

Oracle
Primavera
Analytics Cloud Service Administration Guide

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About This Guide

This guide contains the information you need to administer the Primavera Analytics Cloud Service. As an administrator, you will use the Primavera Analytics Web Administration application and perform tasks such as provisioning users for Primavera Analytics. You will also be performing tasks to enable the use of:

- ▶ Financial Periods
- ▶ History Settings
- ▶ Slowly Changing Dimensions
- ▶ Changing Dimensions and Daily Snapshots
- ▶ Burn Down
- ▶ Work Planning
- ▶ Schedule Adherence
- ▶ Location Data

Audience

This guide is intended to be used by cloud administrators who have application access to **Primavera Analytics Production**. In addition, administrators should have application access to P6 EPPM, Primavera Unifier, or both, and/or Oracle Primavera Cloud.

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About Primavera Analytics

Primavera Analytics consists of a Repository Definition and a sample catalog containing sample analyses and dashboards. Primavera Analytics is built upon the industry leading Oracle Business Intelligence Suite. The Primavera Analytics Repository Definition contains all of the information Oracle Business Intelligence needs to allow end users to create purposeful analysis based on data contained within the Primavera Data Warehouse. The Repository Definition contains information such as how Oracle Business Intelligence connects to the Primavera Data Warehouse, how security is applied to each user, and how to join the Primavera Data Warehouse fact and dimension tables. The Primavera Analytics sample catalog, also built upon Oracle Business Intelligence, contains over 450 pre-built analysis and dashboards, organized in a catalog structure, used to help facilitate the capabilities available combining P6 EPPM, Primavera Unifier, and/or Oracle Primavera Cloud with Oracle Business Intelligence.

About Primavera Data Warehouse

Primavera Data Warehouse is a data repository that collects and stores data from the following products:

- ▶ P6 EPPM
- ▶ Primavera Unifier

It contains a process called STARETL to *extract, transform, and load* (ETL) data from the above applications into Primavera Data Warehouse.

Primavera Data Warehouse separates the data into:

- ▶ Facts
Fact tables contain business facts or measures. For example: Actual Total Cost, Workflow Duration.
- ▶ Dimensions
Dimension tables contain descriptive attributes or fields. For example: Activity Name, Cost Breakdown Structure.

As Primavera Data Warehouse accumulates project and cash flow data, it provides baselines for tracking trends and for advanced business intelligence. It also provides key metrics on current data, which allow you to drill through root cause analysis.

To analyze and render the data stored in Primavera Data Warehouse as report and dashboards, connect Primavera Data Warehouse to Oracle Business Intelligence (OBI) using Primavera Analytics. For more details on installing OBI and Primavera Analytics, refer to the respective installation guides.

About Oracle Business Intelligence

Oracle Business Intelligence (OBI) is a comprehensive suite of business intelligence foundation and applications designed to enable the insight-driven enterprise. It integrates data from multiple enterprise sources, and transforms it into key insights that enable strategic decision-making, drive continual business process improvements, and promote alignment across the enterprise.

Primavera Analytics provides the following default dashboards:

- ▶ Main
- ▶ Business Processes
- ▶ Cash Flow
- ▶ Cost Sheet
- ▶ Facilities and Real Estate
- ▶ Portfolio Analysis
- ▶ Project Earned Value
- ▶ Project Health
- ▶ Resource Analysis
- ▶ Industry Samples
- ▶ Admin
- ▶ About: Primavera Analytics

- ▶ Primavera Cloud
- ▶ More...

For information about the Business Intelligence & Data Warehousing Technology Center, go to the following website:

<http://www.oracle.com/technetwork/topics/bi/index.html>

For information about the Business Intelligence & Data Warehousing documentation, go to the following website:

<http://www.oracle.com/technetwork/middleware/bi-foundation/documentation/bi-dac-087220.html>

About the Analytics Cloud Administration Web Application

The Analytics Cloud Administration Web Application gives administrators the ability to add or change settings for their deployment of Primavera Data Warehouse. Use this administration application to perform the following tasks:

- ▶ Run STARETL process
- ▶ Schedule runs of the STARETL process
- ▶ Configure P6 codes and UDFs.
- ▶ View the history and logs from previous runs of the STARETL process

The Analytics Cloud Administration Web Application essentially allows you to administer Primavera Data Warehouse from any location.

Managing Personal Information

This chapter describes how to manage personal information (PI) in Primavera Analytics.

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About Consent Notices

Consent notices inform users how personal information (PI) is collected, processed, stored, and transmitted, along with details related to applicable regulations and policies. Consent notices also alert users that the action they are taking may risk exposing PI. Primavera products helps you to ensure that you have requested the appropriate consent to collect, process, store, and transmit the PI your organization holds as part of any source application (P6 and Unifier) that can be configured with Primavera Analytics.

About Personal Information

Personal information (PI) is any piece of data which can be used on its own or with other information to identify, contact or locate an individual or identify an individual in context. This information is not limited to a person's name, address, and contact details. For example, a person's IP address, phone IMEI number, gender, and location at a particular time could all be personal information. Depending on local data protection laws , organizations may be responsible for ensuring the privacy of PI wherever it is stored, including in back-ups, locally stored downloads, and data stored in development environments.

As part of your Primavera Analytics Cloud Service, you may be using Oracle Identity Cloud Service (“Oracle IDCS”) to manage your user access and entitlements across a number of cloud and on-premises applications and services. If you are using or accessing Oracle IDCS, you are responsible for deleting your details and data from the Oracle IDCS environment. You are responsible for retrieving your content in Oracle IDCS during your applicable services period.

Configuring Consent Notices for Analytics

Analytics consumes data from source applications and makes it available to Analytics users. End-users must give their consent in the *source* application to read and agree to the consent message to ensure they

- ▶ have access to the data in Analytics.
- ▶ understand the responsibilities with regard to data protection and security.

The following source applications can be configured with Analytics:

- ▶ P6 EPPM

For detailed instructions on how to configure consent notices in P6 EPPM, refer to *P6 EPPM Application Administration Guide*.

- ▶ Primavera Unifier

For detailed instructions on how to configure consent notices in Primavera Unifier, refer to *Primavera Unifier Administration Guide*

Your Responsibilities

Information security and privacy laws can carry heavy penalties and fines for organizations which do not adequately protect PI they gather and store. Data visible to an analytics user depends on the consent notices configured and accepted by users in the source applications which can be configured with Analytics.

If these laws apply to your organization, it is your responsibility to ensure consent notices are configured in the source applications before they are required.

Ensuring Privacy of Data Collection

Personal information (PI) in Primavera Analytics depends on the changes made in source applications such as P6 EPPM, or Primavera Unifier. When PI data is modified or deleted in the source applications, run the ETL process to ensure it is automatically reflected in Analytics. If a user is deleted in a source application, they can no longer access Primavera Analytics.

Ensure the user is also deleted from the historical data of Primavera Analytics Data Warehouse. Use the **data_cleanup_package** to handle the history cleanup and resource data based on the demand.

Limiting Granular Access to Data

Products provide granular access controls, by record, data element, type of data, or logs. Ensure Primavera Data Warehouse adheres to the same user privileges and access rights as P6 EPPM and Primavera Unifier.

Ensuring Data Purging and Data Deletion

Primavera Analytics is a Data Warehouse application. Data is not purged because Primavera Analytics maintains data history. A **Delete** option is available if needed but not available to all users.

ODI logging is purged weekly. Use the **data_cleanup_package** to purge the data for specific data source and resources on demand.

Ensuring Data Masking is Supported

Data masking is the ability to display only a portion of a data field or prevent viewing data. Oracle database security policies can hide access to certain columns. Ensure you review this feature for Primavera Analytics.

Ensuring IP Allowlists

An IP allowlist is a list of trusted IP addresses from which your users can access domains. Primavera Analytics uses OBIEE for creating analyses and dashboards. For more details on IP allowlists, refer to OBIEE documentation.

Controlling Access to Special Categories of Data

Primavera Analytics has control over some sensitive fields. Control can be regulated to only users that are allowed to login. Data access is generally project level and either cost or no cost, and granularity is provided for those differences. Global data is also visible but honors same security as source applications.

Security Considerations

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Introduction

For any company that deals with sensitive data, keeping it secure is crucial to success. While hosting Primavera Analytics data on Oracle Cloud provides security measures, it can't do everything. For example, it can't prevent phishing attempts or other attacks that exploit gaps in its users' security awareness. That's why it's important for everyone who works with Primavera Analytics to understand what they can do to keep data secure.

Security is everyone's business. This information is for anyone who uses, manages, or is just interested in Primavera Analytics. If you're a security expert or administrator, this is a good place to start. It should help you see the big security picture and understand the most important guidelines related to security in Primavera Analytics.

Authentication: How Users Sign On

If your Primavera Analytics Cloud environment is provisioned with IDCS. See Oracle Identity Cloud Service <https://docs.oracle.com/en/cloud/paas/identity-cloud/index.html> in the Oracle Help center for more information.

Authentication refers to the way users sign on. If Primavera Analytics is configured to use Oracle Identity Cloud Service (IDCS), administrators can—and should—implement Single Sign-on (SSO). SSO reduces the number of passwords users have to remember. It also enables multi-factor login, which is when users are asked to provide some verification in addition to their passwords, like a code that they receive via text or email.

Authorization: What Users can Access

Authorization refers to what users can access. There are several ways to manage this in Primavera Analytics.

Permission Sets: In Primavera Analytics, permission sets help administrators view and set permissions for many users by listing permissions in multi-dimensional tables.

Groups: Security groups make it easier for administrators to assign permission sets to multiple users at the same time. P6 and Unifier users need to be assigned access to the Analytics module within P6 and Unifier application respectively. Also in IDCS, P6 users should be assigned the roles of **Primavera P6 Production** and **BI Production Consumer**, and Unifier users should be assigned the roles of **BI Author** or **BI Consumer**, and **Primavera Analytics Production**.

Roles in Primavera Analytics: Products provide granular access controls, by record, data element, type of data, or logs. Ensure Primavera Data Warehouse adheres to the same user privileges and access rights as P6 and Primavera Unifier.

For P6 users, assign application access to **Primavera P6 Production** and **BI Production Consumer**. For more details on how to assign access, see ***Assigning Access to Primavera Analytics for P6 EPPM Users*** (on page 19).

For Unifier users, assign application access to **BI Author** or **BI Consumer**, and **Primavera Analytics Production**. For more details on how to assign access, see ***Assigning Access to Primavera Analytics for Primavera Unifier Users*** (on page 20).

Endpoint Security

From laptops to cellphones, organizations have to keep track of data on more devices than ever, and more devices means more risk. That's why it's important to implement Enterprise Mobility Management (EMM) tools and policies.

Inherent Risks and Practical Policies

No automated security system or protocol can make a system fully secure if those with legitimate access exploit it for illegitimate purposes or if a device falls into the wrong hands. Here are some general "common sense" guidelines you should follow when it comes to endpoint security:

Use good mobile device management (MDM) software. MDM systems can help your organization secure the devices where its sensitive data might end up.

Grant security permission conservatively. Don't give everyone permission to everything just to avoid perceived complexity. Remember, one breach can be many times more costly and time consuming than setting and following standard security protocols.

Organize permission sets and credentials so they can be edited quickly. Keep user groups and their permissions organized and easy to manage. Use descriptive names for permission sets, and organize them logically to make it easier for you or anyone else to manage them quickly and confidently.

Keep up with organizational changes. If a user no longer needs access to a part of the app, for whatever reason, update that user's permissions accordingly.

Privacy and Personal Information

Closely related to security are matters of privacy and personal information.

View the section *Managing Personal Information* in Primavera Analytics in the *Primavera Analytics Cloud Service Administration Guide* to learn about what information is collected and what you can do to monitor personal information in Primavera Analytics.

Some Security Basics

We'll use the term **administrator** to refer to anyone who's responsible for managing a company's data and who can access that data. For our purposes, administrators includes a wide variety of IT professionals, from those who define roles in the Primavera Analytics application to those who manage company servers.

An **end user** is anyone who uses Primavera Analytics to do their job. This includes project managers, executives, and everyone else who logs into Primavera Analytics from an office or jobsite to get their work done.

Administrators should...

