Oracle
Construction Intelligence Cloud Advisor
P6 EPPM On-Premises Application Setup Guide

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Contents

Getting Started

This chapter provides a brief overview and a process flow for setting up your P6 EPPM on-premises to work with CIC.

In This Section

Overview

CIC can be configured to display projects managed in P6 EPPM on-premises.

To connect CIC with P6 EPPM on-premises, setup the following applications in the order listed below:

1) P6 EPPM on-premises
2) Sync-client application
3) Primavera Administration Application
4) CIC Administration application

To ensure P6 on-premises projects are visible in CIC, you will need to install a sync client application in your on-premises environment. The sync-client application synchronizes or mirrors the on-premises data with a P6 cloud service which in turn is connected to CIC.

This guide describes how to setup P6 EPPM on-premises and the sync-client application for CIC. After completing the setup outlined in this guide, use the *CIC Advisor Administration Guide https://docs.oracle.com/cd/F33532_01/English/admin/cic_advisor_admin/index.htm* to set up the CIC Administration application. .

CIC Application Setup Process

The application setup process illustrates the applications you need to setup to display P6 EPPM projects in CIC.

Note: At this point in the setup process, ensure you have completed the required setup in the Primavera Administration Application. For more details, see *Before you Begin* (on page 7).
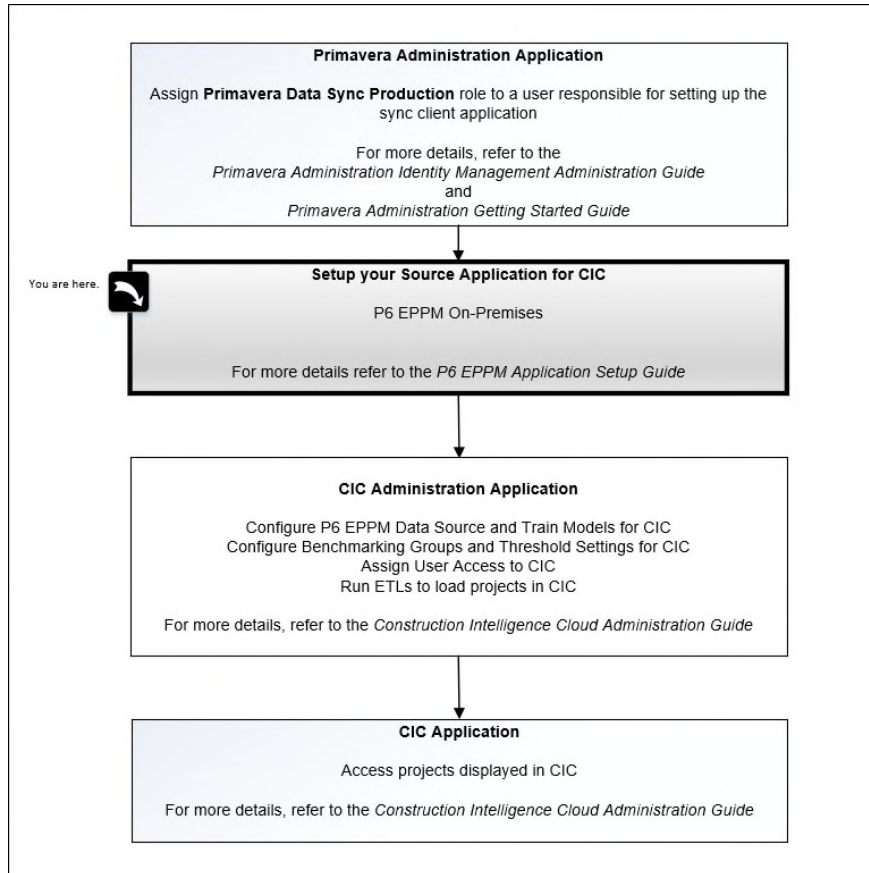
Before you Begin

Before you begin using this guide:

1) Ensure you have installed P6 EPPM on-premises.
   For supported versions, refer to the *Client System Requirements* document.
2) Assign a user with the **Primavera Data Sync Production** role as follows:
   a. Sign in to the Primavera Administration Application.
   b. Assign the **Primavera Data Sync Production** role to at least one user, distinct from the administrator, who is responsible for setting up the sync client application.

   For more details, see the following guides:
   ▸ *Primavera Administration Identity Management Guide*
     https://docs.oracle.com/cd/F51304_01/English/id_mgmt/index.htm
   ▸ *Primavera Administration Getting Started Guide*
     https://docs.oracle.com/cd/F51304_01/English/getting_started/index.htm

In This Section

How to Use this Guide

To successfully configure P6 EPPM on-premises for CIC, complete the task sequence outlined in the ***Process Flow for Configuring P6 EPPM On-Premises for CIC*** (on page 9).

Pre-installation Checklist

Before completing the setup, check for the following:

Setting	Value
Supported P6 EPPM On-Premises Versions	20.12 and 21.12
Acceptable Latency	less than 40 ms
Minimum Network Bandwidth	500 mbps

Setting	Value
Database Assessment	To send only the required projects to CIC, use the `optin.project_mode or Project Mode` and `optin.project_value or Project Value` properties provided during sync client setup. For more details, see ***Option 1: Installing Sync Client in the User Interface Mode*** (on page 17) and ***Option 2: Installing Sync Client in the Command Mode*** (on page 19) respectively.

