and analyzing data.
- A Capacity Planning user provides both near and long-term analysis of project staffing demand and resource supply.
- An administrator of the analytic applications is responsible for maintaining, and troubleshooting Portfolio Management, Business Intelligence, Capacity Planning, and Data Mart.

Sources of Information

This document provides information about the analytic applications, including descriptions of functionality and procedural instructions. The following table lists sources of information regarding the analytic applications:

Source	Location
Online Documentation	Click Help • User Guide in the upper corner of any page to open this Adobe Acrobat file (.PDF). Adobe Acrobat Reader is freely available from Adobe Systems at www.adobe.com .
Primavera's Website	Please visit us at www.primavera.com.

See "Documentation Set" on page 10.

Documentation Conventions

This manual uses the following conventions:

Convention	Meaning
Plain Text	This is the default font of the manual.
Green Text	Indicates a cross-reference to a section containing related information. Online, click the text to navigate to the section.
Blue Text	Indicates text that appears in the graphical user interface, including menu items and field names.
Code	Indicates code as it appears on the screen or as you enter it.
File ▶ Save	Indicates the next level of a menu.
	Indicates an informational note.
E.	Indicates an important warning.
	Indicates a product tip.

Documentation Set

The following documentation is provided with the analytic applications:

Manual	Contents
Data Mart Reference	Reference details that describe the facts, dimensions, and measures that comprise the Primavera Data Mart, including information about loading data from external sources.
Analytic Applications	Provides an overview of Primavera analytic applications including Portfolio Management, Business Intelligence, and Capacity Planning. Also includes information on administering user groups and roles for analytic applications and Data Mart processing.
Portfolio Management	Provides conceptual and procedural information about using Portfolio Management. Also includes information on how Portfolio Management works in the analytic applications environment.
Release Notes	Describes upgrade, resolved defects, and known issues in Portfolio Management, Business Intelligence, and Data Mart.



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Contacting Primavera

You can contact Primavera by mail, telephone, or the World Wide Web:

Primavera 150 Spear Street, 11th Floor San Francisco, CA 94105

World Wide Web:	http://www.primavera.com/support / ps_om_ev_supportprogram.html
Fax:	(415) 229-3999
Telephone:	(415) 229-3700



1. Overview

The analytic applications bring analytical processing capabilities to your Primavera product environment. These applications provide your enterprise with powerful planning, data analysis, and reporting tools to measure project portfolio management (PPM) effectiveness.

This chapter provides an overview of the analytic applications. Topics include:

- Features and Benefits
- System Architecture
- Data Integration



1.1 Features and Benefits

The analytic applications include:

• Portfolio Management (PM)

PM is a strategic planning application that allows service delivery organizations to align their funding decisions and profit planning with corporate strategies and objectives. PM ensures that funding decisions are controlled in a systematic manner. Refer to the *Portfolio Management Guide* for more information.

• Business Intelligence (BI)

BI includes a set of predefined analytics (Budget vs. Actual, Resource Utilization, Project and Pipeline Forecasts, etc.) for measuring the performance of PPM processes.

Leveraging industry-standard analytical utilities such as drill up/down and pivot tables, BI provides decision makers with flexible tools to create and capture multiple data views. Users can create their own custom analytics without programming support.

• Capacity Planning (CP).

Capacity planning is a methodology for accurately modeling resource supply and project demand. It helps enterprise professionals assess current capacity requirements and predict future trends. Primavera provides both a CP report and a CP analytic. With the analytic applications:

- A division manager can forecast upcoming staffing needs on a region-byregion basis. The manager can also use analytics to balance resources across upcoming projects based on metrics collected from completed projects.
- Your enterprise financial support team can view Budget vs. Actual financial information on a project-by-project basis to troubleshoot possible cost overruns in a timely manner, as well as viewing by task type to identify process bottlenecks.
- Project Managers can analyze KPIs from completed projects to help define and improve performance goals for upcoming projects.
- Sales support teams can forecast potential revenue opportunities and provide suggested resource commitments and project timeframes based on detailed profit and margin scenarios.

1.2 System Architecture

This section briefly describes the main components in the analytic applications environment. For details on installing the analytic applications, refer to the *System Administrator Guide*.



1.2.1 Databases

The analytic applications are supported by the following databases:

- Operational Applications Database. This is a relational database that contains data used by the Primavera applications (demand management and resource management).
 - Information stored in this database acts as the source for data that appears in the analytic applications.
 - This database may also include the Primavera Delivery Database that stores delivery data such as financial transactions.
- Data Mart. This is a relational database that contains expanded, denormalized data derived from the Primavera application database. Data are stored in a star schema and acts as a foundation for building OLAP data cubes.
- OLAP Database. This is a multidimensional database that resides in Microsoft Analysis Services. It contains the multidimensional cubes used by the PM and BI applications for rapid data retrieval. Cubes in this database are created during ETL (Extraction, Transformation, and Loading) processing.
- Analytic Applications Database. This is a relational database that contains configuration and user authentication information (roles, login ID, etc.) used by the analytic applications. This database contains the portfolio and KPI definitions, view definitions, and overridden values.
- Alphablox Database. This is a relational database that stores custom analytics you create with BI.

For more information about these databases, refer to the *System Administrator Guide*.

1.2.2 Primavera Application Server

For analytic applications, the Primavera application server supports the following services:

- Analytic Applications service. This service runs the PM and BI applications, including access control and Portfolio Management KPIs.
- Alphablox service. Working in conjunction with the Primavera application server, Alphablox provides interface elements necessary to display and manipulate analytics data. This includes pivot tables, charts, etc.

With the BEA WebLogic Application Server as a foundation, the Analytics Application service includes:

- Web container with a presentation layer for processing the Java Server Pages (JSPs), Servlets, and HTML/XML content that make up the analytic applications interface.
- EJB container with a business layer for processing analytics business logic and a persistence layer for managing database interactions.

Users interact with the analytic applications using a supported browser served by an IIS web server. Primavera supports both HTTP and HTTPS communications between the web browser and the Primavera application server.

In addition to PM, BI and CP, the analytic applications also include an Access Control interface for setting security roles and creating user groups. For more information, see "User Authentication" on page 22.

1.2.3 ETL Data Flow

The following diagram shows the ETL data flow for the analytic applications.



Primavera recommends deploying a replication strategy for the operational applications databases. You can use these replicas as the source for ETL processing, Actuate reporting, and for backup purposes.

• Step 1: Extraction.

During extraction, the ETL processor takes data from a replica of the Primavera operational applications database.

Extraction may cause some performance impact on the operational applications database (as with a database backup operation), but there is minimal impact on end users.

During this step, users can access Primavera applications, including analytic applications.

- Because extraction operates on a database replica, no database tables are locked and no database operations are disabled.
- The extraction process does not interact with the OLAP database.
- Step 2. Transformation and Load

Extracted data are denormalized (broken down to the smallest units and replicated as necessary) by the ETL processor and loaded into the relational data mart database. An example of denormalized data would be annual costs broken down into monthly, weekly, or even daily increments.

This step constitutes the majority of the processing time. There are no performance impacts on applications, but the data mart server is very active. Primavera recommends a dedicated data mart server for companies that support a large community of Primavera users.

During this step:

- Users can access the Primavera applications, including analytic applications.
- Users running reports or other data extractions directly against the data mart database will not have access. The data mart database is locked during data transformation and load.
- Step 3: OLAP Database Refresh.

The ETL processor takes data from the data mart and updates the cubes in the OLAP Database.

There is no performance impact on most Primavera applications (and some impact on the analytic applications).

During this step:

- Users can access most Primavera applications.
- If no new classifications have been added since the previous ETL run, users will be able to access the analytic applications. However, data that appears in analytics reports will not reflect the latest information until the cubes are completely updated.
- If new classifications have been added since the previous ETL run, users will not be able to access the analytic applications until the cubes are completely updated.

1.2.4 User Authentication

Edit User Name: Lhite User enabled: Yes 💌	_			
Roles:	Action		7	
PM Owner	Remove		Add	
PM Contributor	Remove			
PM Creator	Remove			
PM Reviewer	Remove	ct Roles		
Groups: Name Everyone DA Test Charles Group	Action Remove Re	istrator ast Analyst contrautor reator wwer toccess th Anager ublisher eviewer t. Analyst Analyst urce Analyst		=
			Cancel	ОК
Figure 1-4 Ac	cess Control I	nterface		

The analytic applications include an Access Control interface that enables administrators to set access policies for users and groups of users. Features supported by this application include:

- Importing users from the Primavera operational applications
- Managing user groups
- Assigning access roles
- Disabling and reenabling user access

For more information on managing user access, see "Access Control" on page 139.

User access defined for the analytic applications is compatible with other Primavera applications. Analytics users are authenticated by the Primavera application server using single sign on capabilities.



To authenticate users:

- An administrator uses the Access Control interface to import users, set up user groups, and assign security roles for the analytic applications. User access information is stored in the analytic applications database.
- Users are authenticated against the Primavera application server.
- Authenticated users are then granted access to the analytic applications based on the appropriate security roles stored in the analytic applications database.

1.3 Data Integration

In addition to data from Primavera applications, the analytic applications enable you to import project time, expense, and budget data from external data sources and incorporate this information into standard PM processes and BI analytics.



For details on external data sources supported by Primavera, see the *Data Mart Reference* document provided with the Primavera documentation set.

1.3.1 Staging Tables

To enable data import, the analytic applications support the following staging tables to hold data from an external source:

- External Timesheet Data. Used for loading data from a Time tracking system.
- External Expense Sheet Data. Used for loading data from an Expense tracking system.
- External Budget Data. Used for loading data from Budgeting systems.
- External Transaction Actuals Data. Used to load data from Project Accounting systems. Data imported from this table are used with the Budget vs. Actual analytic.

To import external data, users must populate these tables with their external data and then configure the Data Mart ETL processor to transform this data into the OLAP database.

1.3.2 Process Flow

This section provides a high-level overview of how data are imported from an external source.



• The user provides an external command interface to load data into one or more of the staging tables shown above. Only data in these tables can be imported into the analytic applications.

The user must load the correct Primavera object IDs (for example, IDs for projects, resources, and task codes) required by the tables. If Primavera connectors are used to populate the core database, these can be used to load IDs from the external system into Primavera applications and then match IDs based on that data.

• The user then sets properties in the configuration file for Data Mart processing to enable execution of the external command and specify the external staging tables to load.

- During processing, operational data are extracted from the replicated database and loaded into the data mart database. Once loaded, the process calls the external command interface (if enabled) to load data into the designated external staging tables.
- When the external command is complete, the ETL transformation process begins and the operational data and external data are transformed into Data Mart star schema tables.
- After transformation, the OLAP data cubes are updated. These cubes contain the operational data and the data imported from the external data source.

1.3.3 Data Freshness and Sources

Because the analytic applications use data extracted by ETL processing, rather than data in the operational applications databases, data freshness depends on how often the process runs.

Typically, processing runs at frequent intervals to prevent data from being misleading or out-of-date. However, there is a time and resource overhead to running the process.

If you are concerned about performance or data freshness, you can change the frequency of data transfer. For details, see "Modifying the Schedule" on page 184.

Depending on your enterprise business requirements, you may choose to run the ETL process once a day, once a week, or even less frequently. You can also configure the process to run full or incremental updates.



2. Business Intelligence

Business Intelligence is an interactive reporting and analysis tool that measures the effectiveness of your business based on information captured by the core application. Getting answers to questions about your business performance has never been easier.

This chapter describes using BI applications. This chapter includes:

- About Business Intelligence
- Getting Started
- Available Analytics
- Creating Custom Analytics
- Custom Analytics An Example

2.1 About Business Intelligence

Using the Primavera Data Mart as a foundation, BI sources a multidimensional OLAP database that is optimized for analysis and reporting.

Leveraging Microsoft Analysis Services technology and the Alphablox charting and interface tools, BI enables you to interact with analytical reports, analyzing and viewing information in a variety of ways to aid decision making.

You can:

- Use predefined analytics that address many of your analysis requirements.
- Sort, pivot, and drill into data for a detailed view.
- See multiple views of data by adding or removing new dimensions or fields.
- Filter data by selecting specific dimension members.
- Immediately create new, custom analytics views. No programming is required.
- Print results in online or hardcopy format.



All monetary values that appear in BI analytic have been converted into a single reporting currency. For more information, see "Changing Company, Exchange Rate Table, and Currency" on page 188.

2.1.1 Multidimensional Modeling

Multidimensional modeling is a design process used to arrange data into a format commonly known as "cubes." Data arranged in cubes optimizes data access and query performance.

In abstract terms, each side of a multidimensional modeling cube corresponds to a dimension of data. However, unlike a physical cube, multidimensional modeling supports an unlimited number of dimensions.

The business measurements (facts you want to analyze) correspond to the inside of the cube. Each section or slice of the data (that is, the building blocks that make up the cube) correspond to a different view of the data.



For example, a financial performance report on projects might use data on actual revenue, costs, hours, and expenses and compare it to the project budget. Users might want to use this report to help them more accurately budget their projects for the next fiscal year or check to see which projects were more closely aligned with the budget.

Users can evaluate the current mix of projects to see which ones are under or over budget and determine the factors that contribute to the overrun. Users can drill down further to see if a particular project or project management area is over budget, or if the trend spans across an entire region, department, or project type.

2.1.2 Summary of Available Analytics

To help analyze project data, BI includes a set of predefined analytics you can use to perform some of the most common, popular BI tasks. You can use these analytics "as is" or make them a starting point for creating your own custom analytics.

Analytics included with BI are:

- **Budget vs. Actuals.** Compares actual revenue, costs, hours, and material resources with budget amounts and displays the variance. This analytic contains data based on financial periods.
- **Capacity Planning.** Displays project demand or resource supply capacity over a given time period (daily, monthly, or annually).
- **Pipeline Forecasts**. Forecasts future revenue, cost, and margin over a given time period (daily, monthly, quarterly, or annually) for opportunities. This analytic contains data based on calendar or financial periods.
- **Project Commitments**. Shows commitments over a given period of time (daily, monthly, quarterly, or annually) for upcoming projects. This analytic shows committed hours, billable amount, and cost.
- **Project Expense**. Displays expenses by project pool, expense type, or organization unit. This analytic contains data based on calendar or financial periods.
- **Project Financials**. Displays financial attributes of a project, such as planned and actual cost, headcount, material costs, expenses, and percentage of work complete. You can select projects by pool, organization unit, and project manager. This analytic contains summarized data without calendar or financial periods.
- **Project Forecasts**. Forecasts future revenue, cost, and margin over a given period of time (daily, monthly, quarterly, or annually) for projects. This analytic contains data based on calendar or financial periods.

- **Project Status**. Displays projects by status, percent complete, project manager, and pool. This analytic contains summarized data without calendar or financial periods.
- **Project Time Report**. Displays hours, billable revenue, and costs over a given period of time (daily, monthly, quarterly, or annually) for projects. This analytic contains data based on calendar or financial periods.
- **Resource Summary.** Summarizes planned vs. actual resources usage and supporting financial details. You can select resources by name, pool, organization unit, resource type, and manager. This analytic contains data based on calendar or financial periods.
- **Resource Utilization**. Displays details on planned vs. actual utilization of resources. You can select resources by name, pool, organization unit, resource type, and manager. This analytic contains data based on calendar or financial periods.
- Custom Analytic. Displays custom analytics defined for your enterprise. See "Creating Custom Analytics" on page 79.

2.2 Getting Started

2.2.1 Login

To open BI, enter its URL in a supported browser. This URL is case sensitive and follows the format:

http://[HOST]/BusinessIntelligence/BusinessIntelligence

where [HOST] is the name of the computer where the analytic applications web server resides. If your enterprise relies on Secure Socket Layer (SSL) encryption, the protocol, or first part, of the URL must be HTTPS. For example:

https://[HOST]/BusinessIntelligence/BusinessIntelligence

A login page appears. Enter a valid username and password. This is the same username and password you use to login to the Primavera operational applications.



When you launch BI, it appears in a new window. You can close the original window at any time after the Home page appears.

Roles assigned by the administrator for analytic applications determine which analytics are available to you. Each role has a corresponding set of analytics you can access. See "BI Roles" on page 144.

2.2.2 The BI Home Page

After login, the home page displays a list of analytics.



Users who have privileges to access an analytic can open and view all aspects of the analytic, but they cannot grant other users the privileges to view the analytic. Analytics that a user cannot access are dimmed on the home page.

2.2.3 Understanding the Interface

To facilitate interactive spreadsheet modeling, database reporting, and data visualization, the BI interface includes a set of controls that enable you to manipulate data and perform analysis. Analysis actions such as drilling, pivoting, sorting, and selecting are performed using grids and charts, tool bar buttons, and menu options.

Sump to: Project Financials	Edit Custom Analytic Exit	
File Edit View Data Chart Tools H 	Active Planned Revenue/Planned CostPlanned Margir/Assigned Resources 3,743,932.80 2,374,493.20 1,579,945.60 10,027,032.80 552,912.80 1.00	 Command menus Tool bar buttons for viewing and manipulating
EForecasts Project Pool EGG Project Pool 6,000,000 - 5,000,000 - 4,000,000 - 2,000,000 - 2,000,000 -	3,871,643 20 2,813,358.00 1,058,285.20 8.00 1,395,200.00 755,440.00 633,760.00 0.00 170,321.76 446.00 771,464.40 19.00 00 0.00 368,800.00 4.00 0.00 1.00 0.00 3.00	 Data in grid form
1,000,000 Planned Revenue Planned Cost Measures Forecasts Project Pool = GG SK_PartTime Project Pool = TK	Planned Margin Assigned Resources Project Pool GG_BI Project Pool Toject Pool Tony Project Pool	 Data in chart form
Figure 2-3 BI Contro	S	

The following illustration shows controls in the BI window.