- ▶ **Set up Single Sign-On (SSO) and enable multi-factor authentication** to minimize the number of passwords that users have to remember and to consolidate risk.
- ▶ **Kindly educate users** on how they can avoid unwittingly helping hackers. One of the best ways application administrators and security advocates can help users is by helping them to prevent security breaches.
- ▶ **Use a VPN** to encrypt data being sent over the internet.
- ▶ **Stay up-to-date** about security trends and best practices.

End users should...

- ▶ **Follow security guidelines** created by their companies and the administrators of any network applications they use.
- ▶ **Use strong passwords.** The more random-looking the better, and avoid reusing passwords.
- ▶ **Learn to recognize phishing.** Phishing is when someone disguises an email or some other transmission as a legitimate message in an attempt to get a user to reveal sensitive information. For example, a hacker may send you an email disguised to look like an email from your employer requesting login information. These attacks are becoming more sophisticated, but you can still protect yourself by making sure any emails you receive or websites you visit are legitimate before using them to share sensitive information.

Integration with Other Applications

The ability to connect and exchange information with other applications is powerful, but it also presents some potential security issues that administrators must manage. It is important to understand which data flows between applications to ensure compliance with policies and regulations related to security and privacy.

Assigning User Access to Primavera Analytics

This chapter describes how to assign access to Primavera Analytics for users of any of the following products:

- ▶ P6 EPPM
- ▶ Primavera Unifier
- ▶ Primavera Cloud

Note: Users are assigned access to Primavera Analytics from P6 EPPM and Primavera Unifier applications respectively, whereas Primavera Cloud users are assigned access from within Primavera Analytics Administration Web application.

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Assigning Access to Primavera Analytics for P6 EPPM Users

To assign application access to Primavera Analytics for P6 EPPM users:

- 1) Sign in to Primavera Administration and do the following:
 - a. Add a user.
 - b. Assign application access for that user to **Primavera P6 Production** and **BI Production Consumer**.

Note: For details on Primavera Administration, see the *Primavera Administration Identity Management Guide*.

- 2) Sign in to P6 EPPM as an administrator and do the following:
 - a. From the **Administer** menu, select **User Access**.
 - b. From the **User Access** window, modify the user accounts that will need access to Primavera Analytics.
 - c. Select the user account, and in the lower section of the screen, click the **Module Access** tab.
 - d. In the **Module Access** panel, select the **P6 Analytics** module check box in the **Access** column.
 - e. Click the **Save** button.

- 3) Repeat these steps for each user account that will need to access data from the Primavera Analytics.
- 4) Run the Global Schedule Services. For details, see **Configuring and Running P6 EPPM Publication Services** (on page 45).

Note: You can schedule this service to run immediately or later, but it must run to successful completion prior to running the STARETL process.

- 5) Run the STARETL process.

Assigning Access to Primavera Analytics for Primavera Unifier Users

To assign application access to Primavera Analytics for Primavera Unifier users:

- 1) Sign in to Primavera Administration and do the following:
 - a. Add a user.
 - b. Assign application access for that user to **BI Author** or **BI Consumer**, and **Primavera Analytics Production**.

Note: For details on Primavera Administration, see the *Primavera Administration Identity Management Guide*.

- 2) Sign in to Primavera Unifier and do the following:
 - a. Go to the **Company Workspace** tab and switch to Admin mode.
 - b. In the left navigator, click **Access Control**.
 - c. In the right pane, select **Administration Mode Access > Analytics**.
 - d. In the **Permission Settings** window, add, modify, or remove permission settings as follows:
 1. Click **Add**.
 2. In the **Permissions Settings** window, click **Add Users/Groups**.
 - a. In the **Users/Groups** window, select users and groups you want to add.
 - b. Click **Add**.
 - c. Click **OK** to return to the **Permission Settings** window.
 3. To set permissions:
 - a. In the upper pane, select users and groups.
 - b. In the lower pane, select the appropriate level of access:
 - **View:** Allows users and groups to open and view the contents in Analytics node. Users with View permission cannot make any changes.
 - **Modify:** Allows users and groups to configure and modify the data required for Analytics. This setting also includes View permission. Users are also able to set schedule for publishing data, for various areas in Unifier, to the Oracle Business Intelligence (OBI) server. The View option must be selected for the users with Modify permissions.
 4. Click **OK**.


- c. Click **OK**.

Note: The **Permissions** tab enables access to permission templates. You can copy a permission template to quickly set up the permissions for a new user or group. You can also save an existing user or group's permission settings as a new template for later use.

- 3) Run the STARETL process.

Assigning Application Access to Primavera Cloud Users

To assign Primavera Cloud users access to Primavera Data Warehouse:

- 1) Sign in to Primavera Analytics Administration Web Application:
`http://<host>:<port>/p6rdb`
- 2) In the sidebar, click the  **User Management** icon.
- 3) To select users:
 - a. In the **License Enabled** column, select the check box to assign application access to each **User Name**.
 - b. Select **Repopulate Security** to give the selected users immediate access to their project data as an alternative to provide access subsequent to an ETL run.
- 4) Select **Save**.

P6 EPPM and Primavera Unifier Privileges

Primavera Data Warehouse adheres to the same user privileges and access rights as P6 EPPM and Primavera Unifier. Additional privileges may need to be granted to specific P6 EPPM and Primavera Unifier users. These privileges include Organizational Breakdown Structure (OBS), Cost access, and Resource access. Refer to the *P6 EPPM Application Administration Guide* for details about user privileges.

The following table briefly describes the Primavera Data Warehouse and P6 EPPM privileges:

Type	Description
OBS Access	Users who have OBS access in P6 EPPM will have OBS access in OBI.
Edit EPS Costs/Financials	Users who have access to projects in the P6 EPPM database and who have this privilege set will have the same privilege in the Primavera Data Warehouse database.

Type	Description
Resource Access	Resource access can be set to one of the following: All resource access: The user will have unrestricted access to resources. None: The user cannot access any resources. Specific resource access: The user can only access a specific resource.

Note: After modifying any P6 EPPM security privilege that affects Primavera Data Warehouse, it is required that the "Publish Security" Global Scheduled Service be run prior to running the STARETL process. This ensures that the correct privileges have been applied to the user account. For more information on running Global Scheduled Services, see **Configuring and Running P6 EPPM Publication Services** (on page 45) for more details.

Primavera Unifier user privileges are controlled both at the Company and the Project levels. For more details, see Primavera Unifier documentation.

Enabling Privileges for Users in OBI

To give your users the ability to archive catalogs, unarchive catalogs, upload files in OBI:

- 1) Sign in to Analytics as an OBI administrator.
- 2) Click on the **Administration** link, and then click **Manage Privileges**.
- 3) To assign archive privileges to a *BI Production Superusers* role:
 - a. In the **Catalog** section, click *BI Service Administrator* for the **Archive Catalog** privilege.

Note: By default, these privileges are assigned to a *BI Service Administrator*.

- b. In the **Privilege: Archive Catalog** dialog box, click on the + sign.
 - c. In the **Add Application Roles and Users** dialog box:
 1. Search for the *BI Production Superusers* role.
 2. Move the *BI Production Superusers* role to the **Selected Members** pane.
 3. Click **OK** to grant **Archive Catalog** privileges.
- 4) Repeat the entire sequence above and assign the following privileges for the *BI Production Superusers* role:
 - ▶ **UnArchive Catalog**
 - ▶ **Upload Files**
 - ▶ **Set Ownership of Catalog Objects**
 - ▶ **Save System-Wide Column Formats**
 - ▶ **Save Content with HTML Markup**

Configuring Primavera Analytics Cloud Administration Web Application

The Analytics Cloud Administration web application supports the following data sources:

- ▶ Primavera Cloud
- ▶ P6 EPPM
- ▶ Primavera Unifier








This section describes how to configure the application for each data source.


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Navigation Overview



To access and use the Analytics Administration Web application:

- 1) Sign in to: `http:// <host>:<port>/p6rdb`
where `<host>` and `<port>` were configured when you deployed p6rdb.
- 2) Depending on the data sources setup in analytics, the following icons display in the sidebar to perform administrative tasks:
 - ▶  **Home:** Displays currently running STARETL processes for all data sources and enables you to stop a currently running STARETL process.
 - ▶  **Status:** Displays details on recently run STARETL processes for all data sources. You can view a status report and an ETL Log for each STARETL process. Use this menu option to start, restart, or schedule ETL runs for a data source.
 - ▶  **Codes:** Displays a master list of codes that are available and a subset of those which have been enabled for project, activity and resource data. Use this menu option to add or remove codes for a data source.
 - ▶  **UDFs:** Displays a list of all UDF codes that are available and a subset of those which have been enabled for project, activity, resource assignment, resource, and WBS data. Use this menu option to add or remove UDFs for a data source.
 - ▶  **User Management:** Displays a list of users you can give a license to access and use this application for Primavera Cloud data source.
 - ▶  **Restful Credentials:** Test your credentials and connect to Primavera Cloud Data Service for the first time to run the initial load.
 - ▶  **Publication Status:** Displays the status of the publication services runs for P6 and Unifier data sources.

- ▶  **Config:** Configure and setup the properties of the STARETL process for each data source, and OBIEE settings.

Configuring the Application for P6 EPPM Data Source

For a P6 EPPM data source, set up the configuration properties for STARETL runs and OBIEE settings as follows:

- 1) Sign in to the Primavera Analytics Web Administration Application:
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) In the **Home** menu, select a **staretl<id>** or a **<Custom Name of a data source>**.
- 4) In the sidebar, select  **Config**.
- 5) For a P6 EPPM data source, set the following properties and then select **Save**:

Configuration Property	Description
In the Configurable Properties section, set up the following properties as required:	
Custom Name for Datasource	Enter a name for the data source for identification purposes. For example, <i>P6 EPPM Staging Data</i> .
Enable Activity Period Actuals	<p>Controls the display of past period actuals for activities.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i> (default): Enables pay period actuals for activities. ▶ <i>False</i>: Disables pay period actuals for activities. <p>Note: The Primavera Data Warehouse can use two additional financial periods. To add additional financial periods, submit a Service Request to My Oracle Support.</p>
ODI LoadPlan Auto Restart	<p>Controls restart of all real-time ODI Load plans.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i> (default): Auto restarts ODI load plans for a maximum count of 3 if an initial run fails. ▶ <i>False</i>: Manually restart is required for all real-time ODI load plans.

Configuration Property	Description
Enable Resource Assignment Period Actuals	<p>Controls the display of past period actuals for resources.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i> (default): Enables pay period actuals for resources. ▶ <i>False</i>: Disables pay period actuals for resources. <p>Note: The Primavera Data Warehouse can use two additional financial periods. To add additional financial periods, submit a Service Request to My Oracle Support.</p>
Enable Relationship load	<p>Controls the ETL from processing activity relationships.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i> (default): ETL runs will not process relationship loads. ▶ <i>False</i>: ETL runs will process relationship loads.
Turn off all History, keep Slowly Changing Dimensions	<p>Controls history tables.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i>: Turns off history tables. <p>Note: Slowly changing dimensions (SCDs) will continue to be captured at the project level without the history tables.</p> <ul style="list-style-type: none"> ▶ <i>False</i> (default): Keeps history tables with SCDs. <p>Note: To delete SCD data for an effective date or a specific date range, contact Oracle Support with a service request.</p>
Disable Rebuild Index	<p>Controls rebuilding of indexes in the cloud database.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i> (default): Does not rebuild indexes. Results in improved performance. ▶ <i>False</i>: Rebuilds indexes
Turn off Resource and Role Limits	<p>Controls resource and role utilization scripts.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i>: Turn the scripts off. ▶ <i>False</i> (default): Keeps the scripts running.

Configuration Property	Description
Enabled Spread Snapshot History	Controls the use of spread snapshot history in the advanced analytics dashboard. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Enables spread snapshot history. ▶ <i>False</i> (default): Disables spread snapshot history
Use project filter in data source 1	Selects filtered projects only. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Ensures the next ETL run includes only projects filtered with the <code>ETLFILTER</code> code = <code>'Y'</code>. ▶ <i>False</i> (default): Does not user project filters
Include Inactive Resources	Controls resource filtration. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Ensures Primavera Data Warehouse tables will not filter out inactive resources. ▶ Note: If inactive resources are included, then spread data and other dimension tables will also be included. You may not need to process this extra resource assignment information. ▶ <i>False</i> (default): Filters out inactive resources.
Enable Slowly Changing Dimensions and Spread History	Controls the creation of slowly changing dimensions (SCDs) and spread history. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True (default)</i> : Capture SCDs and spread history. ▶ <i>False</i>: Turn off (SCDs) and spread history.
Load all Hierarchy Codes	Builds code hierarchies. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Runs codes_hier.sql script and build code hierarchies with all codes that come from the source. ▶ <i>False</i> (default): Runs codes_hier_all.sql script and build hierarchies with codes from configStar.