Process Flow for Configuring P6 EPPM On-Premises for CIC

The following process flow outlines the key steps for configuring P6 EPPM on-premises for CIC.
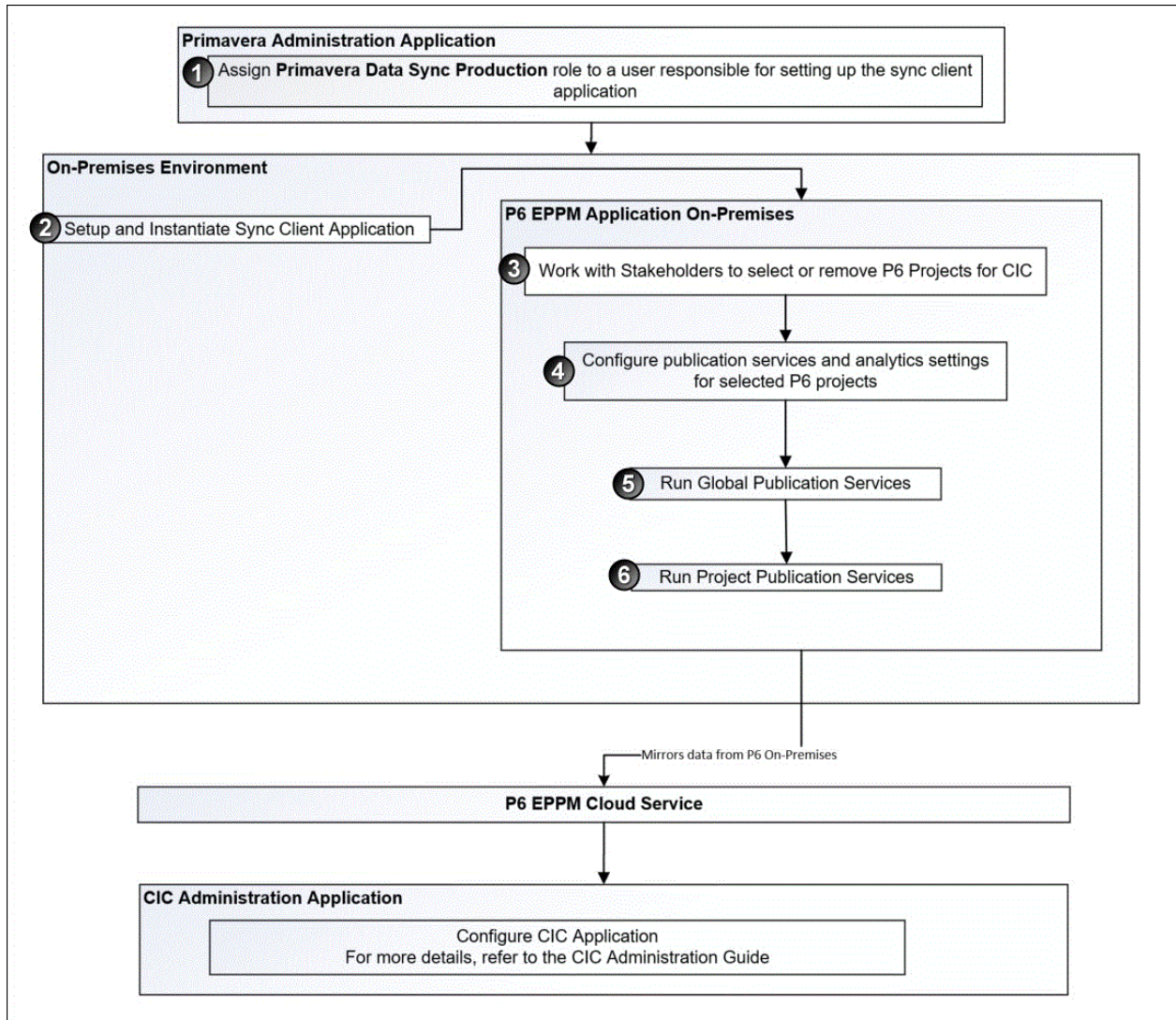
Step 1

Set up at least one user or administrator who is responsible for synchronizing the data between P6 on-premises application and P6 cloud.

1) Sign in to the Primavera Administration Application.

2) Assign the **Primavera Data Sync Production** role to a user who will be setting up the sync client application. This user must be distinct from the CIC administrator.

For more details on using the Primavera Administration Application, refer to:

▸ *Preparing to Administer your Applications,* in the *Primavera Administration Getting Started Guide https://docs.oracle.com/cd/F25602_01/English/getting_started/index.htm.*

▸ *Primavera Administration Identity Management Administration Guide https://docs.oracle.com/cd/F25602_01/English/id_mgmt/index.htm*

Step 2

Setup and instantiate sync client application in your on-premises environment. For more details, see **Setting Up the Sync Client Application** (on page 13).

Step 3

Work with key stakeholders in your organization to identify P6 projects to be made available in CIC and ensure users are granted access to the **P6 Analytics** module.

> - **Notes**:
> - If P6 on-premises is source for CIC, then there cannot be another P6 SaaS running. A P6 on-premises source is only for on-premises data. It cannot be a combination of P6 SaaS and P6 on-premises.
> - If you are also licensed for Primavera Analytics, then any projects added or removed in CIC Advisor or CIC Analytics will correspondingly reflect in Primavera Analytics.

For more details on how to select specific projects, see **Selecting P6 Projects for CIC for the First Time** (on page 25).

For more details on how to grant user access to the P6 analytics module, see **Configuring User Access for P6 Analytics Module** (on page 25).

Step 4

For the identified P6 projects, enable publication and analytics settings in P6.

For more details, see **Enabling History and Publication Services Settings for P6 Projects** (on page 26).

Step 5

Run global publication services in P6 EPPM to load global data into CIC.

For more details, see **Enabling Automatic Publishing of P6 Global Data** (on page 37) or **Manually Publishing P6 Global Data** (on page 39).

Step 6

Run project publication services in P6 EPPM to bring over project data into CIC.

For more details, see **Enabling Automatic Publishing of P6 Project Data** (on page 38) or **Manually Publishing P6 Project Data** (on page 40).

After completing all the steps, proceed to the **Next Step** (on page 41) of the application setup sequence.

Synchronizing P6 Data Between On-Premises and Cloud

To synchronize data from an on-premises P6 source to the targeted P6, you will need to install a sync client application in your on-premises environment and then perform a PX – PX Initial Sync.

When you run a PX - PX Initial Sync, the PX schema contains data from the P6 source for which the publishing runs have already been executed in the P6 source. Since, the publishing runs have already been executed in the P6 on-premises source, you don't need to execute the publishing runs in the P6 target.

This chapter describes how to install the sync client application.

In This Section

Setting Up the Sync Client Application

The sync client application allows you to synchronize and replicate data in real-time between your P6 on-premises application and P6 cloud service. The sync client application is a pre-packaged version of the Sync Microservice meant for on-premises customers only.