2.2.4 Tool Bar Buttons

Button	Description
	Home. Click to return to the BI home page. The home page contains links to BI analytics.
	Alternatively, you can use the Jump to drop down to open an analytic:
	Jump to: Pipeline Forecasts
A	Save As Custom. To create a custom analytic, use BI controls to create a custom view, then click this button to save your changes. A custom analytic can be viewed by anyone who has access to the baseline analytic you used as a starting point to create the custom analytic.
-	Popout. Click to view the analytic in a separate window.
	Copy. Click to copy data from selected cells in a grid.
Undo	Undo.Click to successively undo changes you have made to an analytic. Alternatively, you can select the specific action you want to undo from the Undo drop down.
	Expand ZZ Toor Project Pool
Redo	Redo .Click to successively restore your changes. Alternatively, select the specific action you want to restore from the Redo drop down.
	Redo Redo Expand July Move Measures on Column axis

Button	Description
A	Export to Excel. Available for both grid and chart view. Starts Microsoft Excel and displays the selected data in spreadsheet format. You can then save this data as an Excel file.
đ	Export to PDF. Saves the data in PDF format.
?	?. Opens BI documentation.
Exit	Exit. Closes the BI application.
	Grid View. Displays the data in grid (tabular) form.
۵ű	Chart View. Displays the data in chart form. Use the Chart menu to select one of the following basic chart types:
	3D Bar Chart
	Vertical Bar Chart
	Vertical Line Chart
	Pie Chart
	Choose Chart > Types > More to select additional chart types, including Radar Chart, Waterfall Chart, Pareto Chart, and Dial Chart.
	Page View. Displays a simple, non-layout view of the page.
I +	Layout View. Displays a layout pane for the analytic. Use this view to control the presentation and placement of dimensions in an analytic. See "Changing Data Layouts" on page 80.
The View bu particular vie you can sele includes a gr	attons listed above act as toggles. Click to turn on or off a ew. The View buttons are not mutually exclusive. For example, ct both the Grid View and Chart View to display an analytic that rid and a chart.
The following controls apply to rows and columns you have selected in a grid.

Button	Description		
Drill Down	Drill Down . By default, Drill Down displays the next-lowest level of data in the hierarchy. For example, if data associated with all Business Roles is selected, Drill Down displays data associated with each separate Business Role.		
	You can also use Data Options to control drill down behavior. For more information, see "Setting Data Options" on page 94.		
Drill Up	Drill Up . Displays the next-highest level of data in the hierarchy. For example, if data associated with an individual project is selected, Drill Up displays consolidated data for all projects in the pool.		
сця 1	Member Filter. Displays the Member Filter page. Use the Member Filter to select which dimension members you want to view. You can add, remove, change, and preview every dimension member in your data set. See "Filtering Members" on page 83.		

2.2.5 Menu Commands

This section describes menu commands you can use to manipulate analytics. Some menu commands duplicate functions on the tool bar.

File and Edit Menus

Menu	Command	Description
File	Export to PDF Export to Excel	Use commands on the File menu to export the analytic to PDF or Excel format.
Edit	Undo Redo History	Use commands on the Edit menu to undo or redo changes to your analytic. Select History to choose from a list of previous command to undo.
	Сору	Click to copy data from selected cells in a grid and paste it into other applications.
	Delete	Click to hide one or more selected dimensions.
	Find	Enables you to search for members or data on a grid. Search results are highlighted and (if necessary) the display scrolls to show the result.
		You can use ? (single character) and * (one or more characters) wildcards in the search.
	Select All	Click to select all cells in a grid.

View Menu

Menu	Command	Description
View Toolbar >	Toolbar 🕨	Use Standard , Navigation and Customize to show, hide, or customize toolbars.
	Grid Chart Page Filter Data Layout Popped out	Use these commands to show or hide the grid, chart, page, data layout, or popout versions of the analytic.

Data Menu

Menu	Command	Description
Data	Sort	Sorts data in ascending or descending order. Optionally, you can preserve the member hierarchy when you sort.
	Expand	Expands the dimension hierarchy to display the next level of detail.
	Collapse	Closes the current hierarchy level and returns you to the parent dimension.
	Drill Up	See "Tool Bar Buttons" on page 35.
	Drill Down	Use the Options command on the Data Menu to set the drill level. You can drill to all descendents, leaf members, siblings, etc.
	Expand All	Expands the dimension hierarchy to show all levels of detail.
	Pivot	On a grid, this command moves a dimension heading from the row axis to the column axis or vice versa. This action works only on a single dimension you have selected.
	Show Only	Displays only the dimensions you have selected.
		Note: Show and Hide options are disabled by default. Use Data > Options to enable them.
	Hide	Hides the selected dimensions from view. Use the Unhide All command to redisplay.

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Menu	Command	Description
Data,	Unhide All	Displays all dimensions in the analytic.
cont.	Advanced > Show Bottom Level	Shows all lowest-level dimension members regardless of grouping.
	Advanced > Show Siblings	Shows all members of a dimension at the same hierarchy level.
	Advanced > Set Hidden	Enables you to select which members in rows or columns to hide.
	Advanced > Format Mask	Enables you to create and apply format masks to:
		- selected cells in a grid
		- data displayed in charts
		For example, you can apply format masks to display data in Thousands (K) or to show negative values in red.
		For more information, see See "Using Format Masks" on page 96.
	Advanced ► Merged Headers	Opens the Merged Headers page. You can use this page to combine two data dimensions into one.

Menu	Command	Description		
Data, cont.	Advanced Traffic Lights	Enables you to set custom warning signals (called traffic lights) for out-of- scope results. You can set traffic lights for rows, columns, or selected cells of data. For more information, see " Traffic Lights " on page 89.		
	Swap Axes	On a grid, this command moves all dimension headings on the row axis to the column axis and all dimension headings on the column axis to the row axis.		
	Member Filter	Opens the Member Filter page. See "Filtering Members" on page 83.		
	Options	Use this command to set data options including Drill Down behavior and suppressing zero rows and columns. See "Setting Data Options" on page 94.		

Chart Menu

Menu	Command	Description
Chart	Types	Sets the type of chart that appears when you select the Chart view. Basic chart types include Bar, 3D Bar, Line, and Pie. Choose Chart → Types → More to select additional chart types.
	Axis Placement	Enables you to set where dimensions appear on the chart.
	Data Configuration	Lists data included in the chart.
	Selected Data Only	Charts the cells, rows or columns you have selected in a grid.
	Options	Sets chart options such as chart title, legend location, label orientation, and groupings for small values.
	Trendlines	Adds a trendline to your chart. Trendlines enable you to leverage existing data patterns and extrapolate future results.
		To help you accurately match data values displayed in a chart, trendline choices include:
		Linear
		Polynomial (up to 4th order)
		Exponential
		Power
		Logarithmic
		Moving Average

Tools Menu

Menu	Command	Description
Tools	Grid Options	Sets grid line configuration, row indentation, etc.
	Present Options	Sets chart and grid alignment (vertical or horizontal) and display order (chart first or grid first).
	Manage > Traffic Lights	Sets the order of how traffic lights are applied. Also lets you edit or remove traffic lights. For more information, see "Traffic Lights" on page 89 .
	Manage ▶ Format Masks	Sets the order of how format masks are applied. Also lets you edit or remove format masks. For more information, see "Using Format Masks" on page 96 .

2.3 Available Analytics

This section includes a reference description of each predefined analytic included with BI. It provides:

- Sample illustration
- Summary description of the analytic
- List of user roles that can access the analytic
- Description of the initial, default view
- Notes (if any) about data presented in the analytic
- Dimensions included in the analytic
- Measures provided by the analytic

For a detailed description of OLAP Database dimensions, see the *Primavera Data Mart Reference* included with the Primavera product documentation.

This section describes the following analytics:

- Budget vs. Actuals
- Capacity Planning
- Pipeline Forecasts
- Project Commitments
- Project Expense
- Project Forecasts
- Project Financials
- Project Status
- Project Time Report
- Resource Summary
- Resource Utilization

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2.3.1 Budget vs. Actuals

	Apr_2003	3 🛛	1	May_2003	;	•	
Budget Transaction Type	Calculated Budget Amount	Variance Amount	Calculated Bug	lget Amount	Variance Amount	Budg	
⊟Gross Margin	70,400.00	70,400.00	70,400.00		70,400.00		
Total Revenue	195,320.00	195,320.00	195,320.00		195,320.00		
Labor Revenue	188,320.00	188,320.00	188,320.00		188,320.00		
Labor Time Revenue	188,320.00	188,320.00	188,320.00		188,320.00		
Fixed Schedule Revenue	2						
■Expense Revenue	7,000.00	7,000.00	7,000.00		7,000.00		
Material Revenue			1000	Financial			
Total Cost	124,920.00	124,920.00	124,920	Period	Sep_2003 💌	Measures Budget Amount	
ELabor Cost	117,920.00	117,920.00	117,920	Contraction of the second			
Labor Time Cost	117,920.00	117,920.00	117,920				
Fixed Schedule Cost			2.				
Expense Cost	7,000.00	7,000.00	7,000				
Material Cost							
	4						
			38	%			%
Figure 2-4	Budget vs. A	Actuals A	nalytic				

Description

Compares actual revenue, cost, hours, and material resources with budgeted amounts and displays the difference.

Accessible by users with the following BI roles: Project Analyst, Resource Analyst, Rate Analyst, Administrator.

Displays a summarized view of all projects for the current year and current three financial periods for the current year.

Item	Description
Row Dimension	Gross Margin
	Total Revenue (Labor Revenue, Expense Revenue, Material Revenue)
	Total Cost (Labor Cost, Expense Cost, Material Cost)
Column Dimension	Current three fiscal periods
Measures	Calculated Budget Amount, Posted Amount, Calculated Variance Amount
Page	Not applicable
Filter	Not applicable

Notes

- Only the committed budget data are displayed.
- The summary data can be calculated only if the financial periods of all the projects are the same. The user must ensure data are entered correctly.

Dimensions

Budget Transaction Type. Examples: Labor, Expense, Material.

Financial Period. Examples: June_2003, July_2003.

Task Code (By Company). Examples: Coding, Pre-Sales, Testing, Strategy.

Org Unit (By Name)

Position (By Team)

Project (By Pool and By Client)

Resource (By Pool)

Measure	Description
Calculated Budget Amount	Calculated budget amounts are defined to the project or resource level for:
	- Revenue (Labor, Expense, Material)
	- Costs (Labor, Expense, Material)
	Labor revenue and cost amounts are based on Committed hours
Allocated Budget Amount	High-level summary budget for:
	- Revenue (Labor, Expense, Material)
	- Costs (Labor, Expense, Material)
	Labor revenue and cost amounts are based on Committed hours

Measure	Description	
Allocated Detail Budget	Summary budget (broken down by period) for:	
Amount	- Revenue (Labor, Expense, Material)	
	- Costs (Labor, Expense, Material)	
	Labor revenue and cost amounts are based on Committed hours	
Unposted Amount	Total amount approved for the following:	
	Revenue (Labor, Expense, Material)	
	Costs (Labor, Expense, Material)	
	Labor revenue and labor cost amounts are based on Approved hours.	
	These amounts do not include budget adjustments.	
Posted Amount	Total amount approved for the following:	
	Revenue (Labor, Expense, Material)	
	Costs (Labor, Expense, Material)	
	Labor revenue and labor cost amounts are based on Approved hours.	
	These amounts include budget adjustments. Adjusted entries are necessary to update accounts for items that are not recorded in daily transactions.	

Measure	Description
Variance	Shows the difference between budget and actual amounts. Variances measured include:
	Calculated Variance . Shows the difference between the Calculated Budget and the Posted Amounts.
	Allocated Budget Variance. Shows the difference between the Allocated Budget and the Posted Amounts.
	Allocated Detail Budget Variance. Shows the difference between the Allocated Detailed Budget and the Posted Amounts.
Units	Number of accounting and financial control units associated with an budget or actual. Budget units are a collection of expenditure and revenue accounts necessary to fund a certain organization unit, division, or set of programs.
	Unit measures are available for all budget and actual categories.

2.3.2 Capacity Planning

		2004				Charles and the second
Resource (By Pool)	Total Supply	2004 EUsable Supply	Unusable Sunnly	Total Sur	l ime (By Calendar) 2004 -	
EGG Resource Pool	3 024 00	00	3 024 00	1 165		
Bond, James	1.512.00	.00	1.512.00	584		
White, Lora	1,512.00	.00	1,512.00	584		
EL Resource Pool	78,624.00	8,464.06	68,647.94	30,368	2000-	
Alexis, Chris A.	1,512.00	216.01	1,295.99	584		
Amory, Will A.	1,512.00	.00	1,512.00	584		
Banks, Angel A.	1,512.00	756.00	756.00	584		
Beatty, Mery A.	1,512.00	216.01	1,295.99	584	1,500	
Berner, Mark	1,512.00	216.01	1,295.99	584		
Black Maria	1,512.00	904.00	608.00	584		
Blue Nata	1,512.00	216.01	1,295.99	584		
Blue Sharon	1,512.00	756.00	756.00	584	1,000 -	
					500 Total Supply Usable Supply	
Figure 2-5	i Ca	pacitv P	lanning	Analy		
	•••					

Description

Displays project demand or resource supply capacity over a given time period (daily, monthly, or annually).

Accessible by users with the following BI roles: Forecast Analyst, Administrator

For more information on capacity planning and some examples of using the Capacity Planning analytic, see "Capacity Planning" on page 113.

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A summarized view of resource utilization for the next three calendar months.

Item	Description	
Row Dimension	Project (By Pool)	
Column Dimension	Next three calendar months	
Measures	Demand (Total, Filled, Fillable, Unfillable)	
	Supply (Total, Used, Usable, Unusable)	
Page	Not applicable	
Filter	Not applicable	

Dimensions

Project (By Pool)

Project Pool (By Name)

Opportunity Pool (By Name)

Resource (by Pool)

Resource Pool (By Name)

Client (by Pool)

Client Pool (by Name)

Time (Calendar or Fiscal)

Org Unit (By Name)

Job Title. Examples: Consultant, Analyst, Tech Support, UNIX Admin

Financial Period. Examples: 2004-01, 2004-02, 2004-03

Business Roles. Examples: Manager ► QA Manager, Engineering ► QA Engineer.

Measure	Description
Total Demand	Total position hours for projects.
Filled Demand	Position hours that have resources assigned.
Fillable Demand	Position hours that can be filled with eligible resources (based on the resource/project matching model defined for your site), but do not have resources assigned, yet.
Unfillable Demand	Demand Surplus. Position hours that cannot be filled with eligible resources. Total Demand - Filled Demand - Fillable Demand = Unfillable Demand.
Total Supply	All available resource hours
Used Supply	Resource hours assigned to projects
Usable Supply	Resource hours that could be assigned to projects (based on the resource/project matching model defined for your site), but are not assigned to projects, yet.
Unusable Supply	Supply Surplus. Resource hours that cannot be assigned to projects. Total Supply - Used Supply - Usable Supply = Unusable Supply.

2.3.3 Pipeline Forecasts



Description

Displays future revenue, cost, and margin over a given time period (daily, monthly, quarterly, or annually) for opportunities.

Accessible by users with the following BI roles: Forecast Analyst, Administrator.

A summarized view of all opportunities for the next three calendar months.

Item	Description
Row Dimension	Opportunity (By Pool)
Column Dimension	Next three calendar months
Measures	Win Confidence, Forecast Revenue, Forecast Cost, Profit Margin %
Page	Not applicable
Filter	Not applicable

Dimensions

Opportunity (By Pool)

Time (Calendar or Fiscal)

Opportunity Pool (By Name)

Opportunity Status. Examples: Closed, Open.

Org Unit (By Name)

Final Outcome. Examples: Won, Lost, Undecided, Did Not Pursue.

Engagement Type. Examples: Business Value Proposition, Market Opportunity.

Forecast Flag (Included in Forecast, Not Included in Forecast)

Client (By Pool)

Measure	Description
Win Confidence	Confidence factor entered for the opportunity as a percent value. The win confidence factor is taken into account as a weighting against revenue and cost
Forecast Revenue	This calculation is based on the forecast hours and rates for the opportunity and win confidence
Forecast Cost	This calculation is based on the forecast hours and rates for the opportunity and win confidence
Profit Margin	Forecast Revenue - Forecast Cost = Profit Margin. Profit Margin % = Profit Margin as a percentage of Forecast Revenue.

2.3.4 Project Commitments



Description

Displays commitments over a given period of time for upcoming projects.

Accessible by users with the following BI roles: Rate Analyst, Administrator.

A summarized view of all projects for the next three calendar months.

Item	Description
Row Dimension	Project (By Pool)
Column Dimension	Next three calendar months
Measures	Hours Committed, Billable Amount, Cost Amount
Page	Not applicable
Filter	Not applicable

Dimensions

Project (By Pool)

Time (Calendar or Fiscal)

Business Role. Examples: Manager ► QA Manager, Engineering ► QA Engineer.

Commitment Type. Examples: Assigned, Change Requested, Reserved, Suggested.

Org Unit (By Name)

Position (By Project)

Project Type. Examples: High Priority, Medium Priority, Low Priority.

Resource (By Pool or Org Manager)

Project (By State). Examples: Candidate, Delivery, Pursuit, Scenario.

Project (By Status). Examples: Active, Complete, Prospective.

Project (By Client)

Project (By Org Manager)

Client (By Pool)

Opportunity (By Pool)

Measure	Description
Hours Committed	The committed hours for this position/resource.
Billable Amount	This calculation is based on the committed hours and rates for the project and position.
Cost Amount	This calculation is based on the committed hours and rates for the project and position.

2.3.5 Project Expense

Description

Displays project expenses by project pool, expense type, or organization unit.

Accessible by users with the following BI roles: Project Analyst, Resource Analyst, Rate Analyst, Administrator.

Initial View

A summarized view of all projects for the previous three calendar months.

Item	Description
Row Dimension	Resource (By Pool)
Column Dimension	Previous three calendar months
Measures	Expense amount
Page	Not applicable
Filter	Approved Expense

Notes

This report only shows the amount of the expense attributable to the resource. It does not show the amount reimbursable to the resource. Therefore, expenses paid by the company for a resource will be added in the Resource Amount measure of this report.