Configuration Property	Description
ODI Log Level	<p>Controls the level of detail included in the ODI log files.</p> <p>Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>Summary</i>: Displays a summarized content in the log file. ▶ <i>Detail</i> (default): Displays detailed information in the log file..
Degree of Parallelism for Rebuild Index	Select the number of threads running in parallel for the rebuilding index process.
<p>If you plan to use ODI for projects in real-time, set the following properties to poll for changes in project data in P6 EPPM. The minimum poll interval is 5 minutes, and the maximum is 1440 minutes for all poll interval settings listed below:</p>	
ODI Realtime Global Loadplan Poll Interval (in minutes)	<p>Enter the frequency at which changes to global data is to be checked in P6 EPPM and captured in the data warehouse.</p> <p>By default the poll interval for ODI Realtime Global load plan is set to 10 minutes.</p>
ODI Realtime On Demand Loadplan Poll Interval (in minutes)	<p>The ODI Realtime On Demand Loadplan Poll Interval checks for changes to projects whose Enable Publication flag is selected in P6 EPPM. This process runs when new projects are added and published to the data warehouse by triggering the ODI On Demand load plan to run for the selected projects and include it in the data warehouse.</p> <p>Enter the frequency in minutes to check for changes to the Enable Publication flag for projects in P6 EPPM and send it to the data warehouse. By default the poll interval for running the On Demand ODI load plan is set to 60 minutes.</p> <p>At each check, new projects with Enable Publication flag will be added to the data warehouse, and projects whose Enable Publication flag is disabled will be deleted in the data warehouse.</p>



Configuration Property	Description
ODI Realtime Project Loadplan Poll Interval (in minutes)	<p>The ODI Realtime Project Loadplan Poll Interval setting checks for changes in current projects in P6 EPPM. This configuration property checks those projects whose Data Warehouse Update Frequency (ODI Only) field is set as <i>Immediate</i> in the Project Preferences dialog box in P6 EPPM.</p> <p>Enter the frequency in minutes to send changes directly to the data warehouse. By default the poll interval value is set to <i>1440 minutes</i> (24 hours).</p>
In the OBIEE Settings section, setup the following properties:	
Mail Prefix	<p>Customize the text that will be displayed in the subject line of email notifications that are sent regarding the status of ETL runs.</p> <p>For example, enter <i>Analytics</i> for status updates on ETL runs in Primavera Analytics.</p>
P6 Base URL	<p>Enter the URL in the following format:</p> <p><i>http://<host>:<port>/p6</i></p>
OBIEE Cache Purge	<p>Controls the clearance of OBIEE cache entries. Select any of the following values:</p> <ul style="list-style-type: none"> ▶ <i>True</i>: Clears the OBIEE cache ▶ <i>False</i>: Retains the cache entries.
Send Email Notification	<p>Enter the e-mail IDs of the personnel to be notified regarding the status or issues with the STARETL runs.. Also select the events for which you wish to be notified:</p> <ul style="list-style-type: none"> ▶ <i>Failure</i>: Email notifications sent only for failed ETL runs. ▶ <i>Success</i>: Email notifications sent only for successful ETL runs. ▶ <i>Both</i>: Email notifications sent for successful and failed ETL runs.

Adding Additional Financial Periods

Primavera Data Warehouse can use two additional financial periods. To add additional financial periods, submit a Service Request to Oracle Support.

Configuring P6 EPPM UDFs for each Data Source

To extract and load a subset of P6 EPPM user-defined codes (UDFs) to Primavera Data Warehouse:

- 1) Sign in to Primavera Analytics Administration Web Application:
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) In the **All** list, select **staretl<id>** or a **<custom name for data source>**.
- 4) In the left pane, select  **UDFs**.
- 5) Select any of the following tabs to migrate the following UDFs to Primavera Data Warehouse for the selected data source:

- ▶ **Activity**
- ▶ **Project**
- ▶ **Resource Assignment**
- ▶ **Resource**
- ▶ **WBS**

For example, select *Project*, *Activity*, *Resource*, *Resource Assignment*, and *WBS* level UDFs from P6 EPPM to migrate to Primavera Data Warehouse. Primavera Data Warehouse supports Cost, Date, Non-Cost, Text, and Indicator UDF types.

- 6) Select any of the following tabs to migrate a UDF type. The following UDF types are supported:
- ▶ **Cost**
 - ▶ **Date**
 - ▶ **Non-Cost**

Number and Integer UDF types are displayed in the 'Non-Cost' folders.

- ▶ **Text**
- ▶ **Indicator**

For additional information on configuring Indicator UDFs in OBI, see http://blogs.oracle.com/P6Analytics/entry/indicator_type_udfs_part_2.



Notes:

- Formula-driven UDF values are not brought over during the STARETL process. The calculated UDFs can be selected as columns but the values will be null in the Primavera Data Warehouse database.
- Primavera Data Warehouse has a limit of approximately 220 UDFs for each supported level (Project, WBS, Activity, Resource, and Resource Assignment) and data type (Cost limit is 220, Non-Cost limit is 220, and a combination comprising Date, Text, and Integer of 220). The limit for Indicator type UDFs for each level is 40. For example, you can select a total of 220 UDFs that includes Project Cost UDFs, WBS Cost UDFs, Activity Cost UDFs.
- By default, Primavera Analytics exposes only the UDFs that have been enabled through the File System-based Configuration utility or Primavera Analytics Web Administration Application.

- 7) To select a UDF to be migrated to Primavera Data Warehouse:
 - a. In the **Available UDFs** list, select a UDF from P6 EPPM.
 - b. Select the right-arrow ➤.
- 8) To deselect a UDF from being migrated to Primavera Data Warehouse:
 - a. In the **Enabled UDFs** list, select the UDF from P6 EPPM.
 - b. Select the left-arrow ⬅.
- 9) Select **Save Changes**.

Configuring the Application for Unifier Data Source

For a Unifier data source, set up the configuration properties for STARETL runs and OBIEE settings as follows:

- 1) Sign in to the Primavera Analytics Web Administration Application:
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) In the **Home** menu, select a **staretl<id>** or a **<Custom Name of a data source>**.
- 4) In the sidebar, select  **Config**.
- 5) For a Unifier data source, set the following properties and then select **Save**:

Configuration Property	Description
In the Configurable Settings section, setup the following properties:	
Custom Name for Datasource	Enter a name for the data source for identification purposes. For example, Unifier Production Data.



Configuration Property	Description
Disable Rebuild Index	Controls rebuilding of indexes in the cloud database. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Does not rebuild indexes. Results in improved performance. ▶ <i>False</i> (default): Rebuilds indexes.
Degree of Parallelism for Rebuild Index	Select the number of threads running in parallel for the rebuilding index process.
ODI Log Level	Controls the level of detail included in the ODI log files. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>Summary</i>: Displays a summarized content in the log file. ▶ <i>Detail</i> (default): Displays detailed information in the log file..
Enable Unifier EVM	Controls the usage of Unifier Earned Value Management data. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Populates the cloud database with EVM data. ▶ <i>False</i> (default): Does not populate the cloud database with EVM data. Results in improved performance.
Store Unifier History	Controls Unifier history tables. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i> (default): Keeps the history tables running. ▶ <i>False</i>: Disables all history tables.
If Store Unifier History is set to <i>True</i> , you can set the history levels for the following:	
Use P6 project Name for Unifier Project	Controls the source that will be used for naming a Unifier project. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: if the Unifierproject ID is identical in P6 and Unifier, then the project name from P6 will be used for the Unifier project. ▶ <i>False</i>: Uses the project name from Unifier.

Configuration Property	Description
Unifier BP Data History Level	Controls BP history level. Select the frequency of BP history tables as <i>Week</i> or <i>Month</i> to capture the history of BP dimensions. Note: History Level is applicable only for history fact tables like W_BP_HIST_F and W_BP_LINE_HIST_F.
Unifier Level Data History Level	Controls level history (FMRE). Select the frequency of BP history tables as <i>Week</i> or <i>Month</i> .
Unifier Cash Flow and Cost Sheet Data History Level	Controls the cash flow history and cost sheet history tables. Select the frequency of history tables as <i>Week</i> or <i>Month</i> .
Unifier Space Data History Level	Controls space history tables. Set this value to <i>Month</i> .
Enable Slowly Changing Dimensions	Controls the capability to see how business process has changed over time. A business process history can then be generated weekly or monthly. When you select Refresh All , it overwrites all previous history and only the latest history data is made available. Use this setting for Project / Shell, BP and BP Line Items and BP UDFs to generate reports based on historical data. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Captures history for all projects and business processes. This includes non-dynamic Business process related dimensional data, and dynamic dimensional data for Business process (UDFs) metadata. ▶ <i>False</i>: Disables business process history
Unifier Project Shell History Level	Controls project shell history levels. Select the frequency of BP history tables as <i>Week</i> or <i>Month</i> .
In the OBIEE Settings section, setup the following properties:	
Unifier Base URL	Enter the URL in the following format: <i>http://<host>:<port>/bluedoor</i>

Configuration Property	Description
OBIEE Cache Purge	Controls the clearance of OBIEE cache entries. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Clears OBIEE cache entries. ▶ <i>False</i>: Retains the cache entries.
Send Email Notification On	Enter the e-mail IDs of the personnel to be notified regarding the status or issues with the STARETL runs.. Also select the type of events for which they are to be notified: <ul style="list-style-type: none"> ▶ <i>Failure</i>: Email notifications sent only for failed ETL runs. ▶ <i>Success</i>: Email notifications sent only for successful ETL runs. ▶ <i>Both</i>: Email notifications sent for successful and failed ETL runs.

Configuring the Application for Primavera Cloud Data Source

For a Primavera Cloud data source, set up the configuration properties for STARETL runs and OBIEE settings as follows:

- 1) Sign in to the Primavera Analytics Web Administration Application:
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) In the **Home** menu, select a **staretl<id>** or a **<Custom Name of a data source>**.
- 4) In the sidebar, select  **Config**.
- 5) For a Primavera Cloud data source, set the following properties and then select **Save**:

Configuration Property	Description
In the Configurable Settings section, setup the following properties:	
Custom Name for Datasource	Enter a name for the data source for identification purposes. For example, <i>Primavera Cloud Production Data</i> .
Enable Loading Primavera Cloud UDFs	Controls the ability to load user defined fields (UDFs) in a future release. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Loads UDFs. ▶ <i>False (default)</i>: Does not load UDFs.


Configuration Property	Description
ODI Log Level	Controls the level of detail included in the ODI log files. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>Summary</i> (default): Displays a summarized content in the log file. ▶ <i>Detail</i> : Displays detailed information in the log file..
In the OBIEE Settings section, setup the following property:	
OBIEE Cache Purge	Controls the clearance of OBIEE cache entries. Select any of the following values: <ul style="list-style-type: none"> ▶ <i>True</i>: Clears OBIEE cache entries. ▶ <i>False</i>: Retains the cache entries.
Send Email Notification	Enter the e-mail IDs of the personnel to be notified regarding the status or issues with the STARETL runs. Also select the events for which you wish to be notified: <ul style="list-style-type: none"> ▶ <i>Failure</i>: Email notifications sent only for failed ETL runs. ▶ <i>Success</i>: Email notifications sent only for successful ETL runs. ▶ <i>Both</i>: Email notifications sent for successful and failed ETL runs.

Connecting to Primavera Cloud Data Service

To run the Primavera Cloud ETL for the initial load using the Web Administration application, you will need to connect to Primavera Cloud data service.

Note: Although this is a one-time setup, you will need to sign in any time you change your password for Primavera Cloud data service.