To setup the sync client application:

1) Complete **Sync Client Installation Prerequisites** (on page 16).
2) Import security certificates to Java environment. For more details, see **Importing Security Certificates to Java Environment** (on page 16).
3) Install Sync Client using any of the installation options.
   Option 1: Installing Sync Client in the User Interface Mode (on page 17)
   Option 2: Installing Sync Client in the Command Mode (on page 19)
4) If you choose to run incremental sync, complete **Running Incremental Sync** (on page 21).
5) Confirm and **Check Sync Process Running** (on page 22).
6) **Check Data Transfer Status** (on page 22)

P6 EPPM On-Premises System Architecture for CIC

To access projects created in a P6 EPPM on-premises application in CIC, a sync client application will need to be deployed and instantiated in your on-premises environment. The sync-client application connects with a sync server on the cloud to synchronize and replicate data in real-time between your P6 on-premises application and a P6 cloud service setup. CIC will now use the P6 EPPM cloud database which mirrors your on-premises data to display only the selected P6 EPPM projects in CIC.

> **Note**: The P6 cloud service which mirrors your on-premises data will only include the PX schema of the P6 database and any other component that CIC needs.

The following diagram illustrates the system architecture that needs to be implemented to display P6 EPPM on-premises projects in CIC:
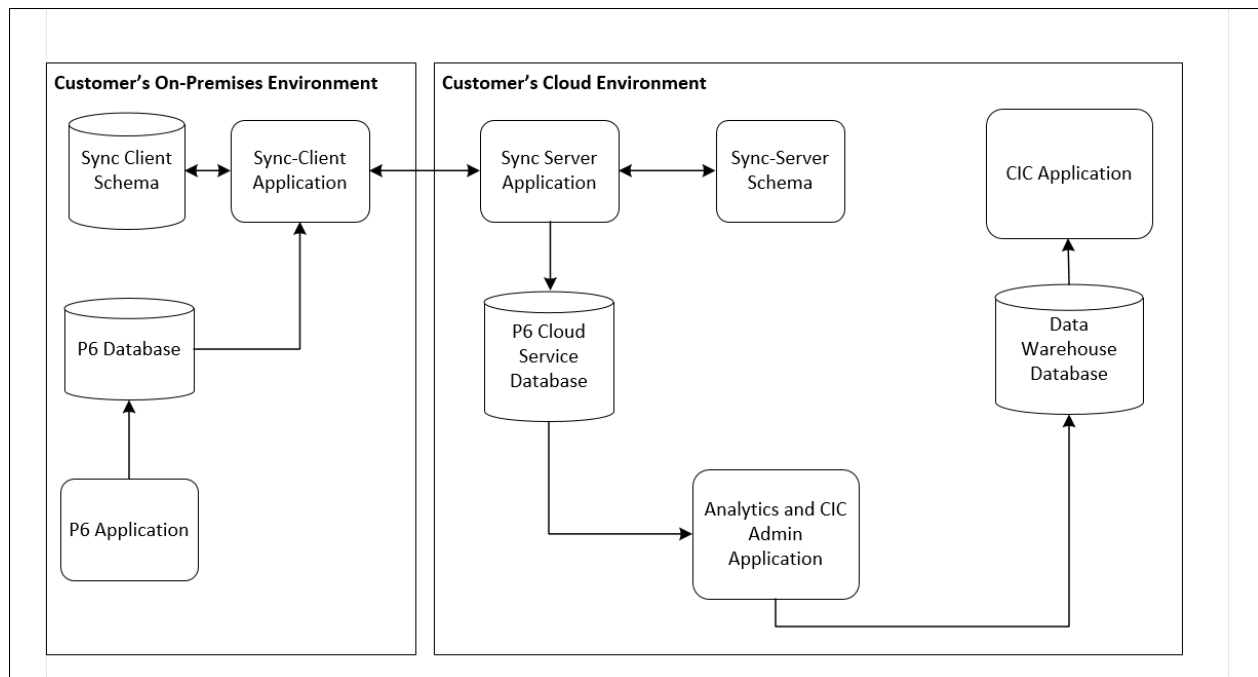
A brief description and role of each illustrated component is provided below.

Goal

Use CIC to access and view projects created in a P6 EPPM on-premises.

On-Premises Environment Components

Your on-premises environment consists of the following components:

P6 On-Premises Application: P6 is the primary interface for administering and managing projects. Here, you can select the projects being brought over to CIC.

P6 On-premises Database: The main database for P6 data. The P6 database includes the P6 Extended Schema (Px) optimized for reporting. Data from this source will be used to provide insights in CIC.

Sync Client Application: The sync client application is used to synchronize the data between a P6 on-premises database and P6 cloud service. This application is used to continuously mirror the data available in your on-premises database on the cloud.

Sync Client Schema: The sync-client schema consists of database objects required for Sync-client application. It acts as an intermediate schema to store data and changes captured from the P6 on-premises database.

Cloud Environment Components

Your cloud environment consists of the following components:

Sync Server Application: The sync server application connects with the installed on-premises sync client application to synchronize the data between a P6 on-premises database and P6 cloud service database. This application continuously mirrors the data available in your on-premises database on the cloud.

Sync Server Schema: The sync server schema contains the database schema of the sync server application.

P6 Cloud Service Database: The data from the P6 on-premises application is made available to a P6 EPPM cloud service database.

CIC Administration Application: The CIC administration application allows administrators to manage CIC and P6 EPPM data sources configured for your organization.

Use this application to:

▶ bring data over to CIC for analysis using the ETL process
▶ manage P6 data sources
▶ create, monitor, and retrain machine learning models
▶ Set up benchmarking groups to compare current projects with projects previously delivered
▶ Configure threshold settings for the CIC Advisor application

Data Warehouse:The Data Warehouse database consists of the Star database. It pulls data from the P6 EPPM Extended Schema optimized for reporting. Data from this source will be used to provide insights in CIC.