Dimensions

Resource (By Pool)

Time Expense Status. Examples: Approved, Non Approved (not reimbursed), Submitted.

Time (Calendar and Fiscal). Based on date the expense was reported.

Expense Types. Examples: Mileage, Airfare, Lodging.

Project (By Pool)

Task Code (By Company). Examples: Coding, Pre-Sales, Strategy, Maintenance.

Billable. Examples: Billable, Non Billable.

Org Unit (By Name). For non-project type expenses.

Measure	Description
Expense Amount	Expense amount as entered by the resource.
Resource Amount	Amount reimbursed to the resource (includes expenses paid by the company for a resource). For details, see "Notes" above.
Expense Unit	Number of units of the expense. This applies to mileage and similar types of expenses. The aggregation of this measurement across a variety of expenses may not be meaningful to analytic users.

2.3.6 Project Forecasts



Description

Forecasts future revenue, cost, and margin over a given period of time for projects.

Accessible by users with the following BI roles: Forecast Analyst, Administrator.

A summarized view of all projects for the next three calendar months.

Item	Description
Row Dimension	Project (By Pool)
Column Dimension	Next three calendar months
Measures	Committed Hours, Potential Hours, Utilization %
Page	Not applicable
Filter	Not applicable

Dimensions

Project (By Pool)

Time (Calendar or Fiscal)

Business Roles. Examples: Manager ► QA Manager, Engineering ► QA Engineer.

Position (By Project)

Project Type. Examples: High Priority, Medium Priority, Low Priority.

Commitment Type. Examples: Assigned, Change Requested, Excluded.

Project (By State). Examples: Candidate, Delivery, Pursuit. Scenario.

Project (By Status). Examples: Active, Complete, Prospective.

Org Unit (By Name)

Client (By Pool)

Opportunity (By Pool)

Measure	Description
Committed Hours	Committed hours for the project.
Potential Hours	Potential hours for the project.
Utilization	Potential Hours - Committed Hours = Utilization. Utilization % = Utilization as a percentage of Potential Hours.

2.3.7 Project Financials



Description

Displays financial attributes of a project, such as planned and actual cost, headcount, material costs, expenses, and percentage of work complete.

Accessible by users with the following BI roles: Project Analyst, Administrator.

A summarized view of all active projects grouped by project pool.

Item	Description
Row Dimension	Project (By Pool)
Column Dimension	All active projects
Measures	Planned Revenue, Planned Cost, Planned Margin, Assigned Resources
Page	Not applicable
Filter	Not applicable

Notes

This analytic contains summarized data without calendar or financial periods.

Dimensions

Project (By Pool)

Project Status. Examples: Active, Complete, Prospective.

Org Unit (By Name)

Billable. Examples: Billable, Non Billable.

Project (By Org Manager or Client)

Project Pool (By Name or Leaf Level)

Project Type. Examples: High Priority, Medium Priority, Low Priority.

Project State. Examples: Candidate, Delivery, Pursuit. Scenario.

Client (By Pool)

Opportunity (By Pool)

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Measure	Description
Planned Revenue	This calculation is based on the planned hours for the project. (project hours x bill rates)
Planned Cost	This calculation is based on the planned hours for the project. [(project hours x cost rates) + material resource cost]
Planned Margin	Planned Revenue - Planned Cost = Planned Margin
Assigned Resources	Count of named resources assigned to the project

2.3.8 Project Status

Description

Displays projects by status, percentage complete, project organization unit manager, locations, and pool.

Accessible by users with the following BI roles: Project Analyst, Administrator.

A view of all active project pools.

Item	Description
Row Dimension	Project (By Pool)
Column Dimension	All active projects
Measures	Percent Complete, Assigned Hours, Unstaffed Hours, Planned Revenue, Planned Cost, Planned Margin, Assigned Resources
Page	Not applicable
Filter	Not applicable

Notes

Rates are based on the value defined for the position's rates. If the position rate has been set to use **Resource Rates** and no resource has been assigned, then the rate is not considered. Therefore the position will have zero planned and cost amounts.

Dimensions

Project (By Pool)

Project Status. Examples: Active, Complete, Prospective.

Org Unit (By Name)

Billable. Billable, Non-Billable

Project (By Org Manager or By Client)

Project Pool (By Name or Leaf Level)

Project Type. Examples: High Priority, Medium Priority, Low Priority.

Project State. Examples: Candidate, Delivery, Pursuit. Scenario.

Client (By Pool)

Opportunity (By Pool)

Measure	Description
Percent Complete	Elapsed time/Total duration of the project.
Assigned Hours	Sum of project hours for which a named resource is assigned to a position.
Unstaffed Hours	Total planned project hours - total hours assigned - total hours reserved for the position = unstaffed hours.
Planned Revenue	This calculation is based on the committed hours for the project and position. (project hours x bill rates)
Planned Cost	This calculation is based on the committed hours for the project and position. [(project hours x cost rates) + material resource cost]
Planned Margin	Planned Revenue - Planned Cost = Planned Margin.
Assigned Resources	Count of named resources assigned to the project.

2.3.9 Project Time Report

Description

Displays hours, billable revenue, and costs for projects.

Accessible by users with the following BI roles: Project Analyst, Resource Analyst, Rate Analyst, Administrator.

Initial View

A summarized view of all projects for the previous three calendar months.

Item	Description
Row Dimension	Resource (By Pool)
Column Dimension	Current and previous two calendar months
Measures	Hours, Billable Amount, Cost Amount
Page	Not applicable
Filter	Approved Time

Dimensions

Resource (By Pool)

Time Expense Status. Examples: Approved, Disapproved, Submitted.

Time (Calendar or Fiscal)

Billable. Examples: Billable, Non Billable.

Position (By Project)

Project (By Pool)

Business Role. Examples: Manager ► QA Manager, Engineering ► QA Engineer.

Task Code (By Company). Examples: Coding, Pre-Sales, Strategy, Maintenance

Org Unit (By Name). For non-project time categories.

Measure	Description
Hours	The hours entered for the position by resources under various states.
Billable Amount	This calculation is based on hours entered for the project and position (unposted amounts).
Cost Amount	This calculation is based on hours entered for the project and position (unposted amounts).
2.3.10 Resource Summary



Description

Summarizes planned and actual utilization of resources and supporting financial details. You can select resources by resource name, resource pool, organization unit, resource type, and manager.

Accessible by users with the following BI roles: Resource Analyst, Rate Analyst, Administrator.

Initial View

A summarized view of resource usage and supporting financial details for the next three calendar months.

Item	Description
Row Dimension	Resource (By Pool)
Column Dimension	Next three calendar months
Measures	Planned Revenue, Planned Cost, Unposted Labor Revenue, Unposted Labor Cost
Page	Not applicable
Filter	Not applicable

Dimensions

Resource (By Pool)

Time (Calendar or Fiscal)

Resource Type (By Company). Examples: Agency Resource, Hourly, Salaried, Hardware, Supplies.

Org Unit (By Name)

Resource (By Org Manager)

Resource Pool (By Name)

Resource Pool (Leaf Level)

Measures

Measure	Description
Planned Revenue	This calculation is based on the committed hours for the resource. Committed hours include shortlisted, reserved, assigned, and excluded hours.
Planned Cost	This calculation is based on the committed hours for the resource.
Unposted Labor Revenue	This calculation is based on revenue from approved hours for the resource (prior to adjustments).
Unposted Labor Cost	This calculation is based on the cost of approved hours for the resource (prior to adjustments).

2.3.11 Resource Utilization



Description

Displays details about planned and actual utilization of resources. You can select resources by resource name, resource pool, organization unit, resource type, and resource organization unit manager.

Accessible by users with the following BI roles: Rate Analyst, Administrator.

Initial View

A summarized view of resource utilization for the next three calendar months.

Item	Description
Row Dimension	Resource (By Pool)
Column Dimension	Next three calendar months.
Measures	Committed Hours, Approved Hours, Planned Utilization, Actual Utilization.
Page	Not applicable.
Filter	Not applicable.

Dimensions

Resource (By Pool)

Time (Calendar or Fiscal)

Resource Type (By Company). Examples: Agency Resource, Hourly, Salaried, Hardware, Supplies.

Org Unit (By Name)

Business Roles. Examples: Manager ► QA Manager, Engineering ► QA Engineer.

Resource (By Org Manager)

Resource Pool (Name or Leaf Level)

Measures

Measure	Description
Committed Hours	The committed hours entered for this resource.
Approved Hours	The approved hours entered for this resource.
Planned Utilization	Based on committed hours for this resource calculated as a percentage of available hours.
Actual Utilization	Based on approved hours for this resource calculated as a percentage of available hours.

2.4 Creating Custom Analytics

This section describes some of the common tasks you might perform to create your own custom analytics. The general procedure for creating custom analytics includes:

- Changing Data Layouts
- Filtering Members
- Traffic Lights
- Setting Data Options
- Using Format Masks
- Saving Your Changes

Each of these tasks is described below. For a start-to-finish example of creating a custom analytic, see "Custom Analytics – An Example" on page 106.

Data shown in the following illustrations is only an example. Data that appears in your enterprise analytics will be different.

When you change an analytic by filtering members, adding traffic lights, format masks, and so on, make sure you save your changes as a custom analytic. Otherwise, these changes will be lost when you exit and restart BI.

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2.4.1 Changing Data Layouts

To change the data layout:

1. Open an analytic.

You can select an analytic from the **Jump to** drop down or click an analytic on the BI home page.

2. Select View > Data Layout or click **I** on the tool bar.

A layout pane appears.

Layout	Row	Resource (By Pool)	■ Planned Revenue Pla
pane with a		EABC Resource Pool	.00
list of	Resource (By Pool)		.00
dimensions	Column	■CAD Resource Pool	42,000.00
annensions		EDeci Resources	.00
available for	Time (Bu Calendar)	EForecasts Resource Pool	.00
the enclutio	Measures	■FullTime Resources	.00
the analytic	Measules	GG Resource Pool	.00
	E Page	EGG_BI Ali Resource Pool	20,160.00
Row.		EGG_BI Resource Pool	53,760.00
Calman		±L Resource Pool	11,625.60
Column,	Contraction Contraction Contraction	EPart lime Resources	00.07.07.0
Page, and		ESK_Resource Pool	179,760.00
Other	Resource Type (By Company) -	ESK_DartTime Resource Bool	.00
Other	Org Unit (By Name) 👤	TTK Resource Pool	.00
categories	Business Roles 📃	#Tom/Resource Pool	00
U	Resource (By Org Manager) 💌	Hinknown	
	Resource Pool (By Name) 💌	EWeekend Resources	.00
	Resource Pool (Leaf Level) -	⊞Wonder Resources	.00
	Time (Bu Eiscal Year)	⊞Z Resource Pool	.00
			.00
			.00
			.00
			•
Figure 2-13	Data Layout Pane		

Use this pane to specify which dimensions appear in the analytic:

- Dimensions listed under the Row category appear as rows in the analytic.
- Dimensions listed under the Column category appear as columns in the analytic.
- The Other category acts as a holding area. Dimensions listed in this category are available for use, but do not appear in the grid or chart. To view these dimensions, move them to rows and columns as desired.
- Dimensions listed under the Page category provide a filter for data that appears in grids and charts. For more information, see "Using the Page Axis" on page 87.

Each dimension in the layout pane includes a drop down with commands that control the layout.

Resource Type (By Company) 💌	Click to display layout
Resource Type (By Company)	commands for the
	dimension.
Move down	
Move to row axis	
Move to column axis	
Move to page axis	
Member Filter	

Commands on this drop down vary depending on whether the dimension is currently located in the row, column, or other category.

	-	-	-	
	-	-	-	
	-	-	-	
	_	_		
16	_	_	-	

3. Select a dimension and change the layout position as desired. Changes you can make include:

Command	Action		
Move to row axis	Adds the dimension to the row axis		
Move to column axis	Adds the dimension to the column axis		
Move to page axis	Adds the dimension to the page axis.		
Move to Other	Removes a dimension from the row or column axis and places it in the Other category.		
Move down/up	Use these commands to reorder dimensions within a category. This impacts the dimension hierarchy that appears in rows and columns. For example, if Org Unit is placed above Time (By Fiscal Year) in the Row category, Org Unit acts as the primary sorting key for the rows and the appropriate Fiscal Years are listed within each Org Unit.		
Member filter	Opens the Member Filter page. Use this page to select which members appear in a dimension. See "Filtering Members" on page 83.		

4. When you have finished making layout changes, click **I** to return to Page View.

2.4.2 Filtering Members

You can use the Member Filter to select the dimension members you want to view in an analytic. You can add, remove, change, and preview every dimension member in your data set. For example, you could change the Time dimension to display data for the entire Year 2003, instead of a few months.

You can add dimension members individually or according to their relationship to each other. You can also select members to remove or reorder, search for members to add, and then preview your selections before returning to the analytic.

To filter members:

1. Open an analytic.

You can select an analytic from the **Jump to** drop down or click an analytic on the BI home page.

- 2. Select the dimension with members you want to filter. You can use either the grid or chart display to select a dimension.
- 3. Select **Data** Member Filter or click 🖁 on the tool bar.

You can also display the Member Filter by selecting a dimension in the Layout View and selecting **Member Filter** from the dimension drop down.



The Member Filter page appears. The left side of the page shows a hierarchy of all possible dimension members. The right side shows members that are currently displayed in the analytic.



Control	Description				
+	Click to navigate the dimension hierarchy.				
Add	Adds a member (or members) you have selected in the dimension hierarchy to the Selected Members list.				
Remove	Removes a member from the Selected Members list.				
Remove All	Clears the Selected Members list by removing all members.				
Ctrl-click Shift-click	Use Shift-click or Ctrl-click to select more than one member at time.				

4. Use the following controls to select the members you want to display.

5. Click Apply.

A preview version of the analytic appears to show the members you have selected.



- 6. Click **Apply** to preview your changes.
- 7. When you have finished filtering members, click **OK** to dismiss the Member Filter page.

2.4.3 Using the Page Axis

Dimensions you place on the page axis act as an additional filter for data that appears in grids and charts. For example, if you move the Business Roles dimension to the page axis and choose Engineering from the Business Roles drop down, only data associated with Engineering roles appears in the grids and charts.

Dimensions moved to the page axis appear at the top of the page. You can include more than one dimension on the page axis.

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2.4.4 Using the Time (Fiscal Year) Dimension

Most analytics include a Time (Fiscal Year) dimension you can use as an alternative to the Time (Calendar Year) dimension.

Fiscal years are divided into 13 fiscal periods (also known as *fiscal months*). With the exception of the final month, each period is exactly four weeks long and contains 28 days – making a total of 364 days. Additional days (beyond 364) are wrapped into the final fiscal period (13th month). This month has 29 days for non-leap years and 30 days for leap years.

To make it compatible with your enterprise's fiscal year, you can configure the starting month and date for the fiscal year. For more information, see **"Modifying the Fiscal Year" on page 191**.



⁸⁸ Analytic Applications

2.4.5 Traffic Lights

You can define and use traffic lights to signal significant data variations in your analytics. Traffic lights are useful for quickly highlighting data values that are outside a specified range.

Adding Traffic Lights

To create a traffic light:

- 1. Open an analytic and display the grid view.
- 2. Select the dimension members you want to monitor.

To monitor a complete column or row, select the column or row heading. You can also select a group of cells within a column or row.

3. Select Advanced > Traffic Lights from the context menu.

A Traffic Light pane appears.

4. Enter a name for the traffic light.

By default the traffic light is named for the data to which it applies, but you can enter you own custom name if desired.

5. Set the trigger conditions for the light.

You can define your own custom conditions or use the Condition Wizard to create a standard, three-range condition.



6. If you create your own conditions, specify the following for each condition:

Item	Description
Values	Enter a condition value and amount. Select one of the following logic operators from the Values menu.
	- Values Between. Specifies a range of numbers. Any value within this range will trigger the condition.
	- Values Equal To. Specifies an exact number. Values that match this number will trigger the condition.
	 Values Greater Than (>). Specifies a minimum number. Values larger than this number will trigger the condition. You can also specify Greater Than or Equal To (>=).
	- Values Less Than (<). Specifies a maximum number. Values less than this number will trigger the condition. You can also specify Less Than or Equal To (<=).
	- Any Value. Any value will trigger the condition.
Description	A brief text description of the condition. This field is optional.
Style	Click Style to set display characteristics for the condition. You can set the foreground and background colors and font. Values that meet the condition specified will appear in the style you define.

Amounts you enter for conditions must be whole or decimal numbers only, no commas or other types of separators are allowed.

7. To add a new condition, click **Add Condition**. You can create as many conditions as desired.

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Be careful when setting condition order. Each data cell is evaluated starting with the first (top-most) condition listed and continuing until a condition is matched. Once a condition is matched, an alert (as appropriate to that condition) is applied to the cell. Additional conditions beyond the first match are ignored for that cell.

- 8. When you've finished creating conditions, click Apply to view the results.
- 9. Click **OK** to save your changes.



Managing Traffic Lights

To manage traffic lights:

1. Choose Tools > Manage > Traffic Lights.

A pane appears with a list of traffic lights defined for the analytic. Use this pane to apply, edit, or remove traffic lights.

2. When you have finished making changes, click **OK**.



2.4.6 Setting Data Options

After you have finished arranging the data layout and filtering members, you may want to use the Data Options page to make additional display changes. For example, sometimes it is easier to read a grid if zero (0) and null values are hidden.

To set Data Options:

1. Open an analytic.

You can select an analytic from the **Jump to** drop down or click an analytic on the BI home page.

2. Select **Data** > **Options**.

The Data Options page appears.



- 3. To hide null values, check the following:
 - Suppress missing rows.
 - Suppress missing columns.
 - Suppress zero rows and columns
- 4. Select additional options as desired.
- 5. Click **Apply** to preview your changes. Then, click **OK** to dismiss the page.

2.4.7 Using Format Masks

You can use format masks to modify data values in grids and charts. For example, you can use a Thousands mask on charts to display data in thousands (000's) or a Euro mask on selected grid cells to include a Euro symbol with monetary amounts.