To sign in to Primavera Cloud data service for the *first* time:

- 1) Sign in to Primavera Analytics Cloud Administration Web Application:
http://<host>:<port>/p6rdb
- 2) From the **Home** menu, select a **staretl<id>** or a **<Custom Name of a data source>** for Primavera Cloud.
- 3) In the sidebar, select  **Restful Credentials**.
- 4) In the **Username** field, enter the username to connect to Primavera Cloud data service.
- 5) In the **Password** field, enter the password for the user specified in the **Username** field.

- 6) Select **Test Credentials** to check the connection to Primavera Cloud data service is established.
- 7) Upon receiving a successful validation message, select **Save**.
- 8) Select **Initial Load** to start the ETL run for the initial load.

Using Primavera Analytics Cloud Administration Web Application

This section describes how to accomplish the following tasks:



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Running the STARETL Process

The Primavera Analytics Web Administration Application contains a **staretl** section for each data source.

To run the STARETL process for a data source:


- 1) Sign in to the Primavera Analytics Web Administration Application.
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) From the  **Home** ▾ menu, select a **staretl<id>** or a **<Custom Name for DataSource>**.

Note: <id> is the identifier of the data source.

- 4) From the **Actions** menu, select **Run ETL** to run a STARETL process immediately.

Stopping the STARETL Process

To stop the STARETL process run for a data source:


- 1) Sign in to Primavera Analytics Web Administration Application.
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) Select **Stop** for a currently running STARETL process.
- 4) View the log file, **YYYYMMDDProcessID_failed.log** created in the folder, **<PDW Install Folder>\star\etl_homes\STARETL<id>\log**.

Scheduling STARETL Process Runs

To schedule a STARETL process run for a data source:

- 1) Sign in to the Primavera Analytics Web Administration Application.
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) From the  **Home** ▾ menu, select a **staretl<id>** or a **<Custom Name for DataSource>**.

Note: <id> is the identifier of the data source.

- 4) Use any of the following menu options to schedule an ETL run:
 - ▶ From the **Actions** menu, select **Schedule Etl** or
 - ▶ In the **Recently Running ETLs** section, select the  **Row Actions** menu for a **Custom Name** or StarETL ID, and then select **Schedule Etl**.
- 5) In the **Schedule Frequency** field, select the frequency for the STARETL process run.
If you select *None*, no STARETL process run will be scheduled for a data source.
If you select *Daily*:
 - a. In the **Run ETL at** field, enter the time for the daily process run, and select **Save**.
 - a. To schedule multiple ETL schedules daily, select **Add** and enter date and time for the ETL run.

Note: Schedule multiple ETLs daily at least 2 hours apart.


If you select *Weekly*:

- b. In the **Run ETL at** field, enter the time for the process run.
- c. Select the days for the STARETL process run, and select **Save**.

Reviewing the Global Status of STARETL Runs

The Global Status page displays the ETL status of STARETL runs for all data sources, across multiple products.

To access the Global Status page and view details of all STARETL runs:

- 1) Sign in to Primavera Analytics Administration Web Application.
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) The following information is displayed for each STARETL process:
 - ▶ **Custom Name:** The custom name given to a data source.
 - ▶ **ETL Name:** The identifier for the data source for the STARETL process.
 - ▶ **ETL ID:** The unique identifier for the STARETL process run.
 - ▶ **ETL Start Date:** The start date and time for the STARETL process run based on the server time.
 - ▶ **ETL End Date:** The end date and time for the STARETL process run based on the server time.


- ▶ **Status:** The status of the STARETL process run. These include:
 - **OK:** The STARETL process completed successfully.
 - **Running:** The STARETL process is currently running.
 - **Failed:** The STARETL process has failed. View the log for more information about the failure.
- ▶ **Log:** The link to the ETL log of the selected STARETL run.

Reviewing the Status of Publication Service Runs



Publication services are responsible for ensuring that the data is up-to-date prior to running the STARETL process. Publication services are available for:

- ▶ P6
- ▶ Unifier

To view the status of recent publication runs for the relevant product:

- 1) Sign in to the Primavera Analytics Web Administration Application.
http://<host>:<port>/p6rdb
- 2) From the  **Home** ▾ menu, select a **staretl<id>** or a **<Custom Name for DataSource>**.

Note: <id> is the identifier of the data source.

- 3) In the sidebar, select  **Status**.
- 4) From the **Status** page, select  **Publication Status** in the sidebar.
- 5) On the **Publication Status** page, the following information for each publication service run:

For P6 Publication Services:

 - ▶ **Job ID:** A unique identifier for the publication service.
 - ▶ **Job Type:** The category of the publication service to which it belongs.
 - ▶ **Job Name:** The name of the publication service.
 - ▶ **Recur Type:** The recurrence of the publication service. The following values may display:
 - *RT_WebEnabled:* Indicates that the job is a recurring job and is scheduled
 - *RT_RecurDisabled:* Indicates that the job is a scheduled recurring job, but is currently disabled
 - *RT_WebASAP:* Indicates that the job is a one-time job, and must be run at the earliest
 - ▶ **Status Code:** The status of the publication service. The following values may display:
 - *Cancelled,:* The publication service has been canceled.
 - *CompError,:* The publication service has been completed with errors.
 - *Completed:* The publication service has been completed.
 - *Delegated:* The publication service is waiting to complete child jobs.
 - *Failed:* The publication service has failed to complete.
 - *Pending:* The publication service is in the queue waiting to be run.
 - *Running:* The publication service is currently in process.

- **Last Run Date:** The most recent date on which the publication service was run.


For Unifier Publication Services:

- **Job ID:** A unique identifier for the publication service.
- **Start Date:** The date on which the publication service was run.
- **Status:** The status of the publication service. The following values display:
 - *Canceled:* The publication service has been canceled.
 - *Failed:* The publication service has failed to complete.
 - *Finished:* The publication service has been completed.
 - *Not Started:* The publication service is in the queue.
 - *Running:* The publication service is currently in process.
- **End Date:** The date on which the publication service ended.
- **Refresh All Data:** Indicator that displays if all data was refreshed before running the publication service. The following values can display: *True*, *False*.
- **Type:** The type of publication service. The following values can display:
 - *On Demand:* Indicates the job was set up manually.
 - *Scheduled:* Indicates the job was automatically started based on a scheduled date and time.
- **Submit Date:** The date on which the publication service was submitted for a run.

6) Select **Refresh** to update the publication services run list as needed.

Starting and Restarting ODI Load Plans

To manage and run ODI load plans:



- 1) Sign in to the Primavera Analytics Administration Web Application.
http://<host>:<port>/p6rdb
- 2) From the  **Home** ▾ menu, select a **staretl<id>** or a **<Custom Name of a data source>**.
- 3) In the **Load Plan Status** section of the **Status** page, select any of the following buttons:
 - Select **Start** to run a specific ODI load plan.
 - Select **Restart** for a currently ongoing run.

Note: In the sidebar, select  **Config** and set the **ODI LoadPlan Auto Restart** property to *True* to auto-restart for a maximum count of 3 if an initial run fails.

Accessing Log Files

Every time you run the STARETL process, Primavera Data Warehouse creates extensive log files that provide information about the installation and daily operations details of each step of the process. Inspect the log files after each run of the STARETL process to determine if any issues exist.

To access the log files of ETL runs:


- 1) Sign in to Primavera Analytics Administration Application:
http://<host>:<port>/p6rdb
- 2) From the  **Home** ▾ menu, select a **staretl<id>** or a **<Custom Name of a data source>**.
- 3) In the sidebar, select  **Status**.
- 4) In the **Recently Running ETLs** section, select the **View Log** link to access the log files created for each STARETL run.

The following information is displayed in a log file:

- ▶ **<yyyymmdd>ProcessId.log**: Contains the details of the SQL commands run to perform the database refresh updates.
- ▶ **<yyyymmdd>ProcessId.html**: Contains results of the processes run to create the users, tables, and transfer of data. Provides the time it took for each step to run. This log is derived from the ETL_PROCESSMASTER, ETL_PROCESSINFO, and ETL_PROCESSEXCEPTION tables.
- ▶ **<yyyymmdd>**: The date of the STARETL process run.

Accessing Recent STARETL and Load Plan Logs

To access the log of a specific STARETL run of a data source:

- 1) Sign in to Primavera Analytics Administration Web Application.
http://<host>:<port>/p6rdb
- 2) In the sidebar, select  **Status**.
- 3) From the **Global Status** menu select **staretl<id>** or **<Custom Name for data source>**.
- 4) In the **Load Plan Status** section, review the following information for recent load plans:
 - ▶ **Name**: Name of the load plan associated with the data source
 - ▶ **Status**: Current status of the load plan.
 - ▶ **Last Successful Time**: Date and time that the load plan completed successfully.
 - ▶ **Last Failed Time**: Date and time that the load plan failed..
 - ▶ **Number of Retries**: Number of attempts made to rerun the load plan.
 - ▶ **View Log**: Link to the log file of the load plan.
- 5) In the **Recently Running ETLs** section, review the following information for recent STARETL runs:
 - ▶ **ETL Name**: Identifier for the data source associated with the STARETL run.
 - ▶ **ETL ID**: Unique identifier for the STARETL run.
 - ▶ **ETL Start Date**: Start date and time for the STARETL run based on the server time.
 - ▶ **ETL End Date**: End date and time for the STARETL run based on the server time.
 - ▶ **Status**: Status of the STARETL run. These include:
 - **OK**: The STARETL run completed successfully.
 - **Running**: The STARETL run is currently running.
 - **Failed**: The STARETL run failed. View the log for more information about the failure.
 - ▶ **Log**: Links to the log file of the STARETL run.

- 6) Select any of the following buttons to complete the relevant task:
- ▶ Select **Refresh** to view an updated list of STARETL runs and ODI load plans
 - ▶ Select **Restart** if you want to start a load plan.
 - ▶ Select **Load Security** if you want to add new P6 users without running an ETL.

Configuring P6 EPPM for Primavera Data Warehouse

Primavera Data Warehouse relies on data from P6 EPPM as a data source. Before using Primavera Data Warehouse, configure and run P6 EPPM Publication Services to ensure current data is ready to be extracted, transformed, and loaded (ETL) into Primavera Data Warehouse.

This chapter describes how to set up P6 EPPM for Primavera Data Warehouse.

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Configuring and Running P6 EPPM Publication Services

If you are using P6 EPPM as a data source, Primavera Data Warehouse relies on data from the P6 EPPM Extended Schema and related publication services. Configure the P6 EPPM publication services and run them successfully prior to running a STARETL process. The publication services are responsible for moving and transforming P6 EPPM data into the P6 EPPM Extended Schema.


There are two types of publication services within P6 EPPM that need to be run in order to ensure that the data in the P6 EPPM Extended Schema is up-to-date prior to running the STARETL process.

- ▶ **Global Scheduled Services:** Global services are responsible for moving global/enterprise level data (Users, Security, Codes, Hierarchies, and so on) from the P6 EPPM base tables into the Extended Schema. Due to the possibility that this type of global data does not change frequently, Global Services can be configured to run at regularly scheduled intervals. Global scheduled services include the following:
 - ▶ **Publish Enterprise Data Service** calculates and publishes enterprise-level business objects containing calculated and denormalized fields, including cost accounts, currencies, calendars, codes, funding sources, resource teams, role teams, timesheet dates, UDFs and more.
 - ▶ **Publish Enterprise Summaries Service** calculates and publishes EPS-level spread data for currently published projects in a given EPS.

- ▶ **Publish Resource Management Service** calculates and publishes the resource hierarchy, resources, resource rates, resource limits, role rates, resource role assignments, and resource security.
- ▶ **Publish Security Service** publishes users, the OBS, and security profiles and calculates security for the P6 Extended Schema.
- ▶ **Project Level Service:** This service updates data in the P6 EPPM Extended Schema for each project. This service can be configured to run at specific time intervals or based on a number of changes interval. This service processes projects in a queue type fashion.


See the *P6 Help* for details on Publication Services.

To configure and run Publication Services in P6 EPPM, complete the following steps:

- 1) Sign in to P6 EPPM as an administrator user.
- 2) From the **Administration**  menu, select **Application Settings**.
- 3) In the **Application Settings** pane, click **Services**.
- 4) On the **Services** page, in the **Publication** section, use the following fields to set the amount and frequency of data updates in the P6 EPPM Extended Schema. For the Primavera Data Warehouse, set the following:
 - ▶ **Start Date:** Enter the start date for all time-distributed data published.
 - ▶ **Finish date is current date plus:** Enter the rolling end date for all time-distributed data published.
 - ▶ **Time distributed interval:** Enter the spread data bucket types (day or week).
- 5) Select the **Enable Publish Projects** option and adjust the remaining options in this section as needed for your data.