CIC Applications: CIC Suite applications include the following:

▶ CIC Advisor is a smart project advisor that uses Artificial Intelligence and Machine learning to predict the project and activity delay, make invisible risks visible and enable learning from past projects.
▶ CIC Analytics is is an industry solution built on a modern analytics platform delivering value to stakeholders to track project cost, schedule and risk.

Sync Client Installation Prerequisites

Complete the following prerequisites to install the sync client application for a PX - PX initial sync.

Prerequisites for PX - PX Initial Sync

Ensure the following:

1) A P6 database (source) with data is created on Oracle 12c database instance.
2) In P6 application, if you have a user name called *admin*, you will need to rename it as this user name is used during Sync setup.
3) Enable full auditing to get incremental changes by executing the following procedure in P6 source database by connecting as *ADMUSER*.

   ```
   exec auditing_enable(null,3);
   ```
4) Contact My Oracle Support and request configuring the sync server in the cloud . Also obtain the URL to access the sync server.
5) Create a user in the Primavera Administration Application and assign the **Primavera Data Sync Production** role to authenticate the sync server.
6) For PX Sync, execute SQL scripts before installation as follows:

   a. Unzip the **sync_client.zip** and navigate to the **Scripts** folder.

   b. Open the **audit_schema_changes_px.sql** file.

   c. Replace '**ADMUSER**' in the .sql file with the source admuser schema name (only when source schema name is not *ADMUSER*).

   d. Execute the **audit_schema_changes_px.sql** script by connecting as source admuser schema. For example, *ADMUSER*.

   e. Connect to database having source P6 schema as a system user having DBA privileges and run the following command:

   ```
   grant create trigger to <On-Premise P6 admuser schema>;
   ```
7) Execute the **auditing_enable_px.sql** script by connecting as source p6 schema user. For example, *ADMUSER*.

Importing Security Certificates to Java Environment

To import the required security certificates to your Java environment:

1) Access the Sync landing page in Chrome browser: *https://<hostname>/datasync*
2) Click on **Lock** icon beside the URL, and click on **Certificate (Valid)** from the pop up window.
3) Select the final certificate in the Hierarchy and click **Copy to File** on the **Details** tab.
4) Click **Next** twice to navigate to Certificate Export wizard.
5) Browse to the path where certificate should be exported and give the name as **Oraclecloud_sync.cer**.
6) Click **Next** and then click **Finish** to complete the certificate export process.

7) Navigate to the **Certification Path** tab, select the top certificate in hierarchy, and then click on **View Certificate**.

8) In the Certificate wizard, select the **Details** tab and click **Copy to File**.

9) Repeat steps 4, 5, and 6 to export this certificate as **Oraclecloud_root.cer**.

10) Repeat steps 7, 8, and 9 to export second certificate in hierarchy as **Oraclecloud_intermediate.cer.**

11) Copy the exported certificates to the machine where the sync client is being setup.

12) Open a command prompt, navigate to JAVA_HOME, and execute the following commands to import certificates to your JAVA environment.

```
$ cd $JAVA_HOME/jre/bin
```

Import root certificate

```
$ ./keytool -import -trustcacerts -alias oraclecloud_root -keystore
"$JAVA_HOME\jre\lib\security\cacerts" -file "<full path to root cer file
exported earlier>"
```

If a message, "Certificate Already exists" is displayed, then select **No**, to not import it as the certificate probably already exists.

The default password for keytool is *changeit*.

Import Intermediate certificate

```
$ ./keytool -import -alias oraclecloud_intermediate -trustcacerts
-keystore "$JAVA_HOME\jre\lib\security\cacerts" -file "<full path to
intermediate cer file exported earlier>"
```

Import Sync certificate

```
$ ./keytool -import -alias p6 -keystore
"$JAVA_HOME\jre\lib\security\cacerts" -file "<full path to
Oraclecloud_sync cer file exportedearlier>"
```

Option 1: Installing Sync Client in the User Interface Mode

To install the sync client using the Sync Client user interface application:

1) Unzip the sync_client.zip file and enter the resulting sync_client directory.

```
$ unzip sync_client.zip -d sync_client
$ cd sync_client
```

or

Unzip the sync-client.zip file available in the present working directory and enter the resulting sync-client directory.

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

2) If on a Unix or Linux system, set the executable flag on the shell scripts

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

3) You will need to start the sync client's server, but before that add proxy settings in startserver.sh file as given below.

```
java -jar ../start.jar -Dhttps.proxySet=true -Dhttps.proxyHost=<Proxy
HostName> -Dhttps.proxyPort=<Proxy Port> -Dhttp.proxySet=true
-Dhttp.proxyHost=<Proxy HostName> -Dhttp.proxyPort=<Proxy Port>
-Dapp.name=client-sync > /dev/null &
```

Contact Oracle Support for information on the **Proxy HostName** and **Proxy Port** details which were used to set up the server.

Update the **startserver.sh** file and start the Jetty server with following command

```
$ ./startserver.sh -u
```

4) When prompted enter the syncadmin password and confirm the password when prompted to re-enter. Jetty server starts running on port 8511

The server log file is available in log/server.log

5) Open a browser and enter the following URL to launch Sync Client UI app:

http://<hostname>:8511/client-DataSync/config.xhtml

where the IP address or *<hostname>* is that of the machine that has the Jetty server running.

6) In the **DACS Client Utility** page, enter the following information in each section:

Sync Properties Section

a. In the **Sync Mode** field, select *CLIENT* from the drop-down list.

b. In the **Sync Client** field, select *SENDER* from the drop-down list.

c. In the **Sync Name** field, enter the value, *ds_pxsync, f*or PX Sync (P6 + PX data).

d. In the **Sync Number** field, enter the value, *4,* for PX Sync.

Database Info Section

e. In the **Database Host** field, enter the host name or IP address of the machine hosting the P6 source database.

f. In the **Database Port** field, enter the port number for the Oracle instance on which P6 source database is created.

g. In the **Database Service Name** field, enter the service name of the Oracle instance on which the P6 source database is created

h. In the **Database Type** field, based on your sync configuration, select *PX* from the drop-down list for a PX sync.

i. Select the **Skip Schema Creation** check box only when intermediate schema (starting with "T_") is already created.