Applying Format Masks to Charts

To apply a format mask to a chart:

- 1. Open an analytic and display the chart view.
- 2. Select the data you want to mask.
 - You can select a chart axis (for example, X or Y).
 - You can select one or more dimensions or measures.
- 3. Select **Format** from the context menu.
- 4. Select a mask type from the **Mask** menu.



You can select a predefined mask type or choose **Custom** to define your own custom mask. (See "**Creating Custom Masks**" **on page 101** for more information on creating custom masks.)

5. Click Apply.

After a few moments, the chart reappears with the new, masked values.

Applying Format Masks to Grids

To apply format masks to a grid:

- 1. Open an analytic and display the grid view.
- 2. Select the cells that require the format mask. You can:
 - Select one or more cells in a row or column.
 - Select a row or column heading to apply the mask to all data in a dimension.
 - Use Ctrl-click or Shift-click to select multiple cells or multiple headings.
- 3. Choose Advanced > Format Mask from the context menu.

A Format Mask pane appears. Use this pane to create a new format mask.

- 4. To create a format mask:
 - Enter a name for the mask. By default, the mask name describes the data range you have selected (for example, one or more dimension names or a specific cell name).
 - Choose a mask type from the Format type menu. You can choose a predefined type or create a custom mask. See "Creating Custom Masks" on page 101 for more information on creating custom masks.
 - When you select a mask type, the example data in the pane changes to show the mask you selected.
 - Click **Apply**. The mask is applied to the data you selected.

Format masks you create are stored with the selected data. They are not automatically available for other dimensions.

5. If the data you selected already has format masks defined, a pane appears with a list of masks.

Select an existing mask to apply or choose Create a New Mask.

Only masks defined for the currently-selected cells (or dimensions) will appear in this list. Masks defined for other, unselected cells (or dimensions) will not appear.

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Name	Description
Dollar	Applies a dollar symbol (\$) to the data selected.
Euro	Applies a Euro symbol
Integer	Truncates decimal values. For example, 123.54 becomes 123.
Thousands	Displays data in Thousands (OOO's) and adds a K symbol. For example, 2,500 becomes 2.5 K.
Millions	Displays data in Millions (000, 000's) and adds an M symbol. For example, 250,000,000 becomes 250 M.

Table 2-1 Predefined Mask Types

Occasionally, you may have more than one mask applied to data in a grid. For example, a dimension could have a Dollar mask and a Thousands mask. You can set the order of how masks are applied. For more information, see "Managing Format Masks" on page 100.

Managing Format Masks

Use the **Manage** > **Format Masks** command to manage format masks for your site and make global changes. You can edit or delete existing masks and control how masks are applied.



Use caution when making change. Changes you make with the Format Mask pane apply to all analytics defined for your site.

To manage format masks:

- 1. Open an analytic.
- 2. Choose Tools > Manage > Format Masks.

A pane appears with a list of all format masks.

- 3. Select a mask and choose one of the following:
 - Edit. Click to make changes to an existing mask. Changes you make apply to all cells that use this mask.
 - **Delete**. Click to delete a mask. When you delete a mask, cell data is restored to the values that appeared before the mask was applied.
 - Move Up or Move Down. Use these buttons to set the order in which masks are applied (starting with the top of the list) to cells that have more than one mask. For example, you might want to apply a mask that rounds values to two decimal points before (or after) applying a currency mask.
- When you have finished making changes, click **OK**.

Creating Custom Masks

When you create custom masks, Primavera recommends copying an existing mask definition, then making changes as desired.



To create a custom format mask:

- 1. Open an analytic.
- 2. Select the data you want to mask.
- 3. Select Advanced > Format from the context menu.
- 4. When the Format Mask pane appears, choose Format Type > Custom.
- 5. Enter a new mask definition. You can toggle through the existing formats to see the types of symbols and building blocks that can be used in a mask.

The following are some common symbols you can use in format masks:

- 0 (required digit)
- # (optional digit)
- \$ (adds a dollar symbol)
- '%' (adds a percent symbol)
- 6. Click **Apply** to preview the mask you created.
- 7. Make changes as desired, then click **OK** to save the new format.



When you create custom format masks, you might create a mask that results in no data displayed. Make sure you check the example first before applying the mask.

2.4.8 Saving Your Changes

When you have finished making changes to customize the analytic, save your new layout view as a custom analytic.

To save your changes:

In an analytic you have customized, click at the top of the page.
 The Save as Custom page appears

Save Custom Analytic Name: Region1Projects	
Description:(Optional) Project Financials for Region 1 (Status = AII)	
Figure 2-26 Saving a Custom Analytic	

2. Enter a name and description for the new analytic you created.

The Save as Custom page appears.

3. Click **OK**.

You can now open the analytic by clicking the **Custom Analytic** link on the BI home page or by selecting **Custom Analytics** from the **Jump to** drop down.

	Welcor	ne to Business Inte	lligence		
Click to show custom analytics defined for your enterprise.		Custom Analytic Displays custom analytics defined for your enterprise		Project Status Displays projects b project manager, ai	
	ß	Project Financials Displays financial attributes of projects, su planned and actual cost, headcount, mate costs, expenses, and % work complete. Y can select projects by pool, organization u and project manager.	ch as rial pu nit,	Resource Utiliza Displays actual utili select resources by pool, organization resource manager.	
Select a custom — analytic and click OK .		Select a Custom Analytic Pipeline custom PPD GG Project Finacial custom PPDUECTFORECAST Resource summary custom RS_GG_Chart v	Region 1 Projects	1 (Status = All)	
			Cancel	ок	
Figure 2-27 Selecting a Custom Analytic					

2.4.9 Deleting Custom Analytics

To delete a custom analytic:

1. Click Edit Custom Analytics at the top of the BI page.

A page appears with a list of custom analytics. Only the custom analytics your BI role allows you to access appear in this list.



- 2. Click **Delete** next to the analytic you want to delete.
- 3. When you have finished deleting analytics, click the close box at the top of the page.

You can delete custom analytics, but not the default analytics shipped with BI.

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2.5 Custom Analytics – An Example

This section contains a simple, start-to-finish example of creating a custom analytic. You can use it as a model for creating your own custom analytics.

This example shows how to modify the Project Financials analytic to include additional project dimensions, highlight a few key project pools, save your changes as a new analytic, and create a PDF snapshot.

To create the analytic:

1. Click **Project Financials** on the BI home page.

The Project Financials analytic appears. This analytic shows planned revenue and costs for all active project pools over the next three months.



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- 2. Change the grid orientation by rearranging the information in rows and columns.
 - Click **III** on the tool bar. A layout version of the analytic appears.
 - Open the **Measures** drop down and select **Move to Row Axis**. The analytic measures (Planned Revenue, etc.) change from columns to rows.

		Active		
Row	Project (By Pool)	Planned Revenue Planned Cost Planne	ed Margin Assigned Resou	rces
	ABC Project Pool	4,009,600.00 2,481,636.00 1,52	7,964.00	9.00
Project (By Pool)				
Column	ECAD Project Pool	1,579,945.60 1,027,032.80 55	52,912.80	1.00
Column		1,495,872.00 1,201,765.20 29	4,106.80	3.00
Project Status	■GG Project Pool	1,396,400.00 755,920.00 64	0,480.00	3.00
	■GG BI Proiect Pool	1.054.791.97 609.491.98 44	5.299.99 1	0.00
Measures _	E	Project (By Pool)	Measures	Active
Measures	Enow		Planned Revenue	4,009,600.00
Move up	Project (Ru Peol)	FIABC Project Pool	Planned Cost	2,481,636.00
Move to row axis			Planned Margin	1,527,964.00
Move to page axis	Measures		Assigned Resources	9.00
Move to other Member Filter	Column		Planned Revenue	
	Coldina	EAC Projects	Planned Cost	
Billable Proje	Project Status		Planned Margin	
	The for status		Assigned Resources	
	Page		Planned Revenue	1,579,945.60
		ECAD Project Pool	Planned Cost	1,027,032.80
	_		Planned Margin	552,912.80
	C Other		Assigned Resources	1.00
			Planned Revenue	1,495,872.00
	Urg Unit (By Name)	■Forecasts Project Pool	Dianned Cost	1,201,765.20
	Billable		Planneu Wargin Accianed Recourses	294,100.00
	Project (By Org Manager) 💌		Assigned Resources	1 206 400 00
-				
auro 2-30	Moving Mossure	e to Rowe		
yuie 2-30	woving weasure	5 10 1 10 115		

- 3. Change the analytic to include information about all projects (not just Active ones).
 - Select **Project Status** Member Filter. The Member Filter appears.
 - In the dimension hierarchy, open the All Project Status folder and select Active, Complete, and Prospective.
 - Click Add to include these project status types in the Selected Members list.
 - Click **Apply** to preview your change. Then click **OK** to exit the Member Filter.

Member Filter Web Page Dialog	Add >> << Remove << Remove All Advanced	re re pplete spective		×	
Find	MO	ve up Move Do	wn		_
	CAD Project Pool CAD Project Pool CForecasts Project Pool	Planned Revenue Planned Revenue Planned Margin Assigned Resources Planned Revenue Planned Cost Planned Resources Planned Cost Planned Cost Planned Resources Planned Cost Planned Cost Planned Cost Planned Cost Planned Cost Planned Cost	4,009,600.00 2,481,636.00 1,527,964.00 9,00 1,579,945.60 1,027,032.80 552,912.80 1,027,032.80 1,027,032.80 1,027,032.80 2,912,80 1,201,765.20 2,94,106.80	6,000.002,286,789.60, 3,000.001,605,834.40, 0,000,001,605,834.40, 0,000,000,000,000,000,000,000,000,00	<u> </u>
		Assigned Resources Planned Revenue	1,396,400.00	42,240.00	
Figure 2-31 Including	Active, Com	plete, and	Prospe	ective Projec	sts
- 4. To emphasize a few important projects, reduce the number of project pools that appear in the analytic.
 - Select **Member Filter** from the **Project Pool** drop down. The Member Filter appears.
 - Click **Remove All**. This removes all project pools from the **Selected Members** list.
 - In the dimension hierarchy, select a few of the project pools you want to highlight.
 - Click Add to move these project pools to the Selected Members list.
 - Click Apply to preview your changes. Then click OK to exit the Member Filter.

✓ Member Filter Web Page Dialog ✓ Member Filter Web Page Dialog ✓ Derivet Project Pool ⊕ AC Project Pool ⊕ AC Project Pool ⊕ AC Project Pool ⊕ Groecasts Project Pool ⊕ SK_Project Pool ↓ Find OK Cancel Apply	
Figure 2-32 Emphasizing a Few Project Pools	

- 5. For additional visual impact, change the analytic to show the grid positioned above the chart.
 - Click **III** to toggle back to page view.
 - Make sure i and are selected to show both the grid and chart.
 - Select **Tools Present Options**. The Present Options page appears.
 - Select Chart and Grid Orientation > Stacked. Then click Apply to preview your changes.
 - If necessary, drag the pane slider bar up or down to see both the grid and chart in the data pane.



6. Save your changes as a custom analytic.

This enables you to view data in this format without having to recreate your changes each time you open the analytic.



• Name the analytic, **MyProjects**, and add a brief description. The description is optional.

Save Custom Analytic					
Name: MyProject					
Description:(Optional) A custom analytic that shows all project status for my projects.					
Cancel					
Figure 2-34 Saving a Custom Analytic					

- 7. Create a PDF snapshot of the analytic. Snapshots are useful for sharing information with users who do not have access to BI.
 - Select Custom Analytic from the Jump to drop down.
 - When a list of custom analytics appears, select MyProjects.
 - Click Then, select PDF options as desired.

A PDF version of the analytic is saved to the location you specify. You can distribute this version to others as desired.



3. Capacity Planning

A company's ability to predict gaps between project staffing needs and resources is key to corporate success. Corporations that can accurately identify and address mismatches between resource supply and project demand have a strategic advantage in the market place.

Capacity planning is a methodology for accurately modeling resource supply and project demand. It helps enterprise professionals assess current capacity requirements and predict future trends.

This chapter describes how to use capacity planning. Topics include:

- About Capacity Planning
- How Capacity Planning is Calculated An Example
- The Capacity Planning Report
- Using the Capacity Planning Analytic
- Changing the Matching Model

To meet your capacity planning needs, Primavera provides two levels of support:

- CP Report. Included with the Primavera operational applications, the CP report enables group, program, resource, and project managers and other users to get a a quick summary of potential gaps or surpluses associated with project demands and resource supplies.
- CP Analytic. Included with BI, the CP analytic enables financial managers and other business analysts to perform detailed capacity planning analysis based on a variety of data dimensions they choose in order to understand and address potential gaps.



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3.1 About Capacity Planning

Capacity planning helps business managers answer the following questions:

- Are there project positions to fill where no eligible resources are available?
- Do I have resources where no eligible positions are available?
- Am I assigning resources to project positions quickly enough?

Leveraging information defined in Primavera operational applications, Capacity Planning provides you with answers to these questions. You can view capacity in terms of *demand* or *supply*. Demand is captured through position definitions and supply is captured through resource profiles.

By determining the eligibility of a given resource to fulfill a given position definition, Capacity Planning attempts to reconcile position definitions with resource profiles and alerts you to any potential gaps or surpluses.

3.1.1 Access Control for Capacity Planning

Users who have permission to view reports in Primavera operational applications have permission to run capacity planning. Project and resource data visible in the report is compatible with the user's permissions in the operational applications. For example, if a user can view Project Pools A and B, but not C, the user cannot run a report that includes results for Project Pool C.

Users who have the Forecast Analyst role assigned in BI can use the CP analytic. In this case, enterprise-wide project and resource data is available for analysis.

System administrators or IT programmers can customize report parameters and redefine project to resource matching criteria. They can also set how often capacity planning information is updated. For more information, see "Changing the Matching Model" on page 135.

3.1.2 Data Processing for Capacity Planning

Both the CP report **and** the CP analytic gather information from Data Mart instead of from the operational databases. Therefore, you must have Data Mart installed to use capacity planning.

The capacity planning analytic requires multi-dimensional OLAP cubes. To create the OLAP cubes, Primavera provides a capacity planning job that runs as a separate, post-processing job to the standard ETL processing for Data Mart. This job extracts capacity planning data separately from other analytic data and creates the appropriate OLAP cubes. For the analytic, matching keys are set using parameters in the data mart properties file. System Administrators can change properties as desired.

Because of processing time and the longer-term nature of the information. Primavera recommends you only process capacity planning information once per week.

The process flow for creating OLAP cubes includes:

- 1. Define projects and resources in the operational applications. Use Team Builder to define project-to-resource matching criteria. Capacity planning uses the global default settings only (not local user settings).
- 2. Set matching model criteria in the data mart properties file. For more information, see **"Data Mart Properties" on page 136**.
- 3. Run the Data Mart ETL process to extract data from the Primavera operational applications database.
- 4. Run the capacity planning post-processor to add capacity planning data to the data mart and build the appropriate OLAP cubes.

3.1.3 Comparison of CP Report and CP Analytic

Depending on access permissions, users have the option of using a report or an analytic for capacity planning. This section describes some of the features and benefits of each.

Benefits of the CP report include:

- The report is best suited for quick-look use. It provides a reasonable, contained view into the future (approximately 6 months).
- The report is are broken down by the *same* dimensions as the pre-set matching criteria (Job Title and Location). The report can be customized, but only two dimensions are allowed.
- Users specify demand by selecting one or more projects or project pools. They specify supply by selecting one or more resource pools.
- The report provides simple comparisons with no ability to drill-down. It highlights major inconsistencies between scheduled work and resource availability, but not detailed capacity nuances.
- The report can be run periodically and used as part of an organization's standard business process, or ad hoc to address specific problems.

Benefits of the CP analytic include:

- The analytic has more flexibility than the report. Analysis is done on the dimensions that are *not* part of the matching criteria. For example, a user could match resources to positions based on Skills and analyze supply and demand based on Services.
- The analytic provides a long-term planning tool. Business analysts can use this tool to determine future business patterns.

3.2 How Capacity Planning is Calculated – An Example

The following is a simple example to illustrate the basic computational methodology used to provide capacity planning results. You can use this example as a foundation for understanding your own capacity planning results.



Important!

For simplicity, this example uses a simple true/false model to match resources to positions. In the actual CP application, the matching model can be based on a much more detailed set of criteria, including match thresholds, factor weighting, and qualification weighting.

Also, this example shows computations for only a few resources and a few positions. In the actual CP application, large collections of resource pools and projects or project pools can be included.

3.2.1 Computational Passes

Capacity planning is based on two major computational passes:

Allocation of Resource Hours to Meet Demand

In this pass, the system levels resources across each position. See below for details. Because this pass maximizes the allocation of resource hours, resources that are eligible for multiple positions may be over allocated.

• Allocation of Position Hours to Meet Supply.

In this pass, all available position hours are leveled across resources. See below for details. Because this pass maximizes the filling of position hours, positions that have multiple eligible resources may be over filled.

Capacity planning then reconciles and displays the results of each pass and flags discrepancies between the two.

3.2.2 Example Scenario

In this example, there are two positions (Position 1 and Position 2) and three resources (Resource A, Resource B, and Resource C).

Position Demand Hours

		Position 1	Position 2
Resource Supply Hours		60	10
Resource A	40	Yes	Yes
Resource B	20	Yes	No
Resource C	30	No	Yes

Demand hours:

- Position 1 has 60 hours of demand.
- Position 2 has 10 hours of demand.

Supply hours:

- Resource A has 40 hours of supply.
- Resource B has 20 hours of supply.
- Resource C has 10 hours of supply.

Eligibility:

- Resource A is eligible for both Position 1 and Position 2.
- Resource B is eligible for Position 1, but not Position 2.
- Resource C is eligible for Position 2, but not Position 1.

3.2.3 First Pass: Allocation of Resource Hours to Meet Demand

In the first pass, the system levels the resources across each position. Essentially, the available individual resource hours are prorated to the available hours from all resources against the demand. The goal of this is to maximize the meeting of demand.