The projects that qualify for publication publish to the P6 EPPM Extended Schema.

Note: To verify the status of each project publication job in P6, select **Projects, EPS, Actions, View Service Status**.

- 6) When publication is complete, run P6 EPPM Global Scheduled Services:
 - a. From the **Administration**  menu, select **Global Scheduled Services**.
 - b. In the following order, set the following global services to run immediately by right-clicking the service name and selecting **Run Service**.
 - Publish Enterprise Data
 - Publish Resource Management
 - Publish Security
 - Publish Enterprise Summaries

Note: After configuring and running publication services, configure Global Scheduled Services to run at regular intervals to work in conjunction with any changes to the P6 EPPM data.



Creating History Data for P6 EPPM

P6 EPPM provides the ability choose the level (Project, WBS, Activity) and interval (Yearly, Quarterly, Monthly, Daily) of history data to be captured and stored in Primavera Data Warehouse. The activity level includes Daily, Weekly, and Monthly options. In P6, you can define history level and interval settings on a per project basis. Use P6 to configure the type of data stored in Primavera Analytics and in what time interval.

To configure history settings:

- 1) Sign in to P6.

Note: A user must have the **Edit Project Details Except Cost/Financials** profile to edit the history settings.

- 2) Click **Projects**.
- 3) On the **Projects** navigation bar, click **EPS**.
- 4) On the **EPS** page:
 - a. Select a project.
 - b. From the **Actions**  menu, select  **Set Project Preferences**.
- 5) In the **Project Preferences** pane, click **Analytics**.
- 6) On the **Analytics** page:

- a. Select the **History Level** and **History Interval** settings.

You can choose one of the following for History Level:

- **None** (the default)
- **Project**
- **WBS**
- **Activity (Daily)**
- **Activity (Weekly)**
- **Activity (Monthly)**

You can choose one of the following for History Interval:

- **Month** (the default)
- **Week**
- **Quarter**
- **Year**
- **Financial Period**

- b. Click **Save** to continue working or click **Save and Close** if you are finished.

Note: If you select **Activity (Daily)** or **Activity (Weekly)** or **Activity (Monthly)** as the **History Level**, this will automatically set the **History Interval** for Activity and Resource Assignment history to the corresponding activity time interval. Use caution when selecting which projects you choose to have daily history captures as this can affect the amount of time and the volume of data processed when running the ETL process. You still need to set the history interval level when selecting

Activity level history, which will apply to project and WBS-level history only.

- 7) Run the publication services to publish the changes you made.

Using Slowly Changing Dimensions and Daily Snapshot Fact Tables for P6 EPPM Data

To capture history data in P6 projects and enable predictions in CIC, it is necessary to enable Slowly changing dimensions (also known as Type 2 dimensions) to preserve an attribute's history of values by capturing non-fact or dimensional data and associating that data with the correct version of the fact row. Captured data includes project, resource, activity, resource assignment dimensional data, and more. Slowly changing dimensions are used when it is important to preserve the historic context of facts.

When source data elements change or when the STARETL process is run, a new row is added to the dimension table and the previous row is left unchanged. Previously recorded facts remain associated with the old dimension row and new facts are associated with the new dimension row. These rows show the changes to an attribute over time. For example, if the Planned Start Date for an activity has changed between the current capture and the previous capture, the old and new date would both be recorded in the dimension table.

Dimension rows in the dimension table are distinguished by the **Effective Start Date**, **Effective End Date**, and **Current Flag**. The date and time the STARETL process starts becomes the **Effective Start Date** for the new dimension row. The new version of a dimension **Effective End Date** defaults to 01-Jan-3000 00:00:00. When the STARETL process is run again, the **Effective End Date** for the latest version of the attribute then becomes the **Effective Start Date** for the current version minus one second.

For example, if the **Effective Start Date** for the current version of the attribute is 04-Nov-2019 9:12:28 PM, then the **Effective End Date** for the previous version becomes 04-Nov-2019 9:12:27 PM. The most recent dimension row in the dimension table has a value of "1" in the **Current Flag** column. All other rows have "0" in the **Current Flag** column.

Dimension Table


Project Id	Project Name	At Completion Units	Effective Start Date	Effective End Date	Current Flag
IT00999	Project Silicon	6164.00	10/31/2019 9:22:53 PM	11/1/2019 9:11:39 PM	0.00
		6176.00	11/1/2019 9:11:40 PM	11/2/2019 9:21:56 PM	0.00
		6180.00	11/2/2019 9:21:57 PM	11/3/2019 9:07:33 PM	0.00
		6172.00	11/3/2019 9:07:34 PM	11/4/2019 9:12:27 PM	0.00
		6091.00	11/4/2019 9:12:28 PM	1/1/3000 12:00:00 AM	1.00

Daily snapshot fact tables enable the daily capture of metrics at the Resource Assignment and Activity Levels. Daily snapshot fact tables are used in conjunction with slowly changing dimensions. For example, when the Activity History daily snapshot is recorded, new fact rows will be updated with the most current version of each record in the activity dimension. Previously recorded facts remain associated with the old dimension row version.

The daily snapshot makes it easy to determine what metrics such as Remaining Units looked like at any point in time across all projects that have been opted into this level of data capture.

Enabling Daily History Snapshots and Slowly Changing Dimensions

To enable slowly changing dimensions and daily history snapshots for a P6 project:

- 1) Sign in to P6 EPPM.
http://<host>:<port>/p6/action/login
 - 2) In P6, click **Projects**.
 - 3) On the **Projects** screen navigation bar, click **EPS**.
 - 4) On the **EPS** page:
 - a. Select a project.
 - b. From the  **Row Actions** menu of the selected project, select **Set Project Preferences**.
 - 5) In the **Project Preferences** pane:
 - a. Ensure the project is configured for Publication Services.
 1. Click the **Analytics & Services** tab.
 2. Select the **Enable Publication** option in the **Publication** section.
 - b. Configure the project's History Level setting.
 1. Click the **Analytics & Services** tab.
 2. From the **History Level** list, select *Activity (Daily)*, *Activity (Weekly)* or *Activity (Monthly)*.
-
- Note:** You should still configure the **History Interval** setting, but it will only apply to Project and WBS-level history metrics.
-
- c. Click **Save and Close**.

Turning Off Slowly Changing Dimensions

If you turn off the slowly changing dimensions (SCDs) for a field, the current dimensional row can be updated with a new value without the addition of a new dimensional row.

Slowly changing dimensions can be controlled on a field-by-field level. If slowly changing dimensions are turned on, a change will cause a new row to be added. If slowly changing dimensions is turned off, a new row will not be added if a change is made to that field. For example, if the **Activity Description** field has slowly changing dimensions turned on, then changes made to this field will cause a new row to be added to the dimensional table the next time the STARETL process is run. If the **EPS Name** field has slowly changing dimensions turned off, then the STARETL process will not update the dimensional table with a new row. Have these settings configured for each field can prevent cascading updates to fact tables. For example, if a change is made to the EPS table, that change would cause a new row to be added to the dimension table for all of the activities affected by the change.

Submit a Service Request on My Oracle Support if you want to:

- ▶ Enable or disable slowly changing dimensions for a field or

- ▶ Delete SCD data for an effective date or a specific date range

Using Burn Down for P6 EPPM Data

Primavera Data Warehouse and Primavera Analytics contain an additional way that data can be analyzed outside of the standard P6 EPPM methods. Primavera Data Warehouse and Primavera Analytics include additional tables and configuration for Burn Down. In the simplest of terms, Burn Down is a set of calculations that display how a project will progress if everything goes "according to plan". Primavera Analytics includes metrics and Key Performance Indicators (KPIs) for both the current project data, as well as any point in the past for which the data was captured. These metrics and KPIs include both current and historical activity counts, units, and costs. Primavera Analytics and Primavera Data Warehouse has the ability to track and monitor how the current schedule is executing in relationship to how it was supposed to progress at the start of the project (T-0). This includes, but is not limited to, any new activities that were added to the current project that did not exist at the start of the project (emergent), activities that have been removed in the current schedule that existed in the point in time capture of the project (deleted), and activities whose start or finish has changed since the point in time capture of the project.

Use the following sections to learn more about the additional functionality, how to set it up in P6 EPPM, and how to work with the data in Primavera Analytics.


Note: Oracle provides several white papers that detail aspects of Burn Down:

- Burn Down Detail Data Flow:
http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineLearning/WhitePapers/BurnDown_Details_DataFlow.pdf
 - Burn Down Units Details:
http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineLearning/WhitePapers/BurnDown_Details_Units.pdf
 - Burn Down Counts Details:
http://www.oracle.com/webfolder/technetwork/tutorials/primavera/OnlineLearning/WhitePapers/BurnDown_Details_Counts.pdf
-

Creating Project UDFs for Burn Down Subject Areas

Only P6 EPPM projects can be manually included to take advantage of the Oracle Primavera Burn Down tables and functionality. This section describes how to create and configure the necessary P6 EPPM project level user-defined fields (UDFs) that the STARETL process needs to include project(s) in Burn Down.

To create the project UDFs, complete the following steps:



- 1) Sign in to P6 EPPM with a user account that has the privilege to change enterprise data (for example, admin).
- 2) From the **Administer**  menu and select **Enterprise Data**.
- 3) On the **Enterprise Data** page, expand **Projects** and select **Project UDFs**.
- 4) On the Project UDFs page:

- a. Add a **sys_workdown** UDF with a data type of **Text**.
- b. Add a **sys_workdown_date** UDF with a data type of **Start Date**.

Selecting the Project for the Burn Down Subject Area

For a project to be included in the Burn Down tables and subject area, you must configure specific project UDF and History Level settings in P6.

To select which P6 EPPM project will be included in Burn Down tables and metrics, complete the following steps:

- 1) Sign in to P6 EPPM.
- 2) In P6, click **Projects**.
- 3) On the **Projects** navigation bar, click **EPS**.
- 4) On the **EPS** page:
 - a. Select a project.
 - b. From the **Actions**  menu, select  **Set Project Preferences**.
- 5) In the **Project Preferences** pane, click **Analytics**.
- 6) On the **Analytics** page, click the **History Level** list, and then select **Activity**.
- 7) In the **Project Preferences** dialog box, click **Save and Close**.
- 8) On the **Projects** navigation bar, click **EPS**.
- 9) On the **EPS** page, add the **sys_workdown** and **sys_workdown_date** UDF columns to the page.
- 10) For the projects you want to add to the Burn Down subject area:
 - a. Enter `project` in the **sys_workdown** column.
 - b. Enter a date value (for example, 09/30/2015) in the **sys_workdown_date** column. This value is used as the snapshot date for comparison to actual project values. If no value is entered here, the **Project Start Date** is used.

Note: The date used for the initial Burn Down data capture is one day before the date entered for this UDF. For example, if the **sys_workdown_date** is 03/31/2016, then the STARETL process uses 03/30/2016 for the Burn Down comparison.