Database Credentials Section

j. In the **Database Schema** field, enter the on-premises P6 Database schema name For PX Sync. For example, admuser.

k. In the **Database Password** field, enter the password for the user name provided in the **Database Schema** field.

l. In the **Database Sync User** field, enter any name starting with *T_*. This will be intermediate schema name and is newly created. Ensure there is no existing schema with same name on the database instance where on-premises source database is hosted.

m. In the **Database Sync Password** field, enter the password for the user name provided in **Database Sync User** field. If this schema does not exist, provide your own value. This process will create a new schema.

n. In the **Database SYS User** field, enter a user name having SYSDBA privileges. For example, SYS.

o. In the **Database SYS Password** field, enter the password for the user provided in **Database Sys User** field.

Database Source Server Info Section

p. In the **Server Base URL** field, enter the URL of the WebLogic server sync rest service you have received from Oracle Support in the format:

http://<CloudServer Hostname>:<port>/DataSync/rest-service

q. In the **Server Connect User** field, enter the name of the user who has been assigned the **Primavera Data Sync Production** role in the Primavera Administration Application to access the cloud sync services.

r. In the **Server Connect Password** field, enter the password for the user provided in **Server Connect User** field

s. In the **Project Mode** field, select *PX* from the drop-down list to synch any project whose publication status is set to *Yes*.

t. In the **Project Value** field, enter the value, *Y*.

7) Click on the **Validate Connection** button to confirm the entered information.

> **Note**: The validation process may take few minutes until which the **Complete Setup button** is disabled.

8) Upon successful validation, select the **Complete Setup** button.

The server creates the intermediate schema in the given database.

9) Upon receiving a successful completion message, click on the **Start Sync** button to begin the sync process.

Option 2: Installing Sync Client in the Command Mode

To install sync client using the command mode:

1) Unzip the sync_client.zip file and enter the resulting **sync_client** directory.

```
$ unzip sync_client.zip -d sync_client
$ cd sync_client
```

or

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

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

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

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

3) Edit the **client_send.properties** file in the **sync-client** directory with the following property values:

▸ **sync.mode**: Enter the value, *CLIENT*.

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▸ **sync.type**: Enter the value, *SENDER*

▸ **sync.name**: Enter enter the value, *ds_pxsync. f*or PX Sync (P6 + PX data)

▸ **sync.number**: Enter the value, *4.* for PX Sync.

▸ **source.db.host**: Enter the host name or IP address of the machine hosting the P6 source database.

> **Note**: P6 source database refers to an on-premises P6 database.

▸ **source.db.port**: Enter the port number for the Oracle instance on which P6 source database is created. By default 1521.

▸ **source.db.service**: Enter the service name of the Oracle instance on which the P6 source database is created.

▸ **source.db.type**: Based on your sync configuration, select the value, *PX,* from the drop-down list.

▸ **source.db.schema**: Enter the on-premises P6 Database schema name for PX Sync. For example, *admuser*.

▸ **source.db.syncuser**: Enter any name starting with *T_*.

This will be intermediate schema name and is newly created. Ensure there is no existing schema with same name on the database instance where on-premises source database is hosted.

▸ **source.db.sysuser**: Enter a user name having SYSDBA privileges. For example, SYS or SYSTEM.

▸ **server.base.url**: Enter the URL of the WebLogic server sync rest service you have received from Oracle Support in the format:

http://<CloudServer Hostname><port>/DataSync/rest-service

▸ **server.connectuser**: To access the cloud sync services, enter the name of the user who has been assigned the **Primavera Data Sync Production** role in the Primavera Administration Application.

▸ **optin.project_mode**: Select the value, *PX* to synch any project whose publication status is set to *Yes.*

▸ **optin.project_value**: Enter the value, *Y.*

4) Save the edited **client_send.properties** file.

5) Run the **syncsetup.sh** file to create and configure the database schema for the sync process.

`./syncsetup.sh client_send.properties`

a. When prompted, enter the passwords for the following users:

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

The process will now create the t_syncuser database schema. (**source.db.syncuser**)

    b. After the process completes, when prompted, 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. Enter a password of your choice.

6) Start the sync client's server, but before that add proxy settings in **startserver.sh** file as given below

```
java -jar ../start.jar -Dhttps.proxySet=true -Dhttps.proxyHost=<Proxy
HostName> -Dhttps.proxyPort=<Proxy Port> -Dhttp.proxySet=true
-Dhttp.proxyHost=<Proxy HostName> -Dhttp.proxyPort=<Proxy Port>
-Dapp.name=client-sync > /dev/null &
```

7) Contact Oracle Support and obtain the Proxy HostName and Proxy Port details which were used while setting up the server.

8) Update the startserver.sh file, and start the Jetty server with following command:

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

9) When prompted provide the same **syncadmin password** given above. You might need to wait a few seconds at this point for the local server to start up.

The server log file is available in log/server.log.

10) Load the sync and receive configuration into the sync client server with the commander.sh command

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

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

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

Running Incremental Sync

If you are skipping the initial sync with data base restoration and running only the incremental sync, you must update the the data base exported timestamp in the sync control table of T_SYNCUSER schema (**source.db.syncuser**). After posting the config, data gets loaded to `sync_config`, `sync_control`, `sync_whitelist` and `sync_transfer_data` tables.

1) Check that data is loaded to the `sync_control table` in T_SYNCUSER schema (**source.db.syncuser**).

2) Check for rows with `ENTRY_NAME = next.timestamp` and `safe.timestamp`.

3) After the data is loaded to `sync_control` table, stop the Jetty server.

```
./stopserver.sh
```

4) Execute the following query to update the next timestamp value and commit.

```
update sync_control set entry_value=<DATA BASE EXPORTED TIMESTAMP> where
entry_name='next.timestamp';
```

> **Note**: The timestamp should be in the format, `YYYY-MM-DD HH:MM:SS`.

5) Restart the Jetty server.

```
./startserver.sh -u
```

> **Note**: This process will fetch only those records from `paudit` table in the source schema which are updated after the database exported timestamp.

Check Sync Process Running

To confirm if the sync process is running, check the server.log for details or the progress from the database.