The results shown are based on the following formula:

RH / ARH * PH

where:

RH = Available hours available for the resource

ARH = Available hours for all resources matching the position

PH = position hours

This gives an allocation of resource hours to positions attempting to meet all demand. For simplicity, rounding done to tenths and done to keep totals matching in the example.

Results of the First Pass

For Position 1:

- Resource A working on Position 1 = 40 / (40 + 20) * 60 = 40
- Resource B working on Position 1 = 20 / (40 + 20) * 60 = 20

For Position 2:

- Resource A working on Position 2 = 40 / (40 + 30) * 10 = 5.7
- Resource C working on Position 2 = 30 / (40 + 30) * 10 = 4.3

		Position Demand Hours			
Resource Supply Hours		Position 1	Position 2		
Resource Sup	oply Hours	60	10		
Resource A	40	40	5.7		
Resource B	20	20	0		
Resource C	30	0	4.3		

In this pass:

- Position 2 can be filled by either Resource A or C. Resource A has 40 available hours and Resource C has 30 available position hours (approximately, a 4:3 ratio).
- Using the RH / ARH * PH formula, all 10 hours of Position 2 are filled using this 4:3 ratio. The result is 5.7 hours from Resource A and 4.3 hours from Resource B.
- A similar computation was done for Position 1 using a 2:1 ratio (40 available hours from Resource A and 20 available hours from Resource B).
- Notice that this allocation results in Resource A being over allocated (Position 1 = 40 hours + Position 2 = 5.7 hours. Total = 45.7 hours). This is reconciled in the summary table. See "Summary Table" on page 124.

3.2.4 Second Pass: Allocation of Position Hours to Meet Supply

Next, the system levels the positions across resources. The resources' available hours are prorated for each individual position demand hours against the demand hours of all the possible positions the resource can fill. The goal is to maximize the allocation of supply.

The results shown are based on the following formula:

PH / TDH * RH

where:

PH = Demand hours of the individual position

TDH = Total demand hours of all positions the resource can fill

RH = Resource's available hours

This gives an allocation of demand hours to resource availability hours attempting to maximize utilization of the supply. For simplicity, rounding is done to tenths and to keep totals matching in this example.

Results of the Second Pass

For Resource A:

- Position 1 is being satisfied by Resource $A = \frac{60}{60 + 10} * 40 = 34.3$
- Position 2 is being satisfied by Resource A = 10/(60 + 10) * 40 = 5.7

For Resource B and C which each only have one position:

- Position 1 is being satisfied by Resource B = 20/20*20 = 20
- Position 2 is being satisfied by Resource $C = 10/10^* 30 = 30$

		Position Demand Hours			
		Position 1	Position 2		
Resource Sup	oply Hours	60	10		
Resource A	40	34.3	5.7		
Resource B	20	20	0		
Resource C	30	0	30		

In this pass:

- Resource A can fill either Position 1 or Position 2. Position 1 has 60 hours and Position 2 has 10 hours (a 6:1 ratio).
- Using the PH/TDH*RH formula, all 40 hours of Resource A are supplied using this 6:1 ratio. This results in 34.3 hours supplied to Position 1 and 5.7 hours supplied to Position 2.
- Resource B can only fill Position 1. Therefore, supply hours from Resource B do not have to be proportionately allocated across positions. Instead, all supply hours from Resource B are supplied to Position 1 (20 hours).
- Similarly, Resource C can only fill Position 2, therefore, all supply hours from Resource C are supplied to Position 2 (30 hours).
- Notice that this allocation results in Position 2 being oversupplied (Resource A = 5.7 hours + Resource C = 30 hours. Total = 35.7 hours). This is reconciled in the Summary table. See "Summary Table" on page 124.

3.2.5 Summary Table

This table shows each row with both calculated values. The first value is the allocation of hours attempting to meet demand. The second value is the allocation attempt to use all supply.

Position Demand Hours

		Position 1	Position 2
Resource Su	oply Hours	60	10
Resource A	40	40 / 34.3	5.7 / 5.7
Resource B	20	20 / 20	0 / 0
Resource C	30	0 / 0	4.3 / 30

Where the two calculations closely match, a high degree of confidence about the allocation is presumed. However, results like Resource C's allocation to Position 2 indicate a problem.

In a production environment, the actual matching criteria for your enterprise is taken into consideration. When this matching criteria is combined with calculations spread across a large numbers of resources and positions, statistical accuracy is leveraged and the result is a useful tool for CP planning and analysis.

3.3 The Capacity Planning Report

In the capacity planning report, you define the scope for the demand (one or more projects or project pools) and the scope of the supply (resource pools).

You can generate a capacity planning report to view supply or demand. A supply report shows capacity planning results in terms of which resources can be used. A demand report shows capacity planning results in terms of which positions can be filled.

The CP report includes a summary graph to illustrate the results and a detail page with numeric data.

3.3.1 Creating a Capacity Planning Report

To create a capacity planning report:

1. Login to the Primavera application.

To open the application, enter its URL in a supported browser. This URL is case sensitive and follows the format:

```
http://[HOST]/primavera/web
```

where [HOST] is the name of the computer where the analytic applications web server resides. If your enterprise relies on Secure Socket Layer (SSL) encryption, the protocol, or first part, of the URL must be HTTPS. For example:

https://[HOST]/primavera/web

- 2. When a login page displays, enter a valid username and password.
- 3. On the main menu, select Capacity Planning.

A list of report parameters appears.

Project Pools/Projects:	O Project Pools C Projects	
Project Pools: *	🔎 🛛 L Project Pool	
Resource Pools: *	🔎 🛛 L Resource Pool	
Include Inactivity Commitments:	Firm Only	
View Parameters		
Analyze Capacity	O Demand	
Planning for:	C supply	
Show Time Intervals as:	O Calendar	
	O Fiscal Period	
	⊙ Sub-Period	

Name	Description
Selection Parameters	
Project Pools/Projects	Specifies whether the report will include Projects or Project Pools .
Project Pools	Project pools to include in the report.
Resource Scope	Resource pools to include in the report.
Inactivity Commitments	Controls how non-project resource hours are reported.
	All . The report includes resource hours for tentative and firm non-project assignments.
	Firm Only . The report includes resource hours for firm (but not tentative) non-project assignments.
	None . Only project related resource hours are included in the report.
View Parameters	
Analyze for Demand	Creates a supply or demand report based on your
Analyze for Supply	selections. A demand report shows capacity planning results in terms of how project hours can be filled. A supply report shows capacity planning results in terms of how resource hours can be used. See below for details.

4. Select the information you want to include in the report. Parameters include:

Name	Description
Time Intervals	Time intervals for report results. The report displays approximately six months of data.
	Calendar. Results displayed in months.
	Fiscal Period . Results displayed in fiscal periods (for example, 2004-01, 2004-02).
	Sub Period. Results displayed in sub-periods.

3.3.2 Demand Report



A demand report shows capacity planning issues in terms of project hour requirements. The first page of the report shows a summary chart with the critical gap information included. Additional report pages show a detailed table of report data sorted by job title and location.

Column	Description
Total Demand	All known position hours for projects included in the report.
Filled Demand	Of the total demand, the number of position hours that already have resource hours assigned to them.
	Position hours that do not have any resource hours assigned are considered unfilled demand.
	Total Demand - Filled Demand = Unfilled Demand.
Filled Demand Ratio	Filled demand as a percentage of total demand.
Fillable Demand	Of the unfilled demand, some position hours have resource hours that are eligible to fill the demand (based on matching criteria), but haven't been assigned, yet. These position hours are called fillable demand.
Fillable Demand Ratio	Fillable demand as a percentage of total demand.
Unfillable Demand	Of the unfilled demand, the remaining position hours that do not have eligible resource hours are called unfillable demand.
	Unfilled Demand - Fillable Demand = Unfillable Demand.
Unfillable Demand Ratio	Unfillable demand as a percentage of total demand.
Report calculations show Demand = Total Demand	Unfillable Demand + Fillable Demand + Filled

Information in a demand report includes:



The results for unfillable demand are important because they indicate that you need to contract, hire, or train resources to meet this demand.

In addition to unfillable demand results, a demand report is useful for making sure project assignments are being made on a timely basis. A project that has only 50% of the resource hours assigned, might be okay if the project start date is more than a few months out, but signals a problem if the start date is nearing.

avBar	First	Prev	Next	Last	Goto	Page	3 of 3	100%	 Search 	Download	l/Print	
June												
Kirov		á v a land	•			0	176		0	176	100.00%	0.00%
		Consult	ant			0	176		ů O	176	100.00%	0.00%
		Dev En	igineer			176	176		0	352	50.00%	0.00%
		QA Eng	gineer			0	352		176	528	100.00%	33.33%
		Enginee	ering Mar	1age1		0	176		0	176	100.00%	0.00%
		QA Ma	nager			176	176		0	352	50.00%	0.00%
ocation	Totals:					352	1232		176	1760	80.00%	10.00%
Parame	eters											
View	Param	eters					Selection	Paramet	ters			
Inclu Perie	de Inaci	tivity Co	mmitme	ents:	Firm Only Sub Period		Project Pr	ools:	L Project Pool			
Anat	yze (Suj	, pply/Den	nand):		Demand		Resource	Pools:	L Resource Poo	1		

The end of the report lists the parameters you selected to create the report.

3.3.3 Supply Report

A supply report shows capacity planning issues in terms of how resource hours can be used. The first page of the report shows a summary chart with the critical surplus information included. Additional report pages show a detailed table of report data sorted by job title and location.

Column	Description
Total Supply	All known resource hours for resources included in the report.
Used Supply	Of the total supply, the resource hours that are already committed.
	Resource hours that are not committed are considered unused supply.
	Total Supply - Used Supply = Unused Supply.
Used Supply Ratio	Used supply as a percentage of total supply.
Usable Supply	Of the unused supply, some resource hours have corresponding position hours that they would be eligible to fill (based on the matching criteria), but haven't been committed, yet. These resource hours are called Usable Supply.

Information in a supply report includes:

Column	Description	
Usable Supply Ratio	Usable supply as a percentage of total supply.	
Unusable Supply	Of the unused supply, the remaining resource hours do not have position hours they are eligible to fill. These resource hours are called Unusable Supply. Unused Supply - Usable Supply = Unusable Supply.	
Unusable Supply Ratio	Unusable supply as a percentage of total supply.	
Report calculations show Unusable Supply + Usable Supply + Used Supply = Total Supply.		

The results for unusable supply are important because they indicate you do not have position hours to assign to these resources.

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3.4 Using the Capacity Planning Analytic

The CP analytic provides enterprise-wide analysis of supply and demand futures. The system calculates the probability of a resource to fill open positions. The table of probabilities between each resource and open positions is used to calculate weighted average for gaps on both resources and positions.

With the CP analytic, you can compare multiple dimensions as desired and perform "what if" planning scenarios.



As part of the standard BI analytic application, the CP analytic includes all associated BI features such as member and data filtering, rearranging rows and columns, changing presentation layouts, saving to Excel or PDF, and so on.

For a list of dimensions and measures, see "Capacity Planning" on page 51.

3.5 Changing the Matching Model

Capacity planning results are based on the matching criteria configured for your enterprise. This criteria determines the likelihood of a given resource to fulfill a given position definition. System administrators can modify this criteria to be as strict or as liberal as desired.

3.5.1 Team Builder Settings

The criteria used to match resource hours to position hours is based on values entered in Primavera operational applications. The capacity planning leverages information from the following sources:

- Default system options for team builder determine the project-to-resource matching criteria.
- Available project and resource hours are determined by work week and holiday schedule definitions.
- Existing resource-to-project assignments are included in the calculations.

System administrators can change this criteria to meet the specific needs of your enterprise. To maintain consistency across projects, only the global default values are used for capacity planning. See the *Configuration Guide* for more information on setting team builder options.

System options for team builder include:

- **Match Threshold**. Determines the minimum match percentage required to return a resource match. Raise the threshold to reduce the number of matches returned.
- **Factor Weighting**. Determines the relative weight of availability, job, and qualifications when determining suitability.
- **Qualification Type Weighting**. Determines the relative weight of education, certifications, and skills when determining suitability.

If the qualification suitability score is less than the threshold, a value of zero (0) is used. Otherwise, the actual score (divided by 100) is used. For example, 65%.

3.5.2 Data Mart Properties

For the CP analytic, you can set key matching criteria in the Data Mart properties file. You can also set limits on the number of matches created for resources and positions.

Key Matching

To configure Data Mart for key matching, system administrators can change the following property in the datamart.properties file:

```
primavera.datamart.capacityplanning.model=LOCATION;
RESOURCEPOOLS;JOB_TITLE
```

Keys you can match include:

Syntax	Description
LOCATION	Financial Location
RESOURCEPOOLS	Resource Pools
DOMAIN	Domain
QUALIFICATION	Qualification
ORG_UNIT	Org Unit
JOB_TITLE	Job Title
CLASSIFICATION_ <name></name>	Classification

If both the Resource Pools and Domain keys are set, Resource Pools will be used instead of Domains.

When specifying a classification in the capacity planning model, <NAME> must be with the exact value (including spaces) substituted exactly as defined in its primavera.datamart.classification.name.nn parameter.

For example, if you had:

```
primavera.datamart.classification.name.1 = "Abc*Def"
```

Then, the capacity planning model entry is:

CLASSIFICATION_"Abc*Def"

Classifications can only be used if available both on resources and positions.

Capacity Planning only attempts to allocate demand or supply for a reasonable number of positions or resources. By default, this number is set to 10.

If desired, you can add the following properties to override this default.

Maximum Positions Per Resource

```
primavera.datamart.ev_populate_supply_fact.max_
resources_per_position
```

This property sets the maximum number of resources that can match a single position. For example,

```
primavera.datamart.ev_populate_supply_fact.max_
resources per position = 5
```

In this example, capacity planning ignores supply allocation for positions with more than five suitable resources. The position will appear as unfillable in the analytic.

Maximum Resources Per Position

```
primavera.datamart.ev_populate_supply_fact.max_
positions_per_resource
```

This property sets the maximum number of positions that can match a single resource. For example:

```
primavera.datamart.ev_populate_supply_fact.max_positions
_per_resource = 5
```

In this example, capacity planning ignores demand allocation for resources with more than five suitable positions. The resource will appear as unusable in the analytic.

Processing and Performance Issues

For performance reasons, Primavera recommends you keep the max_positions_per_resource and max_resources_per_positon properties set to 10 or less. Otherwise, ETL processing may take a long time to complete.

However, if your matching criteria produces a large number of matches for each position or resource, settings of less than 10 may cause an incorrect number of Unusable Supply and Unfillable Demand results to appear.

If the projects-to-resource or resources-to-project maximum is reached, a warning message is issued at the end of ETL processing. Check the Data Mart log file for this message. For example:

```
Data Mart processing for capacity planning has finished successfully with the following warning: 23 Positions were excluded from calculations....
```

The example above only shows the first few lines in the message. The complete message will mention the location of a script.

To fix this warning, you can:

- Run the script mentioned in the message to determine which positions or resources were ignored. The script provides details about each position or resource.
- Increase the maximum values set for the properties. Higher values will increase ETL processing time, but fewer positions/resources will be ignored.
- Further refine your matching criteria.

For example, if your matching keys include LOCATION, but location settings for most of the resources and projects defined in the Primavera operational applications are not filled in, you are more likely to produce a large number of matches and exceed the threshold.



4. Access Control

This chapter describes how to set access control for the analytic applications. Access control determines which PM and BI features are available for users.

Topics in this chapter include:

- About Access Control
- The Access Control Interface
- Managing Users and Groups
- Portfolio Security

4.1 About Access Control

Access to the analytic applications is maintained by a set of security roles. There are two separate sets of roles:

- PM Roles
- BI Roles

You can assign roles to individual users, or create groups of users and collectively assign roles to the group.

The analytic applications include an Access Control interface that enables you to import users from the core application and assign security roles.

With Access Control, you can:

- Import users from the core application
- Manage user groups
- Assign security roles to users and groups
- Disable or reenable user access

Users must be imported before they can access the analytic applications.

Once imported, users do not need separate logins to access PM and BI. Instead, they are authenticated by the core application server.

The Administrator account is imported automatically from the core application and given PM/BI administrator access. WebLogic administrators are also automatically given PM/BI administrator access.



Important: When single-sign on is disabled, there is no authentication required to log on to PM and BI, and all users are considered Administrators. Single sign-on is configured during installation.

4.1.1 System Level and Portfolio Level Access

PM roles can be assigned at two levels: system and portfolio. BI roles are assigned at the system level only. The first part of this chapter describes how to assign PM and BI roles on the system level. For information on setting PM roles on the portfolio level, see **"Portfolio Security" on page 163**.

When a PM role is assigned at the system level, it grants the user privileges to perform all actions the role allows on all portfolios in the system. When the role is assigned on the portfolio level, it grants the user privileges to perform all the actions the role allows on that portfolio.

PM roles available for each level vary depending on the type of role. For example, the Administrator role can be assigned only on the system level, but the PM Owner role can be assigned on either level.

Access privileges granted at the system level cannot be removed at the portfolio level. Primavera recommends you grant users a minimum of useful access control at the system level, then add more extensive privileges on the portfolio level as needed.

Users with no system-assigned roles cannot perform any actions unless specifically granted a role on a portfolio. Users with portfolio level roles are able to login to PM only.

The following table shows which roles can be assigned at the system and portfolio levels. For a description of each role, see **"PM Roles" on page 143** and **"BI Roles" on page 144**.