Burn Down and Work Planning with the STARETL Process

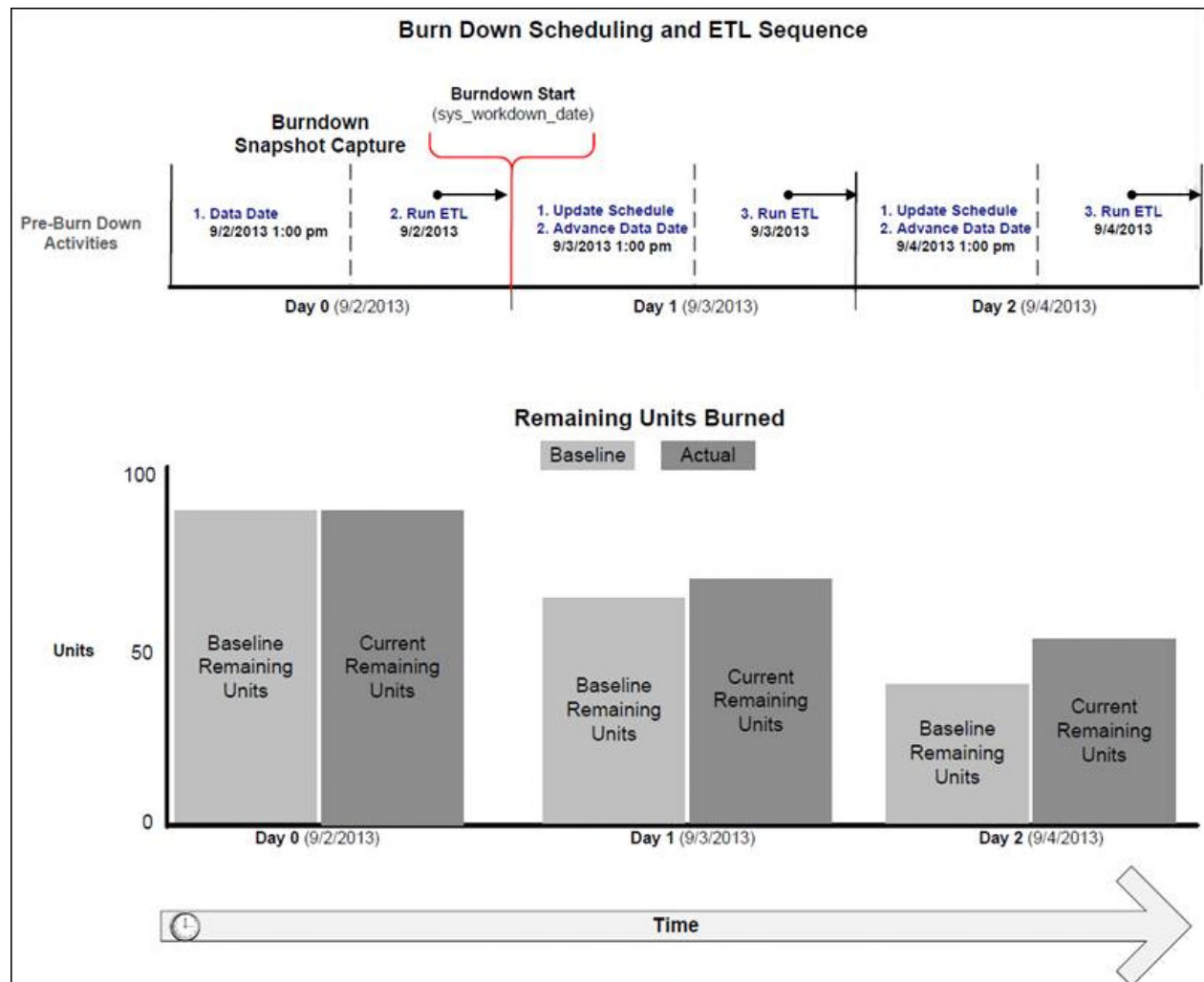
After adding P6 EPPM projects for inclusion in the Burn Down and/or Work Planning subject areas, it is important that the date/time period specified in P6 EPPM under **Administer, Application Settings, Services** in the **Publication Period** section is later than the latest project finish for ALL project(s) that will be included for Burn Down and/or Work Planning. For example, in P6 EPPM Publication Services settings, if you specify a start date of October 1, 2015 and the finish date is current date plus setting is two years, the finish date for all of the Burn Down/Work Planning project(s) must have a finish date before September 30, 2017. If a project extends past the finish date setting in the publication services settings, the Burn Down/Work Planning portion of the STARETL process generates an error.

Note: Setting a finish date range that is too long will affect the STARETL process run time. Each day the publication services are run, the finish date range also extends by one day.

Scheduling a Burn Down Project

A project can have activities scheduled and completed before a burn down begins. This gives users the flexibility to begin the project burn down on the date specified in the **sys_workdown_date** UDF rather than the **Project Start Date**.

In a Burn Down project, the initial snapshot of the project's activities and assignments is taken the day before the date entered in the **sys_workdown_date** UDF. This snapshot is used as a baseline to compare against actual values. For example, the **Baseline Remaining Units Burned** can be compared to the **Remaining Units Burned**. The STARETL process must be run one day before the **sys_workdown_date** (or the **Project Start Date** if this UDF is not used) to capture this initial snapshot.



About the STARETL Process and Burn Down Metrics

When using Burn Down Metrics, you must update the schedule and run the STARETL process. Each daily STARETL process updates two sets of daily metrics:

- ▶ **Metrics for 'Today':** All work completed today through the latest schedule update and data date change is recorded as work completed for the current date when the STARETL process occurs.
- ▶ **Metrics for 'Yesterday':** Since the data from yesterday is only current through the latest schedule update and data date change, any additional work completed yesterday but AFTER the update is now added to the daily metrics for 'yesterday'.

For example, a project is updated at 6pm daily and then the STARETL process is run. The next day, these become metrics for 'yesterday' and initially reflect work only through 6pm yesterday. When the STARETL process is run today, any additional work completed between 6pm and midnight is now included under the metrics for 'yesterday'.

Calculating Metrics in the Burn Down Subject Area

To capture daily trending information, complete the following steps each day to calculate the metrics in the Burn Down subject area:

- 1) Update the status of activities in the projects you configured in P6 to be included in the Burn Down subject area. For example, update the Actual and Remaining Units and which activities are completed.
- 2) Adjust the data date to correspond to the latest status update.
- 3) Run the STARETL process.

Note: The STARETL run must occur within each calendar date to properly capture daily metrics.


Using Work Planning for P6 EPPM Data

Primavera Analytics supports Work Planning for P6 EPPM data. Work Planning is a method of tracking how work is progressing based on a set of user-determined points in time. Similar to Burn Down, Work Planning also uses project-level user-defined fields (UDFs) to select the P6 EPPM projects included in the Work Planning calculations and metrics and also the point in time you want to use for the comparison.

Creating Project UDFs for Work Planning Subject Areas

You can manually include P6 EPPM projects to take advantage of the Work Planning tables and functionality.



You must create and configure the necessary P6 EPPM project-level user-defined fields (UDFs) that the STARETL process needs to include projects in Work Planning. To do this, complete the following steps:

- 1) Sign in to P6 EPPM.
- 2) From the **Administration**  menu, select **Enterprise Data**.
- 3) On the **Enterprise Data** page, expand **Projects** and select **Project UDFs**.
- 4) On the **Project UDFs** page:
 - a. Add a **sys_workprocess** UDF with a data type of **Text**.
 - b. Add a **sys_scope_freeze** UDF with a data type of **Text**.
 - c. Add a **sys_schedule_freeze** UDF with a data type of **Text**.

Selecting a Project for the Work Planning Subject Area

The Work Planning subject area is designed for ongoing project work typical of routine and online maintenance projects. In these projects, planning metrics are tracked week over week and workweek metrics are tracked daily. There are specific Project UDF and History Level settings required in P6 to include a project in the Work Planning subject area.

Complete the following steps to select the P6 EPPM projects for the work planning subject area:

- 1) Sign in to P6 EPPM.
- 2) In P6, click **Projects**.
- 3) On the **Projects** navigation bar, click **EPS**.
- 4) On the **EPS** page:
 - a. Select a project.
 - b. From the **Actions**  menu, select  **Set Project Preferences**.
- 5) In the **Project Preferences** dialog box:
 - a. Ensure the project is configured for publication services.
 1. In the **Project Preferences** pane, click **Services**.
 2. On the **Services** page, in the **Publication** pane, select the **Enable Publication** option.
 - b. Configure the project's History Level setting.
 1. In the **Project Preferences** pane, click **Analytics**.
 2. On the **Analytics** page, in the **History Level** list, select **Activity**.
 - c. Click **Save and Close**.
- 6) On the **Projects** navigation bar, click **EPS**.
- 7) On the **EPS** page, add the **sys_workprocess**, **sys_scope_freeze**, and **sys_schedule_freeze** UDF columns to the page.
- 8) For the projects you want to add to the Work Planning subject area:
 - a. Enter `workweek` in the **sys_workprocess** column.

Note: Use the format T-<x>w (where <x> equals the number of weeks prior to scope freeze and schedule freeze) must be followed exactly when entering the **sys_scope_freeze** and **sys_schedule_freeze** UDF values.

- b. Enter a value in the **sys_scope_freeze** column. This is a relative value for each week in a project's schedule. For example, if you enter T-2w, scope freeze for each week in a project is calculated as two weeks prior to the Planned Start Date of that week. Scope freeze metrics, such as Scope Freeze New or Scope Freeze Lost, are captured for each week in a project schedule from each week's calculated scope freeze date up to and including its completion.
- c. Enter a value in the **sys_schedule_freeze** column. This is a relative value for each week in a project's schedule. For example, if you enter T-1w, schedule freeze for each week in a project is calculated as one week prior to the Planned Start Date of that week. Schedule freeze metrics, such as Schedule Freeze New or Schedule Freeze Lost, are captured for each week in a project schedule from each week's calculated schedule freeze date up to and including its completion.

Scheduling a Work Planning Project

Scope freeze, schedule freeze, and actual metrics are captured for each week of planned work in a project that has been opted into the Work Planning subject area. Each individual week in the schedule will have these metrics captured leading up to that week's execution, allowing users to monitor their planning performance on a weekly basis for an upcoming week of work.

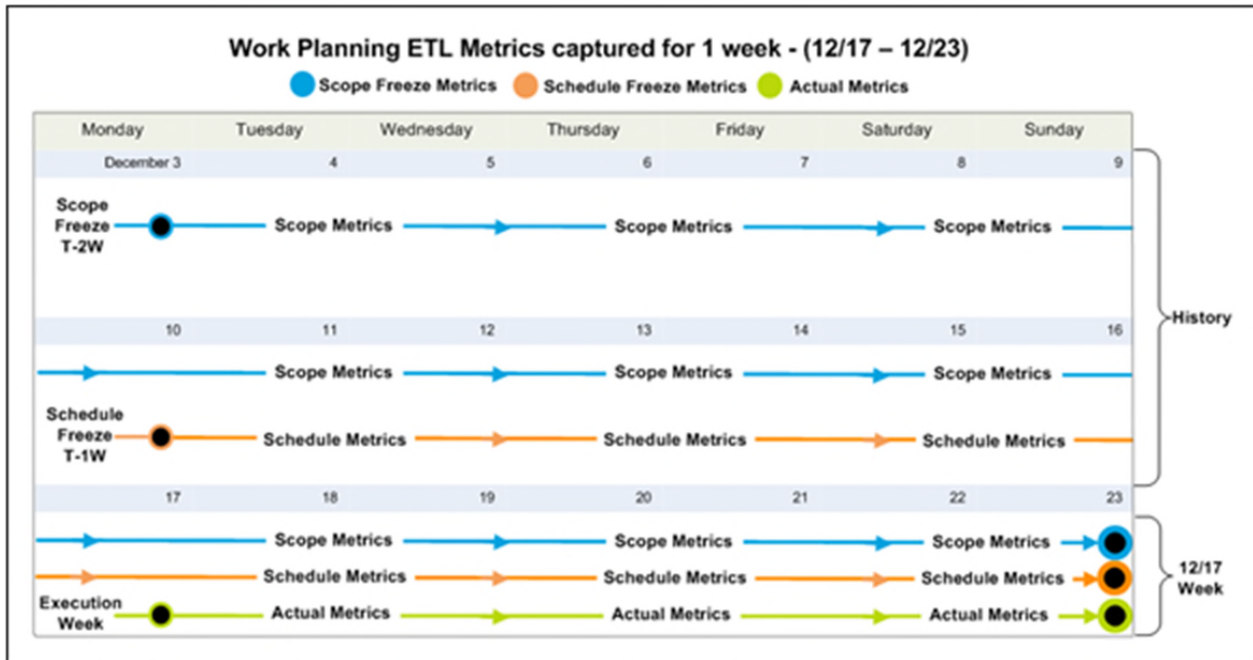
The **sys_scope_freeze** and **sys_schedule_freeze** UDFs control the amount of history or the number of weeks these metrics capture for each individual week leading up to the execution week.