Connect as 'T_SYNCUSER' (**source.db.syncuser** created on the same Oracle instance where P6 is the source database) and execute the following:

▸ To see the details of the file you just successfully posted to the database:
```
select * from sync_config;
```

▸ To provide an update of the global tables being synced and the status of the sync process for each specific table. The entry_value column status will be changed from `NEW` to `COMPLETE`, you can check the corresponding global table data in target admuser schema.
```
select * from sync_control;
```

▸ To see all the projects registered to be synced:
```
select * from sync_whitelist;
```
Already synced projects will have a status of `SENT`.

Projects that are waiting to be synced will have a status of `NEW`.

If the project status is sent, you can check the corresponding project data in target admuser schema.

▸ To see blob records corresponding to the source admuser schema:
```
select * from sync_transfer_data;
```
It contains the source admuser data in the form of blob records and will transfer the data to target admuser schema. Each blob record having the status from `SAVING`, `SAVED` and `SENT` in t_syncuser schema. Th sync process picks the records whose status is `SAVED` and will transfer the data. Check the log/server.log for any errors.

Check Data Transfer Status

You can view the sync process status and information on number of data packets synced between source and target from the **Cloud Sync Status** page.

To access the **Cloud Sync Status** page:

1) Access the URL: *http://<hostname>:8511/client-DataSync/status.xhtml*
2) Enter the IP address or hostname of the machine where the Jetty server is running.

Launch the **Sync Client Status** page to view the data transfer status.

Configuring P6 EPPM Projects for CIC

Construction Intelligence Cloud relies on data from P6 EPPM as a data source. To ensure current data is ready for CIC, you will need to configure settings for each project and then run P6 publication services to load data into P6 Extended Schema for the next ETL run in CIC.

This chapter describes how to configure P6 projects for CIC.

You can also click the Video and watch how to configure P6 for Analytics.

In This Section

Configuring User Access for P6 Analytics Module

Users who will be given access to view projects in CIC must be given access to the P6 Analytics module in P6 EPPM.

To configure user access to the P6 Analytics module:

1) Sign in to P6 EPPM with administration privileges.
2) Click **Administration**.
3) On the Administration navigation bar, click **User Administration**.
4) On the **User Administration** page, click **Users**.
5) On the **Users** page, select a user.
6) In the **Module Access** detail window, select **P6 Analytics** option to grant access to the selected user.
7) On the **Users** page, click **Save**.

Selecting P6 Projects for CIC for the First Time

When you receive Oracle's Welcome email for CIC, an initial ETL has already been processed with *all* published P6 projects loaded into CIC. Therefore, work with the key stakeholders in your organization to identify:

- projects that need to be removed from CIC

▶ projects that need to be visible in CIC

For example, your organization has 35 ongoing projects. The initial load will include all 35 projects in CIC. However, your organization may want to draw insights for only the top 10 high priority projects. Therefore you will need to remove the remaining projects from being loaded to CIC.

To remove P6 projects from being selected for CIC:

1) Sign into P6 as a user.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have the following security privileges: *Edit Project Details Excepts Costs/Financials* project security privilege, A*dd/Edit/Delete Global Activity and Assignment Layouts, Views and Filters* global security privilege.

2) Click **Projects**.
3) On the **Projects** navigation bar, click **EPS**.
4) On the **EPS** page:
   a. Click the **Views** list and select a view.
   b. In the EPS / Project Grid, deselect the **Enable Publication** option to remove each project from CIC.

   > **Note**: If your organization is a customer of Primavera Analytics also, then any P6 projects deselected for CIC will also not be available for Primavera Analytics.

5) Run publication services in P6 EPPM to publish only the selected projects to P6 Extended Schema for an ETL upload to CIC.

   For more details, see *Enabling Automatic Publishing of P6 Project Data* (on page 38) or *Manually Publishing P6 Project Data* (on page 40). .

Enabling History and Publication Services Settings for P6 Projects

In P6, you can enable the following settings to determine what type of data is to be captured in CIC:

▶ define history level and interval settings per project to configure the type of data stored in CIC and for a specific time interval
▶ establish the frequency of data being uploaded to the data warehouse
▶ enable publication settings for each project to ensure the data is picked up by P6 EPPM Publication Services

You can also click the Video and watch how to configure P6 for Analytics

To configure the above settings:

1) Sign in to P6 EPPM.

> **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 & Services**.
   a. In the **Publication** section, select the **Enable Publication** option to ensure the project is selected for publication services runs.

   > **Tip**: You can also expand an EPS node on the **EPS** page and then select the **Enable Publication** option for multiple projects belonging to the node.

   b. In the **Analytics** section:
      1. Choose one of the following for **History Level**:
         - **None** (default)
         - **Project**
         - **WBS**
         - **Activity (Daily)**
         - **Activity (Weekly)**
         - **Activity (Monthly)**
      1. Choose one of the following for **History Interval - Project or WBS**:
         - **Month** (default)
         - **Week**
         - **Quarter**
         - **Year**
         - **Financial Period**

      > **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 captured for 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.

      1. Select one of the following values from the **Data Warehouse Update Frequency (ODI Only)** list:
         - *Scheduled*: When the ETL runs and the project data is pulled into analytics

▪ *Immediate*: The data is extracted any time a change is identified in the project.

> **Note**: Immediate project updates are focused more on the specific scheduling areas of the project – costs, dates, durations. They are geared towards outages or scenarios where live updates are required for short length projects. Immediate project updates should be used sparingly only for a small select group of projects. Not all projects should be set to *Immediate*, this can have side effects on update frequency and performance. If a project is completed *Immediate* updates should be turned off.

6) Click **Save** to continue working or click **Save and Close** if you are finished.
7) *Publishing P6 EPPM Projects* (on page 35).

Enabling Slowly Changing Dimensions for P6 Projects

Slowly changing dimensions (SCDs) or Type 2 dimensions are used when it is important to preserve the historic context of facts in CIC Analytics. SCDs can be enabled for each field.

Submit a service request to Oracle Support if you want to:

▶ Enable or disable SCDs for a field or
▶ Delete SCD data for an effective date or a specific date range

Adding Additional Financial Periods

To add additional financial periods, submit a service request to Oracle Support.