Role Name	System Level	Portfolio Level
PM Reviewer	Yes	Yes
PM Contributor	Yes	Yes
PM Owner	Yes	Yes
PM Publisher	Yes	Yes
PM Creator	Yes	No
PM Process Manager	Yes	No
Administrator	Yes	No
BI Roles (all)	Yes	No

4.1.2 PM Roles

PM supports the following roles:

- **PM Reviewer**. This role can be assigned at the system or portfolio level. It grants users the privilege to view the contents of a portfolio, but not to change it. For example:
 - Users cannot add or remove charts and scorecards from the portfolio. They cannot modify an existing scorecard layout.
 - Users cannot modify or override portfolio constructs.
 - Users cannot override KPI parameter values.
- **PM Contributor**. This role can be assigned at the system or portfolio level. It grants users the privilege to modify portfolio contents, with the exception of access control and membership. For example:
 - Users cannot assign roles to users or groups within the scope of the portfolio.
 - Users cannot modify the membership definition of the portfolio.
- **PM Owner**. This role can be assigned at the system or portfolio level. It grants users the privilege to modify portfolio contents, including access control and membership. Owners can delete portfolios.
- **PM Publisher**. This role can be assigned at the system or portfolio level. It grants users the privilege to publish portfolio views, such as scorecards and charts.
- **PM Creator.** This role can only be assigned at the system level. It grants users the privilege to create portfolios. When a user creates a portfolio, the user is assigned the PM Owner role within the scope of the new portfolio. This role does not provide access to existing portfolios.

- **PM Process Manager**. This role can only be assigned at the system level. It grants users the privilege to modify the "process definition" features of portfolio management. For example:
 - Users can create, update, and delete KPIs.
 - Users can create, update, and delete templates.
 - Users with this role cannot perform any actions on portfolios (such as viewing or modifying charts).
 - Define constants.
- Administrator. This role can only be assigned at the system level. This role allows users to perform any operation in both PM and BI. It also gives users the ability to use the Access Control interface.

4.1.3 BI Roles

In addition to the Administrator role mentioned above, BI supports the following roles:

- **Project Analyst.** This role is designed for users who monitor project progress, including status and financial performance.
- **Forecast Analyst**. This role is designed for users who monitor project or opportunity forecasts. Typically, this role is used in conjunction with the Project Analyst role.
- **Resource Analyst**. This role is designed for users who require access to resource status information, but not resource bill and cost rates.
- **Rate Analyst**. This role is designed for users who require access to resource status information *and* bill and cost rates.

BI roles globally control which BI analytics are available to users. When a user has access to an analytic, all features and functions within the analytic are accessible as well.

All BI roles are assigned at the system level. To access the BI home page, users must have at least one BI role assigned.
For custom analytics, users who have access to the original analytic used as a baseline for the custom analytic will have access to all custom analytics created from this source. For example, if you open the Budget vs. Actuals analytic and create a custom analytics named Project1, all users who have access to the Budget vs. Actuals analytic will also have access to Project1.

	Role			
Analytic	Project Analyst	Forecast Analyst	Resource Analyst	Rate Analyst
Budget vs. Actuals	Yes	No	Yes	Yes
Capacity Planning	No	Yes	No	No
Pipeline Forecast	No	Yes	No	No
Project Commitment	No	No	No	Yes
Project Expense	Yes	No	Yes	Yes
Project Financials	Yes	No	No	No
Project Forecast	No	Yes	No	No
Project Status	Yes	No	No	No
Project Time Report	Yes	No	Yes	Yes
Resource Summary	No	No	Yes	Yes
Resource Utilization	No	No	No	Yes

The following table shows which analytics are available to each role.

4.1.4 About Users and Groups

You can assign roles to individual users or create users groups and assign roles to an entire group. Roles assigned to groups are by implication assigned to all users in the group. Administrators can create any number of arbitrarily-named user groups. Administrators can add users to any number of groups. Users are not required to belong to Administrator-created groups. They can have roles assigned directly.

Roles across groups are additive. For example, if a user belongs to a Sales Planning group that has the Forecast Analyst role and the user also belongs to a Finance group that has the Rates Analyst role, the user will have access privileges associated with both the Forecast Analyst and Rates Analyst roles.

4.1.5 Change Propagation and Inheritance

Sometimes, changes to a user's access control may not immediately propagate to restrict their usage (for example, when you revoke access privileges to a portfolio or analytic that the user already has open). However, the system does enforce current access control settings when a portfolio is opened or saved (for example, the system checks access control privileges before letting a user save changes to a portfolio).

If a user has privileges to view a portfolio of portfolios, but does not have privileges to view some of the lower-lever portfolios, that user can see:

- A summary of values for each KPI of the portfolio.
- KPI values for individual portfolios only if they have view privileges to the individual portfolio.
- The names of individual portfolios, regardless of access privileges.

4.2 The Access Control Interface

4.2.1 Login

To open Access Control, enter its URL in a supported browser. This URL is case sensitive and follows the format:

http://[HOST]/EA/Configuration/Configuration

where [HOST] is the name of the computer where the Access Control web server resides. If your enterprise relies on Secure Socket Layer (SSL) encryption, the protocol, or first part, of the URL must be HTTPS. For example:

https://[HOST]/EA/Configuration/Configuration

A login page appears. Enter a valid username and password. This is the same username and password you use to login to the core application.



When you launch Access Control, it appears in a new window. You can close the original window at any time after the Home page appears.



After installation, you must be an Administrator in the core application to use Access Control for the first time.

When you first login, the home page includes a single, default user group, **Everyone**, and a single user, **Admin**. All users imported into the analytic applications are members of the Everyone group.

The following controls are available on the home page to create user groups, assign roles, and import users. Each of these tasks is described in detail later in this chapter.

Item	Description
Group: BUG VERIFICATION 🔽	Groups drop down. Click to display a list of groups
14 14 14	Edit Group button. Select a group from the Groups drop down, then click Edit Group to add or delete roles assigned to the group
	Create Group button. Click to create a new group.
	Delete Group button. Select a group from the Groups drop down, then click Delete to remove this group. Users in the deleted group lose role assignments associated with the group, but remain in the Everyone group. (You cannot delete the Everyone group.)

Item	Description
	Add Users button. Select a group from the Groups drop down, then click Add Users to add users to the group. Only imported users appear in the Add Users list.
9 6 9	Import Users button. Select a group from the Groups drop down, then click Import Users to import users into the group.

You cannot delete an imported user, but you can disable a user's access to the analytic applications. For more information, see "Editing Users" on page 158.

4.3 Managing Users and Groups

Primavera recommends the following procedure for importing users and assigning them to groups. Each of these steps is described in detail in the following sections.

- 1. Plan and create groups
- 2. Assign roles to groups
- 3. Import users into groups

Administrators can control which users are imported by their core application access role and name. During import, you can automatically add the users to groups. Only imported users can log in to the analytic applications.

Users imported from the core application retain their associated core application role assignments. PM and BI roles are added to these assignments.

Primavera recommends only importing users who require access to PM and BI.

4.3.1 Planning Groups

Groups provide a powerful tool for associating roles with users. The following are some things to consider before creating groups:

- Examine the accounts and access roles defined for your core application to see if you can create compatible role assignments and groups for the analytic applications.
- Remember there is a trade-off associated with creating groups. A large number of groups could provide more flexibility, but might also require more maintenance.
- Group names must be unique.
- Groups cannot be included in other groups.
- Because users can belong to more than one group, be careful about how you allocate access control across groups. The Access Control interface does not provide a way to view role assignments across groups or a summary view of system level vs. portfolio level role assignments.
- Excessively-complicated role assignments might impact system performance.

4.3.2 **Creating Groups**

By default, Access Control includes the Everyone group. Users imported into the analytic applications are automatically members of this group.

To create a new group:

- To create a new group:
 On the Access Control home page, click (Create Group). A New Group pane appears.
- Enter a name for the group. 2.

New Group Name: QA Test Roles:		Enter a name - for the group.
Name	Action Add	- Click to add roles to the group.
	Select Roles Administrator FM Controlbutor PM Creator PM Owner PM Process Manager PM Reviewer Phylicher PM Reviewer Project Analyst Resource Analyst Grancel OK	Select the roles you want to add and click OK .
Figure 4-2	Creating a New Group	

Click Add. 3.

A list of roles appears.

 Select the roles you want to associate with the group, then click OK. The New Group pane is updated to show the roles you have added. You can continue to add or remove roles as desired.

New Group Name: OA Test Roles: Name Forecast Analyst PM Reviewer	Action Action Add Add Add	Roles associated with the group. To remove a role from a group, click Remove .
Figure 4-3 Roles	Associated with a Group	

Roles that have been assigned at the portfolio level do not appear in the Access Control interface. To create and view role assignments at the portfolio level, see "**Portfolio Security**" on page 163.

5. When you have finished assigning roles to the group, click **OK**.

The new group you created is saved and the name appears on the **Groups** drop down.

6. Repeat this procedure for each of the groups you want to create. When you have finished creating groups you are ready to import users and add them to the groups.

4.3.3 Importing Users

Users must be imported to access PM and BI. You can import individual users or collections of users. You can select users to import based on their user names or on their core application access roles.

🖤 (Import Users).

To import users:

1. On the Access Control home page, click

mport Users - Criter	ia		C	1
Jser Name:			Steps:	
Role Name:			2. Results	
Groups:				
	Action	×		
			A00	
		T		
		Cancel	Next	
igure 4-4	Importing Users			

An Import Users pane appears.

Use this pane to specify the types of users you want to import and the groups that will include the users.

- 2. Specify the search criteria for users you want to import.
 - User Name. You can enter a specific user name in this field, or you can enter criteria that applies to a collection of users. For example, type C to display all users whose names include the letter C.
 - Role Name. If desired, you can import users based on Access Roles in the core application. For example, you can leave the User Name field blank and enter an access role name to display all core application users with that role.
- 3. Specify the groups into which you want to import users. (If you are not working with groups, you can skip this step.)

You can import users into more than one group at a time. Imported users are automatically members of the Everyone group.

- Click Add.
- Select the groups you want to include, then click **OK**.

The groups you selected are listed on the Import Users pane.



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4. When you have finished specifying import criteria, click Next.

A list of users that match the search criteria you specified (User Name and Role Name) appears.

Use the checkboxes to select the users to import.

		_		
Click to	Import U	sers - Results		•
select all	_	lleon ID	Name	Steps:
sciect all.		asr1	ASR1, ASR1	1. Criteria
		asr2	ASR2, ASR2	
Select the —	V	asr3	ASR3, ASR3	
users you		asrő	ASR5, ASR5	
want to		sr1	SR1, SR1	
wallt to	V	sr4	SR4, SR4	
1mport.		sr5	SR5, SR5	
		DR RocRate	DR RocPeto DR RocPeto	
		bb_Residate	bb_resitate, bb_resitate	
				~
		Back	Cancel	Finish
Figure 4-6	Selec	ting Users to	Import	

5. When you have finished selecting users to import, click **Finish**.

The users you selected are imported into the groups you specified on the Import Users pane.

6. To confirm your changes, you can select a group from the **Groups** drop down to view users included in the group.

File		-
Group: QA Test 💌 🧲	iá 🙀 👸 🐐	
Roles: Forecast A Users:	inalyst, PM Reviewer, PM Process Manager	
Name	Action	
asr2	Edit Remove	
asr3	Edit Remove	
sr4	Edit Remove	
		—
Figure 4-7	Viewing Users in Each Gro	pup

Once imported, you cannot delete users, but you can move users to other groups, add roles to individual users, and disable user access. See "Editing Users" on page 158.

4.3.4 Editing Users

Once you import a user, you can use the Edit User pane to:

- Assign additional roles to the user
- Add (or remove) the user from groups
- Disable (or reenable) access to the analytic applications

To edit a user:

1. Locate the user you want to edit.

Select the Everyone group to view a list of all imported users, or select another group to display users on a group-by-group basis.

2. Click **Edit** next to the user's name.

Group: Everyone 💌 🏠	ŵ A ŵ ŵ	Select a group to display a list of users included in the group
Roles:		the group.
Users:		_
Name	Action	
ABush	Edit	
admin	Edit	
AFlex	Edit	
АМ	Edit	
angel	Edit	
asr2	Edit	—— To view or change roles
asr3	Edit	and groups assigned to a
FDavis	Edit	user click Edit
Figure 4-8	List of Imported Users	
3		



A pane appears with a list of roles and groups assigned to the user.

The Access Control interface only shows roles assigned at the system level. To create and view role assignments at the portfolio level, see **"Portfolio Security" on page 163**.

-
_
_

Additional tasks you can p	perform with this	pane include:
----------------------------	-------------------	---------------

Task	Description		
Add a role	Click Add next to the list of roles. New roles you add are applied in addition to the roles the user inherits as a part of group membership.		
Remove a role	Click Remove next to the role. You can only remove roles that are assigned individually, (not inherited as part of a group). To remove roles that a user inherits as part of a group, remove the user from the group.		
Remove the user from a group	Click Remove next to the group. This removes the user from the group; it does not remove the group.		
Add the user to a new group	Click Add next to the list of groups.		
Disable/Enable access	You cannot delete imported users, but you can disable access to the analytic applications by choosing No from the User Enabled drop down. You can reenable users by choosing Yes.		

4.3.5 Editing Groups

Once you create groups and import users, you can edit groups to do the following:

- Add (or remove) imported users from the group
- Add (or remove) roles associated with the group

To edit a group:

1. Select the group you want to edit from the **Groups** drop down.

A list of users and roles associated with the group appears.

Roles associated	Group: QA Test 💌 🏟 🏟 🖁	à a á s	Select a group.
with the group —	Roles: Forecast Analyst, PM Review	er, PM Process Manager	
	Name Action	1	
Users included in	asr2 <u>Edit</u>	Remove	
the group	asr3 <u>Edit</u>	<u>Remove</u>	
	sr4 <u>Edit</u>	Remove	
Figure 4-10 Gro	oup Members		

- 2. To remove users from the group, click **Remove** next to the user.
- 3. To add users to the group, click **Add Users** on the Access Control home page.

A list of users appears. Only imported users appear on this list.

4. Select the users you want to add to the group and click **OK**.

5. To add (or remove) roles associated with the group, click (Edit Group).

The Edit Group pane appears.



6. When you have finished editing roles for the group, click **OK** to dismiss the Edit Group pane.

4.4 Portfolio Security

This section describes how to set access control on the portfolio level. Only the following roles can be assigned; all other roles must be assigned on the system level.

- PM Contributor
- PM Owner
- PM Reviewer

You use PM (not Access Control) to set portfolio level security.

Portfolio level roles are assigned one portfolio at a time and are associated with the portfolio. For example, a user who has a Portfolio Owner role on the system level can perform Portfolio Owner tasks on all portfolios. However, a user who has a Portfolio Owner role assigned on the portfolio level can only perform Portfolio Owner tasks on the portfolio where the role was assigned.

If a user has privileges to view a portfolio of portfolios, but does not have privileges to view some of its member portfolios, the user still sees summary KPI values (and the names of individual portfolios) regardless of access privileges. For more information, see "Change Propagation and Inheritance" on page 146.

4.4.1 Opening the Portfolio Security Pane

To open the Portfolio Security pane:

 Log in to Portfolio Management as an administrator or the portfolio owner. You must be an administrator or the portfolio owner to set security for the portfolio.

-	
-	
-	
-	
-	
	_

2. Start PM and open a portfolio.

For more information about PM, refer to the Portfolio Management Guide.

3. Select File ▶ Portfolio Security.

Welcome Welcome to Portfolio	Manage rel views of nodel your s EMEA Pro All projects	ement resources and trategy. Oper lects in EMEA.	d projects, n an existir	and ig portfolic	-		Open a portfolio.
	File Edit New Open	View Too	ls w: >ct Scorecard	. 3	Grou Non	p By:	. 27
,	Save Save As Revert		ime	Clien	t	Pool	Org Unit
New	Print to PD Export to E Save View	F Excel as Template	jects	Mac Mac		L Project Pool ABC Project Pool	San Francisco San Francisco
	Compare P	ortfolios	:nt	<u>Canada o</u> ZZ Toor (<u>lient</u> lient	CAD Project Pool	San Francisco Jones
Select to set	Portfolio Se	curity		Mac		L Project Pool	Org_A
security for the			<u>et</u>	DotCom		CAD Project Pool	TORONTO
portfolio.	Exit	_		ARGON		TK Project Pool	USA Organization
*	N 1	Copy daueM Project	+		Client	L Project Pool	Org_A San Francisco
	- -	DProject2003	2	CITRO	onene	ABC Project Pool	San Francisco
	v	Eagle		Canada d	lient	CAD Project Pool	Boston
	v	ExpenseRepo	ort8	Mac		L Project Pool	Sv1
Figure 4-12 Openir	ng Port	folio Se	curity				

The Portfolio Security pane appears. Use this pane to:

- Add groups and users who will have portfolio level access.
- Assign portfolio security roles to each group and/or user.



4.4.2 Adding Groups and Users

To add groups and users:

1. To add groups, click **Add** next to the Group pane.

A list of all groups created for the analytic applications appears.

2. Select the group (or groups) you want to grant portfolio access and click **OK**.

Use Shift-Click and Ctrl-Click to select more than one group.

The groups you select appear on the Portfolio Security pane.



- **Portfolio Security** Groups PA Testing <u>Edit</u> Add Remove Testing <u>Edit</u> Remove Click to add Users: Status users. admin Remove Edit Active Add admin JBon Lhite ami Portfolio Security Groups: Testing Add <u>Remove</u> <u>Edit</u> PA Testing Remove <u>Edit</u> -Users: admin Active Users you -<u>Remove</u> <u>Edit</u> Add JBon Active <u>Edit</u> add appear Remove Lhite Active Remove <u>Edit</u> here. -Figure 4-15 Adding Users
- 3. To add users, click Add next to the Users pane.

4. When a list of imported users appears, select the user (or users) you want to grant portfolio access and click **OK**.

Use Shift-Click or Ctrl-Click to select more than one user.

4.4.3 Setting Portfolio Level Security

After you add groups and users, you can set portfolio level roles for each.

Setting Group Security

To set portfolio security for groups:

 In the Portfolio Security pane, click Edit next to a group. The Edit Group pane appears. This pane shows roles assigned to the group. Both BI and PM roles are shown.