The diagram below illustrates how the ETL process would capture Work Planning metrics for the week 12/17/2012 to 12/23/2012 given the following P6 settings:

- ▶ The **sys_scope_freeze** equals T-2w
- ▶ The **sys_schedule_freeze** equals T-1w
- ▶ The **Starting Day of Week** equals **Monday** (this is set in the P6 Application Settings)

In this scenario, the **Scope Freeze** for the week starting on Monday 12/17/2012 occurs two weeks prior (T-2w) to that week's planned start date. **Schedule Freeze** occurs one week prior (T-1w) to that week's planned start date. Daily Actual Start and Finish metrics are captured throughout the week.

Once the STARETL process has run on these respective freeze dates, any changes in the schedule for an upcoming week (such as adds, deletes, or planned date changes) are recorded the next time the STARETL process runs.



Using Graded Approach to Schedule Adherence

Graded approach to schedule adherence is a method for tracking adherence using four distinct levels of work scheduling (A, B, C, and D).

The levels of work scheduling are:

- ▶ **A (Hourly):** Used when you require the most control, adherence, and management oversight. Reasons include risk (probability safety analysis/risk assessment), personnel safety, or other significant concerns. Users must finish Level A activities within one hour of the target planned finish date.
- ▶ **B (Daily):** Used for work requiring multi-discipline coordination, significant tagouts, or risk significant work. Users must finish Level B activities on the same day as the target planned finish date.
- ▶ **C (Weekly):** Used for non-risk significant and routine work that does not require support from other work groups. Users must finish Level C activities within the week of the target planned finish date.
- ▶ **D (No Tracking):** Used for housekeeping, shop work, and other types of work that have no impact to the plant. Level D activities are considered "fill-in" work and are not tracked for schedule adherence.

To configure graded schedule adherence:

- 1) Ensure you have enabled a project for Work Process:

The `sys_workprocess=WORKWEEK`, `sys_scope_freeze`, and `sys_schedule_freeze` UDFs are populated and **History Level** are set to **Activity**.

- 2) Ensure history exists for the project as of the scheduled freeze date and T-0 baseline date for the week the STARETL process will run.
- 3) Code activities using an Activity Code or UDF to identify the adherence grade (A, B, C, D). For example, in the sample data, Activity Code 11 (Schedule Adherence Priority) is used.

Note: Ensure the Activity Code or UDF used is set up correctly both in the Primavera Data Warehouse database and the repository definition.

During T-0 for a given week when you run the STARETL process, the Baseline Planned Finish Date (as of T-0) and the Schedule Freeze Planned Finish Date (as of schedule freeze UDF) for the activities will be captured. You can use these dates along with the assigned adherence grade to calculate the graded schedule adherence in Primavera Analytics.

Using Location Data

Note: As of Fusion Middleware release 12.2.1.3, MapViewer has been officially deprecated (see Support Note 2485093.1). MapViewer will continue to work with Primavera Analytics and at this time there are no plans to de-support, but be advised that no enhancements or bug fixes will be made to the MapViewer component in subsequent Fusion Middleware releases.

Both P6 EPPM and Primavera Unifier can store location information for projects. In addition, P6 EPPM can also store location information for activities and resources. Primavera Analytics can create intelligent analysis to evaluate measures using the geographical location data entered in P6 EPPM and Primavera Unifier. You will need spatial boundary data and maps. Primavera Analytics comes with access to Oracle eLocation services. Oracle eLocation service is a cloud-based map data service that provides mapping, geocoding, and routing capabilities. For more information, see the Oracle Business Intelligence documentation on mapping and spatial information.


Map Viewer demo data (also known as MVDEMO) is a map data providers that is supported with Primavera Analytics. This provides a sample set of map data that you can configure with Map Viewer. MVDEMO also provide access to eLocation services (maps.oracle.com). The MVDEMO sample map data provides detailed layers for the countries of the world, United States, and major world cities.

Note: The location attributes you enter in P6 EPPM and Primavera Unifier must match the attributes in the MVDEMO data to ensure the map layers render correctly. For example, if you have a city name Philadelphia in P6 EPPM, the name Philadelphia must also exist in the MVDEMO CITIES_ALL tile.

Entering P6 EPPM Location Data for Mapping

P6 EPPM supports the ability to enter location data at the dictionary level that can be assigned to Projects, Activity, and Resources and then extracted, transformed, and loaded into the Primavera Data Warehouse for use in Oracle Business Intelligence analysis.

To create location data in P6 EPPM, complete the following steps:

- 1) Sign in to P6 EPPM with an account that has the privilege to change enterprise data (for example, admin).
- 2) From the **Administer**  menu, select **Enterprise Data**.
- 3) In the **Enterprise Data** pane, expand **Global**, and then select **Locations**.
- 4) Enter the location data as appropriate for your specific needs.
- 5) Assign locations data to projects, activities, and resources as needed.

Note: See the P6 help for information about entering and assigning location data.

- 6) After all of the location data is entered and assigned where appropriate for your environment, run all of the Global publication services to ensure that the data in the publication tables is up to date. After Publication Services have run to successful completion, run the STARETL process to extract, transform, and load the data from P6 EPPM to the Primavera Data Warehouse.

Configuring Primavera Unifier for Primavera Data Warehouse

Primavera Data Warehouse relies on data from Primavera Unifier. Before using Primavera Data Warehouse, configure and run Primavera Unifier Publication Services to ensure Unifier current data is ready to be extracted, transformed, and loaded (ETL) in Primavera Data Warehouse.

This chapter describes how to set up Primavera Unifier for Primavera Data Warehouse.


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Configuring and Running Primavera Unifier Publication Services

When Primavera Unifier is used as a data source, Primavera Data Warehouse relies on data from the staging tables and related publication services of Unifier. Before running the STARETL process, you must configure and run publication services to allow users to control what data to calculate and store and how often the data is updated. For detailed instructions, see *Publishing Unifier Data to Analytics* in the *Primavera Unifier Administration Guide*.

To configure publication services in Primavera Unifier, complete the following steps:

- 1) Sign in to Primavera Unifier with an account that has admin privileges (ootbadmin).
- 2) Go to the **Company** workspace.
- 3) Change the mode from user mode to **admin** mode.
- 4) Open the **Analytics** module.
- 5) From the toolbar, click the **Schedule** icon .
- 6) In the **Schedule Setup** pane, set the data update frequency.
- 7) If you have made any changes to the data definition or the data mapping fields, select the **Refresh all data** check box.

Notes:

- If you choose to refresh all data, you may want to deselect the **Refresh all data** check box after the run is complete.
- If you exceed the data limit of previous releases, submit a Service Request to My Oracle Support to increase the business process data element counts.

- 8) Click **OK**.

Creating History Data for Primavera Unifier

Primavera Unifier also provides the ability to capture and store history data. Data can be captured at either the Monthly or Weekly intervals, (with the exception of Space history which is monthly only). No additional settings are required.

Using Primavera Unifier Location Data

Primavera Unifier can store location information for projects. Primavera Analytics can create intelligent analyses to evaluate measures using the geographical location data entered in Primavera Unifier. To accomplish this, you will need spatial boundary data and maps. Primavera Analytics comes with access to Oracle eLocation services.

Oracle eLocation service is a cloud-based map data service that provides mapping, geocoding, and routing capabilities. For more information, see the Oracle Business Intelligence documentation on mapping and spatial information.

Primavera Analytics now uses built-in Oracle Maps within OBI by default for creating spatial analyses included with Primavera Analytics sample catalog without any external schema or additional Map Viewer configuration. Alternatively, you can continue to use Map Viewer demo data (MVDEMO) for spatial analyses.

Note: If you choose to use Map Viewer demo data (MVDEMO), the location attributes you enter in Primavera Unifier must match the attributes in the MVDEMO data to ensure the map layers render correctly. For example, if you have a city name Philadelphia in P6 EPPM, the name Philadelphia must also exist in the MVDEMO CITIES_ALL tile.

Preparing Primavera Unifier Location Data for Mapping

There are some additional steps required to integrate Primavera Unifier location data with map data. The Primavera Unifier staging tables store columns for State and Country name (for example, United States), however some of the MapViewer layers rely on State and Country code for the mappings. Run the included script at the end of the STARETL process to ensure that the State Code and Country Code columns are populated correctly for use with map data.

To enter location data in Primavera Unifier:

- 1) Sign in to Primavera Unifier.
- 2) Assign locations to your projects.
- 3) From the **Company Admin** screen, select the **Analytics** module.
- 4) In the Shell mapping configuration, ensure that the **Country** and **State** columns are mapped to values that represent country and state codes rather than names.

-
- **Note:** When you map a Shell to a UDF in the Unifier Analytics module, the data type of the UDF determines whether it will be available as a dimension or a fact in analytics.
 - If the data type of the UDF is *String* or *Date*, the data will be mapped

as a Dimension object in Analytics.

- If the data type of the UDF is *Numeric*, then the data will be mapped as a Fact object in Analytics, and is only available in the **Primavera - Project User Defined Fields** and **Primavera - Project User Defined Fields History** subject areas.
-

After you have entered and assigned all of the location data where appropriate for your environment, run all of the Publication Services to ensure that the data in the publication tables is current. After Publication Services have run successfully, run the STARETL process to extract, transform, and load the data from Primavera Unifier to the Primavera Data Warehouse.

Creating Oracle Applications Connections

You can create connections to Oracle Applications and use those connections to create data sets.

You use the Oracle Applications connection type to create connections to OBIEE. After you create a connection, you can access and use subject areas and analyses as data sets for your projects.

- 1) In the **Home** page of Data Visualization Data, click **Create**, then click **Connection.** to display.
- 2) In the **Create Connection** dialog box, click the **Oracle Applications** icon.
- 3) Enter the following information: A name for the new connection, the OBIEE URL, user name, and password.
- 4) In the **Authentication** field, specify if you want the users to be prompted to log in to access data from the Oracle Applications data source.
 - ▶ If you select **Always use these credentials**, then the login name and password you provide for the connection is always used and users aren't prompted to log in.
 - ▶ If you select **Require users to enter their own credentials**, then users are prompted to enter their user names and passwords to use the data from the Oracle Applications data source. Users required to log in see only the data that they have the permissions, privileges, and role assignments to see.
- 5) Click **Save**.

Syncing Cloud and On-Premises Data

Use the **Primavera Analytics Cloud Sync** utility to populate your on-premises Primavera Data Warehouse with data from cloud.

Note: To use **Primavera Analytics Cloud Sync**, you must have a license for Primavera Analytics, on-premises or Primavera Data Warehouse on-premises software.

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Syncing P6 EPPM Data from Cloud to On-Premises

Complete the following sequence to sync P6 EPPM cloud data (source) to your on-premises (target) data:

- 1) **Prerequisites to Sync P6 Cloud and On-Premises Data** (on page 63)
- 2) **Configuring the Sync Environment for P6 EPPM Cloud to On-Premises for Primavera Data Warehouse** (on page 64)
- 3) Configuring and Running P6 EPPM Publication Services from Analytics Web Application

Prerequisites to Sync P6 Cloud and On-Premises Data

Before proceeding with the sync setup, choose one of the following:

- ▶ Initial Sync
- ▶ Incremental Sync after Dump Restoration

Initial Sync is recommended for only small databases where number of Projects is less than 100. Otherwise, choose Database dump restoration and Incremental Sync.

Initial P6 Sync Prerequisites

- 1) Create an empty P6 database (Target) on an Oracle 12c database instance.
- 2) Contact Oracle Support to:
 - ▶ Request Server sync to be configured in the cloud and get details of URL to access WebLogic Sync server and its authentication information. Also get the property values for **sync.name** and **sync.number** given in the **client_send.properties** file while configuring the server.
 - ▶ Ensure that the **optin.project_mode** property is set to 'PX' in the **client_send.properties** file.
- 3) Set JAVA_HOME to the supported version. For more details see *client Requirements* document.

Database Dump Prerequisites

- 1) Contact Oracle Support to request for backup dump file of your source P6 database.
- 2) Import the provided P6 source admuser database dumpfile in P6 Target database (on-premises).
- 3) Contact Oracle Support:
 - ▶ Request Server sync to be configured in the cloud and get details of URL to access Weblogic Sync server and its authentication information. Also get the property values for **sync.name** and **sync.number** given in the **client_send.properties** file while configuring server.
 - ▶ Ensure that the **optin.project_mode** property is set to *INCRPX* in the **client_send.properties** file.
- 4) Set the JAVA_HOME to the supported version. For more details see *client Requirements* document.