Configuring P6 EPPM Projects for Burn Down Calculations

To setup projects for burn down calculations in CIC Analytics complete the following tasks in P6 EPPM:

1) *Adding Project-Level UDFs for Burn Down Calculations* (on page 28)
2) *Selecting Projects for Burn Down Calculations* (on page 29)
3) *Setting the Date/Time Period for Burn Down Calculations* (on page 30)

Adding Project-Level UDFs for Burn Down Calculations

Only P6 EPPM projects can be manually included to take advantage of the 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:

1) Sign in to P6 EPPM with a user account that has the privilege to change enterprise data (for example, admin).
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. Click **+ Add** to add a **sys_workdown** UDF with a **Text** data type.
    b. Click **+ Add** to add a **sys_workdown_date** UDF with a **Start Date** data type.

Selecting Projects for Burn Down Calculations

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 projects to include in Burn Down tables and metrics:

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 ⚙ **Row Actions** menu, select **Set Project Preferences**.
5) In the **Project Preferences** pane, click **Analytics & Services**.
    a. On the **Analytics & Services** page, click the **History Level** list and then select **Activity**.
    b. In the **Project Preferences** dialog box, click **Save and Close**.
6) On the **Projects** navigation bar, click **EPS**.
7) On the **EPS** page, add the **sys_workdown** and **sys_workdown_date** UDF columns to the page.
8) For the projects you want to add to the Burn Down subject area:
    a. In the **sys_workdown** column, enter *project*.
    b. In the **sys_workdown_date** column, enter a date. This date is used as the snapshot date for comparison to actual project values. If no date 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 03/31/2022, then the STARETL process uses 03/30/2022 for the Burn Down comparison.

Setting the Date/Time Period for Burn Down Calculations

It is important that the date/time period specified in P6 EPPM under the **Administration**, **Application Settings**, **Services, Publication Period** section is later than the latest project finish for ALL project(s) that will be included for Burn Down.

For example, in P6 EPPM Publication Services settings, if you specify a start date of February 25, 2020 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 February 24, 2022. If a project extends past the finish date setting in the publication services settings, the Burn Down 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.

Configuring Projects for Work Planning Calculations and Metrics

To set up P6 EPPM projects for work planning calculations and metrics, complete the following tasks:

1) *Adding Project UDFs for Work Planning* (on page 30)
2) *Selecting Projects for Work Planning Calculations* (on page 31)
3) *Setting the Date/Time Period for Work Planning Calculations* (on page 32)

Adding Project UDFs for Work Planning

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 add project UDFs:

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 Projects for Work Planning Calculations

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.

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.

Setting the Date/Time Period for Work Planning Calculations

It is important that the date/time period specified in P6 EPPM under the **Administration**, **Application Settings**, **Services, Publication Period** section is later than the latest project finish for ALL project(s) that will be included for Work Planning.

For example, in P6 EPPM Publication Services settings, if you specify a start date of February 25, 2020 and the finish date is current date plus setting is two years, the finish date for all of the Work Planning project(s) must have a finish date before February 24, 2022. If a project extends past the finish date setting in the publication services settings, the Work Planning portion of the STARETL process will generate 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.

Using Graded Approach for 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.

For graded schedule adherence, 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.

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 CIC Analytics.

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** is 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 in CIC Analytics.

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.

Enabling P6 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 for use in CIC Analytics.

To create location data in P6 EPPM:

1) Sign in to P6 EPPM with an account that has the privilege to change enterprise data (for example, admin).

2) From the **Administration** 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 for CIC Analytics.

Publishing P6 EPPM Projects

After identifying the projects that are to be displayed in CIC, you will need to run global and project publication services to:

▶ transform the data and move it to P6 EPPM Extended Schema and

▶ run STARETL processes to transfer data from P6 Extended Schema to the data warehouse

Use the *Process Flow for Configuring P6 EPPM On-Premises for CIC* (on page 9) to view the sequence of publication tasks outlined to complete the above tasks.

This chapter provides detailed instructions for completing the above tasks.

In This Section

P6 EPPM Publication Services Overview

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, or hierarchies) from the P6 EPPM base tables into the Extended Schema.

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. Enterprise data does not usually change frequently, so consider scheduling this service to run less frequently.

▸ **Publish Enterprise Summaries Service** calculates and publishes EPS-level spread data for currently published projects in a given EPS. Depending on the spread interval you intend to use, EPS-level spread data can change frequently, so it might be appropriate to consider scheduling this service to run more frequently.

▸ **Publish Resource Management Service** calculates and publishes the resource hierarchy, resources, resource rates, resource limits, role rates, resource role assignments, and resource security. Resource management data does not usually change frequently, so consider scheduling this service to run less frequently.

▸ **Publish Security Service** publishes users, the OBS, and security profiles and calculates security for the P6 Extended Schema. Security data does not usually change frequently, so consider scheduling this service to run less frequently.

▸ **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 sequentially depending on the **Publication Priority** assigned to each project. Projects with a lower value for **Publication Priority** are published before those with a higher value for **Publication Priority**.

Complete the following steps to load P6 EPPM projects to P6 Extended Schema before running the ETL process for CIC:

1) *Configuring and Running P6 EPPM Publication Services* (on page 36)
2) *Enabling Automatic Publishing of P6 Global Data* (on page 37) or *Manually Publishing P6 Global Data* (on page 39)
3) *Enabling Automatic Publishing of P6 Project Data* (on page 38) or *Manually Publishing P6 Project Data* (on page 40)

Configuring and Running P6 EPPM Publication Services

To configure and run publication services in P6 EPPM:

1) Sign in to P6 EPPM as a user.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have the following security privileges: *Edit Application Settings*, *Administer Global Scheduled Services*, and *Administer Project Scheduled Services* global security privileges.

2) Click **Administration**.
3) On the **Administration** navigation bar, click **Application Settings**.
4) In the **Application Settings** page, select **Services** in the sidebar.
5) In the **Publication** area, use the following fields to set the amount and frequency of data updates in the P6 EPPM Extended Schema. For 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).