Portfolio Security Groups: Name PA Testing	Action Remove	Edit	Add	Click to edit portfolio security for
PortfolioSuperuser	Remove			—— the group.
Users: Edi	t Group - PortfolioSuperus	er		
Lhite Remo Nai	me: PortfolioSuperuser			
Bush Remo Rol	es:			
System level	me M Ovmer M Contributor		Action	Add
Click to add				
portfolio				
level roles.				
Figure 4-16 Po	rtfolio Security	for Groups		

2. To add a portfolio level role, click Add.

When you add a role to the group, all users in the group are granted access privileges associated with the role. For example, assigning a PM Reviewer role to the group gives all members of the group privileges to review the portfolio.

 When a list of roles appears, select the roles you want to add and click OK. Roles you can assign on the portfolio level are included in the list. Use Shift-Click and Ctrl-Click to select more than one role.

The roles you added appear in the list of roles for the group. Notice that portfolio level roles can be removed in PM, but not system level roles.

System level roles —— Portfolio —— level role	Edit Group - PortfolioSuperuser Name: PortfolioSuperuser Roles: PM Overer PM Reviewer PM Reviewer PM Reviewer Portfolio level roles (but not system level roles) can be removed in PM.
Figure 4-17	Adding Portfolio Level Roles for Groups

- 4. Click **OK** to exit the Edit Group pane.
- 5. Repeat this procedure for each group you have added to the Portfolio Security pane.

Setting User Security

To set portfolio security for users:

1. In the Portfolio Security pane, click **Edit** next to a user.

Groups:							
Name		Action			*		
PA Testing		Remove		Edit	_	Add	
Jsers: Name	Action			Status			Click to set user
admin	Remov	<u>'e</u>	Edit	Active		Add	security
alerking	Remov	<u>e</u>	Edit	Active			security.
ystem level- bles lick to add – ortfolio vel roles.	G G I I I I I I I I I I I I I I I I I I	ame: Jalerking ser enabled: Yes _e ance PM Owner Rate Analyst Coups: ance Everyone Teating A Testing	Salect PM Cor PM Ph PM Ph PM Ph PM Rev	t Roles tributor ner disher niewer	Act	ion Cance	Add
igure 4-18	Po	ortfolio Se	curity f	for User	s		

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The Edit User pane appears. This pane includes the following information:

- User name. This is a read-only field.
- User enabled drop down. This setting cannot be changed in Portfolio Management. For information on enabling/disabling user access, see "Editing Users" on page 158.
- **Roles**. A list of system and portfolio level roles assigned to the user. Only roles explicitly assigned to a users are shown here. Roles inherited as part of group membership are not listed.
- **Groups**. A list of groups to which the user belongs.
- 2. To add a new role, click **Add**.
- 3. When a list of portfolio level roles appears, select one or more roles and click **OK**.

Edit User Name: alerking User enabled: Yes y Roles:		Portfolio level roles (but not
Name PM Ouner Rate Analyst PM Reviewer	Action Add	roles) can be removed in PM.
Groups: Name Everyone PA Testing	Action	
Figure 4-19	Adding Portfolio Level Roles for User	S

- 4. Click **OK** to exit the Edit User pane.
- 5. Repeat this procedure for each user you have added to the Portfolio Security pane.

Appendix



A. Data Mart

The analytic applications display data that is collected in your enterprise's Primavera core databases. However, the applications do not directly read the core databases. Instead, Primavera Data Mart extracts the data from the core database, transforms the data for more efficient query, and loads the data into a Data Mart database and an OLAP (Online Analytical Processing) database. Data Mart may also load some of the data from external sources, if your enterprise does not implement Primavera Time and Expense or Delivery Manager. Once Data Mart loads the data, the analytic applications read it from the cubes that constitute the OLAP database.

Typically, Data Mart is run at frequent intervals so that the data are not so old as to be misleading. However, the process can be time- and resource-consuming. A typical enterprise may run Data Mart once a day, once a week, or even less frequently, depending on business and infrastructure policies. If you are concerned about data freshness, you can change the frequency with which data are transferred, as described in "Modifying the Schedule" on page 184.

This appendix describes:

- Starting and Stopping Data Mart
- Data Mart Logs
- Advanced Configuration of Data Mart

A.1 Starting and Stopping Data Mart

The datamart process can be very time consuming, especially for large databases and enterprises that use Primavera Time and Expense. For example, for a typical large database, Data Mart may take six hours to run. Note, too, that the first run of Data Mart takes a full snapshot of the data and will take longer than subsequent runs. Subsequent runs perform incremental updates by only extracting data that has changed.

To determine whether the datamart process completed successfully, run the query described in **"Data Mart Logs" on page 180**.

Note that The Remote Registry Service must be running on every computer hosting the Microsoft Analysis Services components. Refer to the *System Administrator Guide* for more information.

A.1.1 Starting the datamart Process

During the startup, Data Mart verifies that the core database is compatible, and stops if it is not. However, Data Mart does not verify that the Delivery Manager and core databases are synchronized. Verify that PVDB and DMDB are synchronized if you implement Delivery Manager. For more information, refer to the *System Administrator Guide*.

Note that the Windows user that runs the datamart process must be defined as an OLAP administrator on the computer hosting MS Analysis Services. For more information, refer to the *System Administrator Guide*.

By default, the datamart process runs in continuos mode and transfers data based on the schedule specified in the Data Mart scheduler. You can start the datamart process in standalone mode via the command line when you want to:

- Override a datamart property on a one-time basis, such as forcing a full snapshot data transfer in between scheduled runs.
- Schedule data transfers using an OS scheduler, such as Microsoft Scheduler

For information on setting up data transfer schedules using the Data Mart scheduler, see **"Modifying the Schedule" on page 184**.

Starting the datamart Process in Continuous Mode

To start the datamart process, run the datamart.bat (in Windows) or datamart.sh (in Solaris) file found in the <DATAMART>\bin directory. Open a command prompt window, change directories to the <DATAMART>\bin directory, and enter the following:

Solaris:

./datamart.sh

Windows:

datamart

In Windows, the datamart process can also be started as a service. The service is installed with the name "Primavera DataMart Service" and is configured to be started manually. To start the service, open the Services window by clicking **Start > Programs > Administrative Tools > Control Panel**, and double-click the Services icon. In the Services window, select the Primavera DataMart Service and click **Start**. You can also start the service from the command prompt using the following command:

net start "Primavera DataMart Service"

If you want the service to start automatically when Windows starts, change the service's **Startup Type** to Automatic in the Services window.

You cannot have more than one instance of the datamart process running against the same target database. Data Mart does not detect other instances.

Starting the datamart Process in Standalone Mode

You can run the datamart process in standalone mode via the command line if you want to override properties stored in the Data Mart properties file. For example, you may want to force a full snapshot transfer of data in between normally scheduled data transfers.

To run the datamart process in standalone mode:

- 1. Stop the current, continuous process.
- 2. At the command line, start the standalone datamart process once using the following syntax:

```
datamart -<property1> <value> -<property2> <value>...
```

For example:

datamart -primavera.datamart.runonce.enabled true -primavera.datamart.fullsnapshot.enabled true -primavera.datamart.exediteJobs FullTransfer

The primavera.datamart.runonce.enabled property runs the process in standalone mode. If it is not specified, the process runs in continuos mode.

3. When the transfer is complete, restart the process to run in continuos mode.



If you want to run the datamart process continuously in standalone mode as part of the OS scheduler, add the standalone commands to a batch file or script. For more information on the Data Mart scheduler, "**Modifying the Schedule**" **on page 184**.

A.1.2 Stopping the datamart Process

If you started the datamart process manually from a command prompt, there is no separate command to stop it. To stop the process, select the window in which you started it, and press Ctrl-C. The datamart process stops and cleans up before exiting.

In Solaris, Ctrl-C is the only way to stop the datamart process.

In Windows, if you started the datamart process as a service, open the Services window by clicking **Start ▶ Programs ▶ Administrative Tools ▶ Control Panel**, and double-clicking the Services icon. In the Services window, select the Primavera DataMart Service and click **Stop**.

To stop the service from the command prompt, enter the following command: net stop "Primavera DataMart Service"

A.2 Data Mart Logs

Several logs are generated when the datamart process runs:

- The DataMart.log file is written to the <DATAMART>\logs directory. It contains a copy of the text written to the console.
- The OLAP log is written to <DATAMART>\logs\PvOlap.log.
- The dj_log.txt found in the <DATAMART>\logs\etl directory contains some additional information logged by Data Mart's ETL tool.

In addition to the log files, Data Mart writes messages and errors, including those encountered when external data was loaded, to a table in the Data Mart database. After you start the datamart process, you should monitor this table, particularly if this is the first time Data Mart has run, or if you have encountered problems.

Each time Data Mart runs, it writes the message:

Begin Transform Process

When the process ends, it writes the message:

Finish Transform Process

To view the contents of the table:

- 1. Run the following query:
 - In Microsoft SQL Server SQL Query Analyzer:

```
SELECT
substring(PROCNAME, 1, 40),
STARTTIME,
ENDTIME,
NUMBERRECORDS,
MESSAGE
FROM DATAMARTETLPROCESSLOG
ORDER BY MODIFIEDDATE
```
• In Oracle SQL*Plus:

```
SELECT
substr(PROCNAME, 1, 40),
STARTTIME,
ENDTIME,
NUMBERRECORDS,
MESSAGE
FROM DATAMARTETLPROCESSLOG
ORDER BY MODIFIEDDATE
```

2. Review the results of the query.

The query returns a list of the most recent messages written to the table, similar to the following:

```
2003-02-28 10:24:49.207
ev transform process
2003-02-28 10:24:49.207
                           0
                                 Begin Transform Process
ev populate_dimensions
                          2003-02-28 10:24:49.457
2003-02-28 10:24:49.987
                           11
                                  Populated Agency
Dimension
ev populate_dimensions
                          2003-02-28 10:24:49.987
2003-02-28 10:24:50.457
                           23
                                  Populated Client
Dimension
                          2003-02-28 10:24:50.457
ev populate dimensions
2003-02-28 10:24:51.003
                           211
                                   Populated Resource
Dimension
ev populate dimensions
                          2003-02-28 10:24:51.003
2003-02-28 10:24:51.457
                           44
                                  Populated Opportunity
Dimension
ev populate dimensions
                          2003-02-28 10:24:51.470
2003-02-28 10:24:52.097
                           143
                                   Populated Project
Dimension
```

```
ev populate dimensions
                           2003-02-28 10:24:52.097
2003-02-28 10:24:52.770
                                    Populated Positions
                            656
Dimensions
ev populate dimensions
                            2003-02-28 10:24:52.770
2003-02-28 10:24:52.770
                            0
                                  Configured Company is
US
ev populate dimensions
                           2003-02-28 10:24:52.770
2003-02-28 10:24:52.770
                            36
                                   Selected Financial
Period only for US
ev transform process
                         2003-02-28 10:24:49.207
2003-02-28 10:24:52.783
                                   ev populate dimensions
                             0
complete
ev populate contactdetails
                              2003-02-28 10:24:53.423
2003-02-28 10:24:53.423
                            0
                                  Start of populate
ev populate contactdetails
                              2003-02-28 10:24:53.423
                                  End of populate
2003-02-28 10:24:53.630
                            0
ev transform process
                         2003-02-28 10:24:52.783
2003-02-28 10:24:53.630
                            0 ev populate contactdetails
```

The errors and warnings that are written to this table are not written to the console. If the message is an error, its Message column is prefixed with "Error." Errors may include problems Data Mart encountered trying to load external data from the staging tables.

Data Mart

A.3 Advanced Configuration of Data Mart

You can change several aspects of the datamart process that were specified during installation as well as several optional settings. To change these properties, edit the <DATAMART>\cfg\DataMart.properties file, or you can override these properties via the command line. You must restart the datamart process for your changes to take effect.

This section describes:

- Modifying the Process Log Property
- Modifying the Schedule
- Loading Classifications
- Changing Company, Exchange Rate Table, and Currency
- Extracting Full Snapshots of Data
- Transferring Data Immediately at Start Up
- Modifying Scheduled Date Range (SDR) Expansion Period
- Modifying the Fiscal Year
- Disabling Functionality

For more information on changing datamart properties for Capacity Planning, see **"Data Mart Properties" on page 136**.

A.3.1 Modifying the Process Log Property

Depending on the frequency with which data are transferred, the Data Mart's log table can become quite large. By default, log records older than seven days are automatically deleted at the beginning of each run. Change the length of this history by changing the following property in the DataMart.properties file:

```
Primavera.datamart.DatamartETLProcessLog.purgeOlderThan
= 7
```

You can comment out this property if you want to permanently store all messages. In this case, Primavera recommends that you regularly truncate the table manually. For example:

```
TRUNCATE TABLE DATAMARTETLPROCESSLOG
```

A.3.2 Modifying the Schedule

A property in the DataMart.properties file determines the frequency of data transfer. The default schedule transfers data every day at 12 AM. To change this schedule, edit the DataMart.properties file and add the following property:

```
primavera.datamart.scheduler.<FullTransfer|
CapacityPlanning>.TimeExpression = <time expression>
```

The time expression format is similar to UNIX crontab format, but has two additional arguments: Milliseconds and Seconds. These arguments are used at the beginning of the expression:

```
Milliseconds Seconds Minutes Hours Days-of-month Months Days-of-week
```

The valid ranges for each argument are:

Argument	Valid Range
Milliseconds	0-999
Seconds	0-59
Minutes	0-59
Hours	0-23
Day-of-month	1-31
Months	0-11 or jan-dec
Days-of-week	1-7 or sun-sat

For example, the time expression:

0 0 15 8,17 * * mon-fri

indicates transfer at 8:15 AM and 5:15 PM, Monday through Friday.

To express asymmetric schedules, supply the time expressions in a list delimited by pipes (|) and enclosed in parentheses. For example:

0 0 (30 0 45 13) * * *

These time expressions transfer data at 12:30 AM and 1:45 PM every day.

You cannot represent asymmetric schedules such as "every 12:30 AM and every 1:45 PM" in a single time expression. The following expression (though intuitive), will not work:

- 11	-	
- 11	_	
- 11	_	
- 11	-	
- 11	-	
- 11	_	

0 0 30,45 0,13 * * *

This expression transfers data every day at 12:30 AM, 12:45 AM, 1:30 PM, and 1:45 PM, instead.

A.3.3 Loading Classifications

By default, Data Mart does not transfer classifications. Classifications are enterprise-specific categorizations of business objects. Classification types, names, and possible values are defined at the enterprise level. For information about configuring classifications, refer to the *Configuration Guide* provided with the Primavera core application.

```
To transfer a classification, specify it in the DataMart.properties file.
```

Primavera recommends transferring classifications sparingly, and recommends that, once a classification has been transferred, it not be deleted from the core application. If you must delete classifications after they have been transferred, refer to "**Deleting Classifications**" on page 187.

_	
-	
_	
_	

Specifying Classifications to Transfer

Identify each classification that should be transferred by adding a property that follows this syntax:

```
primavera.datamart.classification.name.1 = <name of
classification 1>
primavera.datamart.classification.name.2 = <name of
classification 2>
```

Note that each classification must be assigned a unique number, and that you must not change this number after you run Data Mart.



After adding classifications to the DataMart.properties file, restart BEA WebLogic.

Renaming Classifications

To rename a classification, it is not sufficient to rename it in the Configuration application; you also need to remove it from the DataMart.properties file and the Data Mart and OLAP databases by running a batch file.

To rename a classification:

- 1. Log into the Configuration application, and edit the classification's name. For more information, refer to the *Configuration Guide*.
- 2. Using a text editor, such as vi or Notepad, open the DataMart.properties file and replace the old classification name to the new name you specified in the Configuration application.
- 3. Re-create the Data Mart and OLAP databases, as described in the *System Administrator Guide*.
- 4. Run Data Mart.

When Data Mart completes, the classification is renamed.

Deleting Classifications

To delete a classification, it is not sufficient to remove it from the core database and the DataMart.properties file; you also need to remove it from the Data Mart and OLAP databases.

To delete a classification:

- 1. Using a text editor, such as vi or Notepad, open the DataMart.properties file and either remove or comment out the classification you no longer want to transfer.
- 2. Re-create the Data Mart and OLAP databases, as described in the *System Administrator Guide*.
- 3. Run Data Mart.

When Data Mart completes, the classification is removed from the databases.

A.3.4 Changing Company, Exchange Rate Table, and Currency

Data Mart converts all monetary values referenced in the core application into a single reporting currency. This requires an exchange rate table that converts each referenced currency into the reporting currency. These values are supplied during installation, but can be changed as the enterprise's business changes.

To identify an exchange rate table for conversion to the specified currency, Data Mart requires both the name of the table and the name of the company in which it resides.

To set the company, exchange rate table, and currency:

- 1. Locate and open the DataMart.properties using a text editor, such as vi or Notepad.
- 2. To specify a different reporting currency than USD, locate and edit the primavera.datamart.reporting.currencyCode property: primavera.datamart.reporting.currencyCode = USD
- 3. To specify the company that contains the exchange rate table, locate and edit the primavera.datamart.reporting.company property: primavera.datamart.reporting.company = <company>
- 4. To specify the exchange rate table, locate and edit the primavera.datamart.reporting.exchangeRateTable property: primavera.datamart.reporting.exchangeRateTable = <exchange rate table>
- 5. Save and close the file.



These properties must be set in order for the datamart process to complete.

A.3.5 Extracting Full Snapshots of Data

A full snapshot of data is extracted after creating the target database. By default, subsequent runs of the datamart process perform incremental updates by extracting only data that has changed. To extract a full snapshot, edit the DataMart properties file and change the following property to true:

```
primavera.datamart.fullsnapshot.enabled = true
```

A.3.6 Transferring Data Immediately at Start Up

You can configure the datamart process to transfer the data once immediately after the datamart process or service starts. Data Mart then continues on the specified schedule. The primavera.datamart.startup.ExpediteJobs property determines whether Data Mart runs immediately. It also specifies which job to include in the run.

If you use the primavera.datamart.startup.ExpediteJobs property, you must also set the primavera.datamart.startup.LoadJobs property to load the job before running it. For example:

```
primavera.datamart.startup.LoadJobs = FullTransfer
```

primavera.datamart.startup.ExpediteJobs = FullTransfer

Job options include:

FullTransfer This option runs a standard DataMart transfer.