Configuring the Sync Environment for P6 EPPM Cloud to On-Premises for Primavera Data Warehouse

To receive P6 EPPM cloud data: :

- 1) Contact Oracle Support with a service request to enable **Primavera Analytics Cloud Sync**.

Note: To use **Primavera Analytics Cloud Sync**, you must have a license for Primavera Analytics on-premises or Primavera Data Warehouse on-premises software.

- 2) When the service request is completed, download **sync-client.zip** from the Primavera Portal landing page.
- 3) Extract **sync-client.zip**.
- 4) (Initial sync only) From the **sync-client** directory run the **clear_all_p6.sql** script against the target P6 admuser schema.
- 5) For Unix or Linux systems, update permissions on .sh files using the following command.

```
$ chmod u+x *.sh
```
- 6) To receive data from the cloud, edit **client_receive.properties** in the **sync-client** directory with the following information:
 - ▶ **sync mode = CLIENT** This information is pre-populated.
 - ▶ **sync type = RECEIVER** This information is pre-populated.
 - ▶ **sync.name**=<Name of the sync> A unique sync name pre-populated to identify the sync configuration. For example, **p6clouddata_receiver**.
 - ▶ **sync.number**=This number is pre-populated.
 - ▶ **target.db.host**=The host name (or IP) of the machine on which the P6 target database is hosted. For example, *localhost*.
 - ▶ **target.db.port**=The port number for the Oracle instance on which P6 target database is created. For example, 1521.
 - ▶ **target.db.service**=The service name of the Oracle instance on which P6 target database is created. For example, *pdborcl*.

- ▶ **target.db.type**=P6. .
- ▶ **target.db.schema**=Database username of the admin user (*admuser*) of P6 target database.
- ▶ **target.db.syncuser**=The username of **sync-client** database schema that will be created on same Oracle instance as the P6 target database. It should not be the name of an existing schema, as this schema will be created during setup. This schema user must contain an underscore ("_") character. For example, *t_syncuser*.
- ▶ **target.db.sysuser**=The name of the sysdba user. For example, *sys*.
- ▶ **server.base_url**=The URL of the WebLogic server sync rest service received from Cloud support. This URL is pre-populated. For example, *http://<hostname>:<port#>/sync/rest*.
- ▶ **server.connectuser**= The username of a user who has permissions to create sync configurations. For example, *weblogic* or *admin*. This user is pre-populated.

7) Save **client_receive.properties**.

8) Run **syncsetup.cmd** or **syncsetup.sh** to create and configure the database schema for the sync process.

```
$ ./syncsetup.sh client_receive.properties
```

a. Enter passwords for the following users:

- syncuser (**target.db.syncuser**)
- The sysdba user on that same Oracle instance (**target.db.sysuser**)
- The admin user for the P6 target database schema (**target.db.schema**)
- The web user who will insert the configuration into the sync configuration (**server.connectuser**)

The process creates the **t_syncuser** database schema (**target.db.syncuser**).

b. After the process completes, enter the password of *syncadmin* user. This is the user credential for local Jetty server. Subsequent processes will use this credential to communicate with the server.

9) Start the sync client server.

```
$ . /startserver .sh
```

Server startup will take up to a minute. If you load the configuration without starting the server, you will get an error.

10) Load the sync and receive the configuration into the sync client server:

```
$ . /commander .sh LOAD client_receive.properties
```

11) Re-enter the passwords for P6 database admin user (**source.db.schema**) and server connection user (**server.connectuser**).

The sync client should now start syncing with the sync microservice.

12) To check if the sync process is running, use any of the following options:

- ▶ See **server.log** in the **sync-client/log** folder.
- ▶ Connect as T_SYNCUSER, and check the sync progress from the database. Run the following scripts:
 - To see details of the file posted successfully to the database, run:


```
select * from sync_config;
```

- To get an update of the global tables being synced and the status of the sync process for each specific table, run:

```
select * from sync_control;
```

The **entry_value** column status changes from *New* to *Complete*. No records are present in this table as the target schema details are on the client side.
- To display all the projects registered to be synced, run:

```
select * from sync_whitelist;
```

Synced projects will have a **Status** of *Sent* and projects waiting to be synced will have a **Status** of *New*. No records are present in this table as the target schema details are on the client side.
- To view the blob records corresponding to source admuser schema:

```
select * from sync_transfer_data;
```

The status of the record changes from *Receiving*, *Received*, *Applying*, and finally to *Applied*. After the record status is *Applied*, check the corresponding data in target admuser schema.

13) To load cloud sync data to Primavera Data Warehouse on-premises database:

- a. Publish the data into P6 tables by:
 - **Configuring and Running P6 EPPM Publication Services** (on page 45) from P6 or
 - Configuring and Running P6 EPPM Publication Services from Analytics Web Application
- b. Run the ETL to load the data into your on-premises Primavera Data Warehouse database.

Publishing P6 Data to Extended Schema

To publish P6 data to the extended schema:

- 1) Get the **p6services.jar** file from the P6 build.
- 2) Run the following command:

```
java -jar "Path to p6services.jar"
```
- 3) Select *Oracle* or *Microsoft SQL Server* from the **Database Type** list.
- 4) Enter the following database details: database username, publication user username, password, and database service.
- 5) Select **Next**.
- 6) In the P6 target database, run the following as ADMUSER:
 - a. Ensure that `last_update_date` is null for all projects that are considered for publishing (**PX_ENABLE_PUBLICATION_FLAG = 'Y'**). If not, update them as follows:

```
update project set px_last_update_date = null WHERE  
PX_ENABLE_PUBLICATION_FLAG = 'Y'; commit;
```
 - b. Ensure that `setting_value` has the maximum Project ID for **setting_name= 'ProjectNonDemandStopKey'**.

```
update SETTINGS set Setting_value = (select max(proj_id) from project)
where Namespace = 'PxService.Project.Arbitrator' and Setting_name =
'ProjectNonDemandStopKey'; commit;
```

- 7) Ensure that the P6 target database, to which data is synced, is added as a source to the Primavera Data Warehouse.
- 8) To enable Publication Services view on Webapp, run the following query in the STAR database as STARUSER:

```
UPDATE ETL_PARAMETER SET P_1='true' WHERE P_FEATURE='db.pmdb.cloud';
commit;
```

Syncing Unifier Data from Cloud to On-Premises

Complete the following sequence to sync Unifier cloud data (source) to your on-premises (target) data:

- 1) **Prerequisites to Sync Unifier Cloud and On-Premises Data** (on page 67)
- 2) **Configuring Sync Environment for Unifier Cloud and On-Premises** (on page 67)

Prerequisites to Sync Unifier Cloud and On-Premises Data

- 1) Download **sync-client.zip** from the Primavera Portal landing page.
- 2) Create an empty Unifier database (target) on an Oracle 12c database instance.
If there is no existing target database, create an empty Unifier database using the **unifier_sys_stg_tables.sql** following the instructions provided in the SQL script. The **unifier_sys_stg_tables.sql** is located in **sync_client.zip**.
- 3) Connect to the target Unifier schema with sys user and run the following command
`grant select on sys.GV_$TRANSACTION to <Target unifier schema>;`
- 4) Run **auditing_schema_changes_unifier.sql** in the Unifier target schema. The script is located in **sync_client.zip**.
- 5) Contact Cloud Support to:
 - ▶ Request server sync to be configured in the cloud.
 - ▶ Get details of the URL to access Weblogic sync server and its authentication information.
 - ▶ Get the property values for **sync.name** and **sync.number** given in **client_send.properties** while configuring server.
- 6) Set JAVA_HOME to Java 1.8.

Configuring Sync Environment for Unifier Cloud and On-Premises

To receive data from the cloud to an on-premises database, setup and configure **client_receive.properties** as follows:

- 1) Extract **sync-client.zip**.

```
$ unzip sync_client.zip
$ cd sync_client
```

- 2) If the target Unifier database exists and is not empty, then run **clear_all_unifier.sql** from current directory against the target Unifier schema.

- 3) Unzip **sync-client.zip** available in the present working directory and enter the resulting sync-client directory.

```
$ unzip sync-client.zip
$ cd sync-client
```

- 4) If on a Unix or Linux system, set the executable flag on the shell scripts.

```
$ chmod u+x *.sh
```

- 5) To receive data from the cloud to an on-premises database, edit **client_receive.properties** as follows:

- ▶ **sync mode:** *CLIENT* This information is pre-populated.
- ▶ **sync type:** *RECEIVER* This information is pre-populated.
- ▶ **sync.name:** A unique sync name to identify the sync configuration. Obtain this information when you contact Oracle Support. For more details, see ***Prerequisites to Sync Unifier Cloud and On-Premises Data*** (on page 67)..
- ▶ **sync.number:** The number of the sync configured in the sync server. Obtain this information when you contact Oracle Support. For more details, see ***Prerequisites to Sync Unifier Cloud and On-Premises Data*** (on page 67).
- ▶ **target.db.host:** The host name (or IP) of the machine on which the Unifier target database is hosted. For example, *localhost*.
- ▶ **target.db.port:** The port number for the Oracle instance on which Unifier target database is created. For example, *1521*.
- ▶ **target.db.service:** The service name of the Oracle instance on which Unifier target database is created. For example, *pdborcl*.
- ▶ **target.db.type=UNIFIER**
- ▶ **target.db.schema=**Database username of the Unifier target database.
- ▶ **target.db.syncuser=**The username of the **sync-client** database schema that will be created on same Oracle instance as the Unifier target database. It should not be the name of an existing schema, as this schema will be created during setup. This schema user must contain an underscore ("_") character. For example, *t_syncuser*.
- ▶ **target.db.sysuser=**The name of the sysdba user. For example, *SYS*.
- ▶ **server.base_url=**The URL of the WebLogic server sync rest service received from Cloud support. Obtain this information when you contact Oracle Support. For more details, see ***Prerequisites to Sync Unifier Cloud and On-Premises Data*** (on page 67). For example, *http://<hostname>:<port#>/sync/rest-service*.
- ▶ **server.connectuser=** The user name who has permissions to create sync configurations. For example, *weblogic* or *admin*. Obtain this information when you contact Oracle Support.

- 6) Save **client_receive.properties**.

- 7) Run **syncsetup.cmd** or **syncsetup.sh** to create and configure the database schema for the sync process:

```
$ ./syncsetup.sh client_receive.properties
```

- a. Enter passwords for the following users:

- syncuser (**target.db.syncuser**)
- The sysdba user on that same Oracle instance (**target.db.sysuser**)
- The admin user for the Unifier target database schema (**target.db.schema**)
- The web user who will insert the configuration into the sync configuration (**server.connectuser**)

The process creates the **t_syncuser** database schema (**target.db.syncuser**).

- b. After the process completes, enter the password of *syncadmin* user. This is the user credential for local Jetty server. Subsequent processes will use this credential to communicate with the server.
- 8) Start the sync client server.

```
$ . /startserver.sh
```

Note: Server startup will take up to a minute. If you load the configuration without starting the server, you will get an error.

- 9) Load the sync and receive the configuration into the sync client server.

```
$. /commander.sh LOAD client_receive.properties
```

- 10) Re-enter the passwords for Unifier database user (**source.db.schema**) and server connection user (**server.connectuser**).

The sync client should now start syncing with the sync microservice.

- 11) To check if the sync process is running, use any of the following options:

- ▶ See **server.log** in the **sync-client/log** folder or
- ▶ Connect as T_SYNCUSER, and check the sync progress from the database.
 - To see details of the file posted successfully to the database, run:

```
select * from sync_config;
```
 - To get an update of the global tables being synced and the status of the sync process for each specific table, run:

```
select * from sync_control;
```

The **entry_value** column status changes from *New* to *Complete*. No records are present in this table as the target schema details are on the client side.
 - To display all the projects registered to be synced, run:

```
select * from sync_whitelist;
```

Synced projects will have a **Status** of *Sent* and projects waiting to be synced will have a **Status** of *New*. No records are present in this table as the target schema details are on the client side.
 - To view the blob records corresponding to the source schema, run:

```
select * from sync_transfer_data;
```

The status of the record changes from *Receiving*, *Received*, *Applying*, and finally to *Applied*. After the record status is *Applied*, check the corresponding data in target schema.