6) In the **Project Publication** section, select the **Enable Publish Projects** option and configure the remaining options in this section as needed for your data. For more details on configuring these options, see *P6 Help*.

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

> **Note**: To verify the status of each project publication job in P6, click the **User** menu and select **View Service Status**.

Enabling Automatic Publishing of P6 Global Data

Perform the steps below to configure P6 to automatically publish any of the following types of global data to reporting tables.

- Enterprise Data
    - Project Data
    - Activity Data
    - Resource Data
    - Calendar Data
    - Enterprise Data dictionary definitions
- Enterprise Summary Data including portfolio data
- Resource Management Data
- Security Data
- Audit Data

To automatically publish P6 global data:

1) Sign into P6 EPPM.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have the following security privileges: *Administer Global Scheduled Services* and *Administer Project Scheduled Services* global security privileges.

2) Click **Administration**.
3) On the **Administration** navigation bar, click **Scheduled Services**.
4) On the **Scheduled Services** page, select **Global**.
5) On the **Global** page:
   a. Select a service, then configure its settings in the **Service Settings** detail window to set how often and when the services should run. For example, you might specify that the service runs daily on Wednesdays with a start time of 10:15 PM.

> **Note**: Oracle recommends running the Publish Security service first if the Run After Previous option is selected in the Run Service list for other publication services. Running the Publish Security service first will ensure that security data updates in the extended schema as soon as possible and ensures that the security restrictions are in place before you run the report.

b. Select the **Enabled** option for any of the global services listed.

c. If you choose to run one or more services with the relative frequency value of **After previous service**, click **Move Up** or **Move Down** to arrange the services in your preferred sequence.

d. Click **Save**.

Enabling Automatic Publishing of P6 Project Data

Perform the following procedure to enable projects for publication, and to set options to schedule project publication. Then, as you work, P6 automatically detects the changes to your projects that trigger the publication of their data.

To enable P6 publication services for project data:

1) Sign into P6 EPPM as a user.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have the following security privileges: *Administer Global Scheduled Services* and *Administer Project Scheduled Services* global security privileges, and *Edit Application Settings* security privilege.

2) Click **Administration**.

3) On the Administration navigation bar, click **Application Settings**.

4) On the **Application Settings** page, select **Services**.

5) On the **Services** page, in the **Project Publication** section:

   a. Select **Enable Publish Projects** to manually publish projects and run the **Check Overallocation** service. You should not enable publish projects until all projects are ready for publication.

   b. In the **Publish projects every** field, select an interval by which projects are polled to be published. The interval should be set to a low number (less than 5 minutes) to ensure that ASAP Publish Project and Check Overallocation services are processed in a timely fashion. However, if your users will not be using these ASAP services, you can set this value higher.

   c. In the **Start Time** field, enter the start time for scheduled jobs when the Publish projects every field contains a value less than 1 day.

   d. In the **Publish a changed project when the...** section:

1. Enter a number in the **Number of changes exceeds** field. This threshold setting determines the number of edits users can make to the project data before P6 publishes its data. Assuming a constant rate of change among projects, a lower value will result in more frequent publication of project data. If you enter a value of 0, projects with tracked changes will be automatically published.

2. Enter a time period for the **Time since last publication exceeds** field. This threshold setting determines how often the publication of project data should occur. For example, if you enter 12 hours, the project data will be published every 12 hours unless the threshold for the number of changes has already been reached.

e. Select **Publish idle projects** to add projects to the service queue that are enabled for publication but have not been changed during the time threshold. This setting is only valid for the initial run of the service.

f. In the **Maximum number to publish** field, enter the maximum number of pending idle Publish Project services that can be present at once in the service queue. This prevents performance problems during peak demand when enabling the publication of a large number of projects. For example, if the service runs and queues 40 projects that have exceeded specified thresholds and must be published, or that have been manually published, and you have set the maximum to 100, P6 will schedule up to 60 idle projects for publication.

g. Select **Publish resource and role data** if you want to be able to publish resource and role data in the Team Usage view.

h. Select **Enable Baseline Publication** if you want to be able to publish baseline data.

i. Select **Enable Notification Email** and type an email address in the **Notification Email address** field if you want to receive an email if publication services fail.

j. Click **Save**. .

Manually Publishing P6 Global Data

Under special circumstances, if you want to manually publish any of the following types of global data to the reporting tables t, perform the steps below.

▸ Enterprise Data
  ▸ Project Data
  ▸ Activity Data
  ▸ Resource Data
  ▸ Calendar Data
  ▸ Enterprise Data dictionary definitions
▸ Enterprise Summary Data including portfolio data
▸ Resource Management Data
▸ Security Data
▸ Audit Data

P6 will automatically publish global data; however, you may want to publish the data manually in special cases such as when generating an important report at a specific time.

To manually publish P6 global data:

1) Sign in to P6 as a user.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have been assigned the following security privileges: *Administer Global Scheduled Services* global security privilege to run a global scheduled service.

2) Click **Administration**.
3) On the **Administration** navigation bar, click **Scheduled Services**.
4) On the **Scheduled Services** page, select **Global**.
5) On the **Global** page:
   a. Select any of the global services listed.
   b. Click **Run Service**.
   c. In the resulting message box, click **OK**.

Tip

▸ If the service listed under the manually selected service is configured to run *After previous* service, it will run automatically when the selected service finishes.

Manually Publishing P6 Project Data

If you may want to publish the data manually in special cases such asto include a project in CIC within a specific timeframe, complete the following procedure.

To manually publish P6 project data:

1) Sign into P6 EPPM as a user.

   http://<host>:<port>/p6/action/login

   > **Note**: Ensure you have been assigned the following security privileges: *Administer Global Scheduled Services, Administer Project Scheduled Services* global security privileges, and *Edit Application Settings* security privilege.

2) Click **Projects**.
3) On the **Projects** navigation bar, click **EPS**.
4) On the **Actions** menu of the **EPS** page, click **Publish Projects**.

Next Step

Congratulations on completing the setup in P6 EPPM!

Proceed to use the **CIC Advisor Administration Guide https://docs.oracle.com/cd/F33532_01/English/admin/cic_advisor_admin/index.htm** to set up the *CIC Advisor* Administration application.