CapacityPlanning This option runs a transfer that includes data for Capacity Planning.

To specify multiple jobs, use a comma-separated list. For example:

```
primavera.datamart.startup.LoadJobs = FullTransfer,
CapacityPlanning
primavera.datamart.startup.ExpediteJobs = FullTransfer,
CapacityPlanning
```



When running the process in standalone mode, you must specify the job to expedite if it is not set in the properties file. Otherwise, the standalone process runs in continuos mode. In standalone mode, you can expedite only one job at a time. For more information on standalone mode, see "Starting the datamart Process in Standalone Mode" on page 178.

For more information about the Data Mart schedule, see **"Modifying the Schedule" on page 184**.

A.3.7 Modifying Scheduled Date Range (SDR) Expansion Period

Data Mart does not transfer all the data from the core databases. One significant limitation is that Data Mart only transfers the resource commitment and position schedule data from the date range you specify. This is because of the extensive space required by the schedules in their fully denormalized format.

By default, the schedules are expanded from one year (365 days) in the past to one year in the future. If these defaults are not appropriate, change the following properties in the DataMart.properties file:

```
# Start of the SDR expansion range in days (current day -
# minrange).
primavera.datamart.SDRExpansion.minrange = 365
# End of the SDR expansion range in days (current day +
# maxrange).
primavera.datamart.SDRExpansion.maxrange = 365
```

The values are expressed in number of days. You can decrease the range, but doing so does not remove the data that are already in the database.

You must select a range that covers the entire period that may interest your users. Otherwise, analytic application users will find zeroes for time, rate, and cost fields when they examine data outside the period you specified.

A.3.8 Modifying the Fiscal Year

By default the Data Mart assumes that the fiscal year starts on January 1, and that each period in the OLAP cube will be prefixed with FY.

If these values are not suitable, you can change them by adding properties to the DataMart.properties file.

When PM calculates a 13-period fiscal year, it creates thirteen 28-day periods, which results in two extra days in leap years and a single extra day in other years. Data Mart assigns the extra days to the last period of the fiscal year. Note that the fiscal year always begins on the specified day and month of the year, and is labeled with the calendar year of the ending date. For example, if your fiscal year ended on September 30, 2003, the fiscal year is numbered 2003.

To change the fiscal year configuration:

- Using a text editor such as vi or Notepad, open the <DATAMART>\
 cfg\DataMart.properties file.
- 2. At the bottom of the file, add a property called primavera.datamart. FiscalYear.StartDate, and set it to the date upon which your enterprise's fiscal calendar begins. Enter the date in MM/DD format:

primavera.datamart.FiscalYear.StartDate=10/01

Note that this value is a recurring date. This value is used by enterprises with a 13-month year to ensure that Primavera's periods coincide their non-calendar fiscal year. This property is used by the Time.FiscalYear dimension in the OLAP cube.

3. At the bottom of the file, add another property called primavera.datamart.FiscalYear.Prefix, and make it equal to the prefix Data Mart should append to each period in the Time.FiscalYear dimension in the OLAP cube:

primavera.datamart.FiscalYear.Prefix=FY

- 4. Save and close the file.
- 5. Stop and restart Data Mart. For instructions, refer to "Starting and Stopping Data Mart" on page 176.

A.3.9 Disabling Functionality

To disable Delivery Manager or OLAP, edit properties in the DataMart.properties file. Since Microsoft SQL Server is not supported in Solaris, these properties should always be set to false in Solaris.

Disabling DM

If you do not implement Primavera's DM functionality, you must disable DM in Data Mart, as well. Set the primavera.datamart.etl.dm.enabled property to false:

primavera.datamart.etl.dm.enabled = false

Disabling OLAP

Data Mart creates an OLAP database using Microsoft Analysis Services. If you do not want to use this functionality or the analytic applications that rely on it, disable OLAP by setting the primavera.datamart.olap.enabled property to false:

```
primavera.datamart.olap.enabled = false
```



Glossary

A

Access Control. The process of ensuring that the information within Primavera is safe against unauthorized access. Security is based on **Access Roles** and access policies.

Access Role. A set of access rights (**Privileges**) granted to an account. Access roles determine the information a user can view or modify.

Account. An established relationship between a person and an application. Access to data and functionality is limited by the **Access Role** associated with the account.

Agency. An external organization that supplies resources to the enterprise for projects.

Agency Resource. A resource employed by an agency, and contracted to the enterprise to perform project work. Sometimes called a consultant or contractor.

Allocation Policy. A configurable policy that dictates whether resources can be assigned or reserved for more or different hours than the standard calendar dictates.

Analytic Application. Generally, the term describes any software that helps users visualize and manipulate business data to understand and control their enterprise. In the Primavera context, the term "analytic applications" refers specifically to Portfolio Management (PM) and Business Intelligence (BI).

Assigned. When a resource is assigned, the period between the start and end dates of the position is marked assigned in the resource's schedule. This affects resource availability. An assignment to a project position commits that resource to the position. Depending on configuration, the action of assigned may prohibit a resource from being reserved or assigned to a different position during the same time period.

Glossary

Authentication. The process of identifying an individual, based on a login name and password. In Primavera, authentication is distinct from access control. Authentication ensures that an individual is who she claims to be.

В

Browser. A software program used to view HTML documents and World Wide Web pages. Primavera and its accompanying reports can be displayed in a browser.

Budget. Projected figures for project cost and revenue, based on resource requirements, business roles, duration of need, and cost and/or billing rates. Primavera uses this information to formulate a cost budget or revenue budget that is represented by fiscal period.

Business Object. A phenomenon tracked by the enterprise affecting project decisions as they are represented in Primavera. **Resource, Opportunity, Project, Client, Competitor,** and **Agency** are business objects.

С

CFYTD. Current Fiscal Year to Date. When reporting financial information, Primavera can gather and express project totals (such as revenue, cost, hours, and expenses) in terms of various points of time. Other possibilities include **ITD** and **YTD**.

Chart. A graphical representation of a portfolio. Charts include Bar, Stacked Bar, Bubble, and Pie.

Classification. An enterprise-specific categorization of business object profiles that is an alternative to the pool and organization structures. Depending on the enterprise's needs, classification types might include line of business, product, market region, or any other alternate way of categorizing business objects. Classification types, names, and possible values are defined at the enterprise level.

Client. An organization for which a project is undertaken. A client can either be an external organization or an internal organization unit for which a client profile is created.

Client Resource. A person who is employed by the client and can be assigned to work on a project. Client resources do not have profiles.

Commitment. A resource's time commitment, such as project assignments, travel, vacation, and leave of absence. These commitments are displayed in a resource's schedule. Commitments to a project fall into one of four actions: **Shortlisted, Reserved, Assigned, or Excluded**.

Company. A predominantly independent division of the enterprise's **Organization Structure** that contain **Organization Units**. Financial information defined for a company is used by its organization units to regulate billing and **Time and Expense** reporting, and to default values for opportunities, projects, and resources.

Competitor. A business rival that competes with your enterprise for opportunities and projects.

Consultant. See Resource.

Cost. The cost to the enterprise for goods and services. Costs are associated with **Resources**, **Non-resource Items**, **Positions**, **Cs**, and **Material Resources**.

Cube. A logical set of data that is organized and structured in a hierarchical, multidimensional arrangement. Cube dimensions allow users to perform complex analysis by simultaneously viewing a combination of factors. See also dimension, measure, and member.

Currencies. One of the financial rules defined in the Primavera Configuration application. Currencies are configured with exchange rate tables in order to make multiple currencies available to all companies within the enterprise.

D

DBA. Database administrator.

Data Freshness. The recentness of the data in a system. In PM, data freshness is dependent on the frequency with which Data Mart is run.

Data Source Name. DSN. Specifies how a client should connect to a particular data provider.

Database Server. An application that allows you to modify, update, or create records in a system of organized information (database).

Denormalize. The process of expanding data in a database to its smallest useful unit and propagating redundancy to facilitate reporting. It is the opposite of normalize.

Dimension. A category used in an data cube or fact table used to organize business data for retrieval and consolidation of values. Each dimension usually contains a hierarchy of related members. For example, a Year dimension often includes members for each time period, such as months and quarters.

Ε

Employee. A resource hired by and working for the enterprise.

Enterprise. The organization served by the application, i.e., your company. The enterprise encompasses all business data in the application.

Exchange Rate Table. One of the financial rules defined in the Primavera Configuration application. Exchange rate tables store exchange rates for unique combinations of currencies and rate types.

Excluded. When a resource is excluded from a position, the resource cannot fill this position for some reason. For example, if a resource you reserved for a project had a disastrous interview with the client, you could exclude that resource to ensure that he was not staffed to the position.

F

Filled. When a position is marked filled, a resource is assigned to it during every hour that it requires. If a position is only partially filled, it is marked **Open**.

Filter. A tool, usually in the form of a menu, for selecting the types of items you seek. For example, you might use a filter to search only for projects that are active.

Fixed Schedule Billing. A billing method based on a user-defined schedule of amounts and dates. Fixed schedule billing is a set of dates and amounts that define the invoices generated for the client.

Functional Organization Structure. The organization structure that represents the reporting relationships within your enterprise. This organization structure reflects all or part of your organization chart and provides a framework for financial configuration. In Primavera, the enterprise structure can consist of companies and organizations within those companies.

G

Group. To reorder the currently displayed data by rolling up all objects that share a value for a particular **KPI**. For example, grouping a project portfolio scorecard by the Client KPI reorders the data such that all projects for a given client are displayed in a single row.

Н

Host. The computer that executes a piece of software; the computer upon which a particular application runs.

I

ITD. Inception to Date. When reporting financial information, Primavera can gather and express project totals (such as revenue, cost, hours, and expenses) in terms of various points of time. Other possibilities include **CFYTD** and **YTD**.

Import/Export. The process of bringing external data into the application or sending internal data out of the application.

Indicator. In a **KPI**, the combination of scheme, symbols, and labels that define the graphical representation of a KPI's possible values.

Instance. An occurrence of an application in run-time. For example, an instance of the Primavera application server is a single occurrence of the application server software running on a host computer.

J

JDBC. Java Database Connectivity. A database access standard, JDBC allows Java applications to access data, regardless of which RDBMS stores the data.

Κ

KPI. Key Performance Indicator. A metric used to track and predict operational health. KPIs describe specific aspects of projects or resources in terms of the goals that comprise the enterprise's strategy. KPIs can be used to compare business objects to their objectives and to other business objects.

L

LDAP. A client-server protocol for accessing a directory service. A directory service provides information about network resources or users. For example, Netscape Directory Server and any Domain Name Server are LDAP servers.

Μ

MS SQL Server. A supported relational database management system (RDBMS) developed by Microsoft that runs in Windows environments.

Manager. In the functional organization structure, the manager is the resource whose name appears in the manager position for each organization unit. Functional managers represent the managers in an enterprise's organization chart.

Material Resource. The physical objects and expenses for which you track costs, rates, and usage. Note that material resource are tracked separately from resources' expenses.

Measure. A value or set of values (usually numeric) stored in a data cube. For example, Sales Price, Cost, and Profit could all be measures. Measures are the central values that are aggregated and analyzed.

Member. A discrete component within a dimension. For example, a Location dimension might include members such as Boston, Paris, or South America.

Membership. The resources, projects, or portfolios that appear in a portfolio. Membership is either static or dynamically defined.

Multidimensional Expression (MDX). A complete query syntax used to query and manipulate data in OLAP cubes. Portfolio Management supports MDX in KPI definitions.

Ν

Non-resource Account. An account manually created for individuals who must use Primavera but do not have profiles.

Non-resource Item. Part of a delivery scenario and pricing model; a material object or an expense for which the client can be billed.

0

ODBC. Open Database Connectivity. A database access standard. ODBC allows applications to access data, regardless of which RDBMS stores the data.

Object Pool. A **Pool** that contains business objects (rather than pools or accounts). Object pools can contain any number of objects of one type: opportunity, project, resource, client, competitor, or agency.

Open. When a position is open, some portion of the hours it requires is not **Filled** by resources.

Opportunity. New business pursued by your enterprise. When an opportunity is won, it becomes one or more **Projects**.

Oracle. A relational database management system (RDBMS) developed by Oracle Corporation that runs in Windows and Unix.

Organization Structure. See Functional Organization Structure.

Organization Unit. Also Org Unit. A group of resources organized by some similarity, such as job function. Organization units are arranged hierarchically to form companies. Together, organization units and companies constitute the **Functional Organization Structure**.

Ρ

People. See Resource.

Periods (financial). Part of the financial configuration, financial periods are spans of time that are configured with certain categories and subperiods. Financial periods typically mirror the company's fiscal year.

Pool. A logical grouping of business objects or pools. Pools that contain accounts are called domains. Domains can contain any number of pools and accounts. Pools that contain business objects are called **Object Pools**.

Pool Structure. The hierarchical structure of pools that represents an alternative view of your enterprise. The pool structure contains **Pools**, domains, **Object Pools**, **Opportunity**, **Projects**, **Resource**, **Clients**, **Competitors**, and **Agency**.

Portfolio. A collection of resources, projects, or other portfolios that typically share a commonality. For example, you might define a portfolio that features all your implementation projects.

Position. Represents a relationship (**Filled** or **Open**) between a resource and a project.

Privilege. Permission to take some action in Primavera.

Project. A temporary endeavor undertaken by the enterprise to create a unique product or service for one or more clients.

Project Commitment. A relationship between a resource and a project position for a specified period of time.

Project Currency. The currency in which budgeting and accounting are processed.

Project Manager. An employee of the enterprise who is responsible for the completion of one or more projects. In Primavera, a project manager is often an owner of the project.

Project Owner. The owner of a project. One or more resources can be assigned as project owners.

Project Task. A day-to-day task assigned to one or more positions or resources assigned to a project.

Project Team. A group of positions on a project that share some similarity, such as schedule or job function.

Project Type. A categorization of projects that determines the staffing policy and whether the project can or must have a parent.

Pursuit Project. A feature for defining detailed qualifications in building a team. The status of a pursuit project is active while the opportunity is open, and complete when the opportunity is closed.

Q

R

RDBMS. Relational Data Base Management System. An application that allows you to modify, update, or create records in a system of organized information (database).

Rate. The hourly cost to the client for the services performed by a resource. Primavera tracks the following rates:

- A business role's standard, minimum, and maximum rates.
- A position's actual rate.
- A resource's standard, minimum, and maximum rates.
- The rates applied to material resources based on the usage.

Rate Range. The scope defined by the minimum rate and maximum rate specified for a business role or resource.

Reserved. When a resource is reserved for a position, the period between the start and end dates of the position is marked reserved in the resource's schedule. This affects resource availability. Depending on configuration, an action of reserved may prohibit a resource from being reserved or assigned to a different position during the same time period.

Resource. An individual represented in Primavera. Includes employee, agency resource, and client resource.

Resource Account. An established relationship between a resource and Primavera. A resource account, which is automatically created for a resource when the resource profile is created, often has limited privileges in Primavera.

Resource Pool. A pool that contains resources. Resource pools determine a resource's position in the pool structure, as well as being referenced by projects for staffing purposes.

Revenue Recognition. A manner of determining whether income has met the conditions of being earned and realized.

ROI. Return on Investment. A comparison of benefits to cost, typically expressed as a percent of the total expenditure. An ROI calculation is used to determine if a project achieves its goals to an extent that justifies the cost.

Role. See Access Roles.

S

Scheduled Date Range (SDR). A position schedule or resource commitment schedule, as it is stored in a Primavera database. In the Primavera core database, these schedules are stored in a condensed format. When they are transferred to the data mart database, the data are fully denormalized. SDRs account for a large percentage of the data mart's database.

Scorecard. A tabular view of a portfolio that defines the KPIs to include and the order in which to display them.

Security. See Access Control.

Server. A computer on a network that manages data and processes requests. Servers are accessed by **Client**.

Server Instance. A piece of server software executing on a host.

Service. A process that performs a specific system function and usually provides an API for other processes to call.

Shortlisted. When a resource is shortlisted for a position, the resource is flagged to indicate that they are a potential candidate for the position. This action indicates that you are considering a resource for a position. When you open the Team Builder with this position, any resources you have shortlisted are displayed. Shortlists do not affect availability.

Star Schema. A plan for the data in an RDBMS that optimizes them for reporting. The central feature of the schema is a fact table that is surrounded by denormalized dimensions, each of which is stored in a separate table.

System Administrator. An individual who must access configuration and access control aspects of Primavera.

Т

Template. A scorecard definition saved for use in other portfolios. A template includes a name, description, and the KPIs included in the scorecard.

Time and Expense. A feature available in the Primavera web client that allows users to enter and approve time and expense reports. Time and expenses can be entered on or offline. Approval is executed online only.

Time and Materials. Also referred to as T&M. A billing method based on time, expense, and material resource transactions.

ToolTip. A small pop-up window that displays either the name of a user interface element or further information about the field's value.

U

URL. Uniform Resource Locator. The globally unique address of a document or other resource on the World Wide Web.

User. A person who has access to Primavera. A user has either a **Resource Account** or a **Non-resource Account**.

User Account. See Account.

Utilization. The percentage of total available billable hours during which a resource is assigned to projects.

V

View. A Scorecard or Chart.

W

waterline. A visual modeling tool that force ranks resources or projects into two groups by sorting and applying a constraining limit. The members in the first group (above the waterline) collectively meet the constraining value. All other members appear below the waterline.

Web Server. An application that fields requests for web content, including HTML documents and Java applets.

Wildcard. A symbol used to represent unknown characters in a search. In Primavera, prefix a search with %. Searches return objects that contain the letters you specify. For example, %ram returns grammar, tram, and diagram.

Χ

Y

YTD. Year to Date. When reporting financial information, Primavera can gather and express project totals (such as revenue, cost, hours, and expenses) in terms of various points of time. Other possible terms include **ITD** and **CFYTD**.

Ζ



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