



PRIMAVERA

Gateway API Programmer's Guide
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Introduction

The Primavera Gateway API provides a flexible interface to Primavera Gateway functionality. Based on the Representational State Transfer (REST) architectural style, the API enables developers to leverage standard interfaces to create integrated software solutions that inter-operate with a wide variety of enterprise software applications running on a diversity of hardware and operating system platforms.

Prerequisite

Install Primavera Gateway on an admin server or a managed server with OWSM authentication.

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REST Style Architecture

Primavera Gateway API Employs Web-based Technology

The Primavera Gateway API platform employs Web-based technology to handle requests from external programs. External client programs use Primavera Gateway API by creating a request and sending it to the application server using one of the following operations.

Operation	Description
Get	Returns data based on the parameters you provide when you call the operation.
Delete	Deletes objects.
Post	Creates new objects.
Put	Updates existing objects.

Having received the request, Primavera Gateway invokes the required business and security logic to service the request and provide an appropriate response.

The following Primavera Gateway APIs provide REST style services on Gateway business objects:

Service	Description
appInstances	The appInstances service supports operations associated with Gateway application instances.
appInstanceConfigurations	The appInstanceConfigurations service supports operations on configurations of Gateway application instances.
eventServices	The eventServices service supports operations on the Event and EventProviderInstanceConfigs business objects
Flows	The Flows service supports operations on the Flow business object.
flowDefinitionApps	The flowDefinitionApps returns a list of FLOWDefinitionApp business objects from the database.
flowFieldMapTemplates	The flowFieldMapTemplates service supports operations associated with the field Map templates corresponding to a flow.
flowInstances	The flowInstances service supports operations on the flowInstance business object.
flowLoadObjects	The flowLoadObjects service supports operations on the flowLoadObject business object.
flowStepInstances	The flowStepInstances service supports operations on the flowStepInstance business object.
flowStepInstanceMessages	The flowStepInstanceMessages service supports operations on the flowStepInstanceMessages business object.
flowParameters	The flowParameters service supports operations on the flowParameter business object.
flowStepInstances	The flowStepInstances service supports operations on the flowStepInstance business object.
parameterValues	The parameterValues service supports operations on the parameterValues business object. Each parameter value is identified by a unique ID.
Services	The Services service schedules a job and queues it for processing.
Settings	The Settings service supports operations associated with parameterValue business object. Each parameter value is identified by a unique ID.
Synchronizations	The Synchronizations service supports operations associated with synchronizations in Primavera Gateway.

Using the Primavera Gateway API

Where to Begin

Step 1: Install and configure Primavera Gateway for the API

As a prerequisite to using the API, you will need to install Primavera Gateway, configure a user with the appropriate security access in the WebLogic application server and in the application. Oracle Web Services Manager (OWSM) must be set up and enabled before you can use the APIs to connect to Primavera Gateway.

Step 2: Decide on a client technology

Decide on the client technology that you will use with Primavera Gateway to invoke REST style services. Java and JavaScript are examples of technologies that can invoke REST style services to interact with the Primavera Gateway API.

Step 3: Use the API to interact with Primavera Gateway

This step involves interacting with the API using the following URL patterns to send requests to the API.

Basic Authentication:

`http://<hostName>:<portNumber>/pdi/restapi/v1/<service>`

SSL Authentication:

`https://<hostName>:<portNumber>/pdi/restapi/v1/<service>`

Generally, calls to the API will follow a sequence similar to the following sequence:

- a. Establish a session and get a session ID.
- b. Use the session ID to invoke other operations as required by your program.
- c. Delete the session ID when you are finished.

Sample Java Code that Invokes the API

The following code is a generic example that demonstrates how to establish a session and use the returned session ID to retrieve business flows. This example uses basic authentication.

```
private static String userName = "GatewayAdmin";
private static String password = "Primavera1";
private static String hostName = "localhost";
private static String portNumber = "7001";
private static String getSessionUrl =
"http://" + hostName + ":" + portNumber + "/pdi/restapisession/usersession";
private static String getAppsUrl =
"http://" + hostName + ":" + portNumber + "/pdi/restapi/v1/flows/list";
private static String jsessionId;
```

```
public static void main(String s[]) throws Exception{
    try {
        //Call session api
        String sessionJson = callRestURL(getSessionUrl,"GET");

        //Convert the JSON to java object
        ObjectMapper mapper = new ObjectMapper();
        Session session = mapper.readValue(sessionJson,
Session.class);
        //Store session id
        jsessionId = session.getSessionId();

        // Get a list of Flow objects
        String appsJson=callRestURL(getFlowsUrl,"GET");

        //End the session object once all the operations are done
        String deleteJson =
callRestURL(getSessionUrl+";JSESSIONID="+session.getSessionId(),"DELETE
");

        } catch (Exception e) {
            e.printStackTrace();
            throw e;
        }
    }

    private static String callRestURL(String restUrl,String method) throws
Exception {
        HttpURLConnection conn = null;
        try {
            URL url = new URL(restUrl);
            conn = (HttpURLConnection) url.openConnection();
            conn.setRequestMethod(method);
            conn.setRequestProperty("Accept", "application/json");
            if(jsessionId != null){
                conn.setRequestProperty("Cookie", "JSESSIONID="
                    + jsessionId);
            }
        }
```



```

        String userCredentials = userName+":"+password;
        String base64Credentials
javax.xml.bind.DatatypeConverter.printBase64Binary(userCredentials.getBytes());

        String basicAuth = "Basic " + base64Credentials;
        conn.setRequestProperty("Authorization", basicAuth);

        if (conn.getResponseCode() != 200) {
            throw new RuntimeException("Failed : HTTP error code : "
                + conn.getResponseCode());}

        BufferedReader br = new BufferedReader(new
InputStreamReader((conn.getInputStream())));

        String output;
        StringBuilder buff = new StringBuilder();
        while ((output = br.readLine()) != null) {
            buff.append(output);
        }
        return buff.toString();

    } finally {
        if(conn != null)
            conn.disconnect();
    }
}

```

Accessing API Documentation

The Primavera Gateway API provides reference documentation that is available from an Primavera Gateway deployment.

To access the documentation:

- 1) Go to the Primavera Gateway documentation library on Oracle Technology Network (OTN).
- 2) Select the **Oracle Primavera Gateway API Documentation** link.
- 3) Select the links for each service to review details about the operations that the service provides and the parameters that can appear in the requests or responses.

Note: Gateway APIs can be used only if you have installed Primavera Gateway on an Admin server or Managed servers with OWSM authentication.

Security

Primavera Gateway provides security at both the transport and the application levels. Refer to the *Tested Configurations* document for details on specific configurations.

Transport Level Security using HTTPS

The Primavera Gateway API supports both the HTTPS and HTTP protocols. You can use HTTPS (Hypertext Transfer Protocol over Secure Socket Layer) to achieve secure communication at the transport layer of the OSI Model as long as SSL is enabled for the Gateway domain. The API supports the HTTP protocol for basic authentication and communication.

Application Level

At the application level, the API supports Global, and Project, access to the application.

Troubleshooting the Primavera Gateway API

If you are experiencing difficulty in connecting to and using the API, check the following items:

- ▶ The URL that you are using is correct.
- ▶ OWSM setup is correct.
- ▶ The application is running.
- ▶ The user name that you are using to invoke the API has access to the application and the data that you are attempting to retrieve.

For More Information

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Where to Get Documentation

Complete documentation libraries for Primavera Gateway releases are available on the Oracle Technology Network (OTN) at:

<http://www.oracle.com/technetwork/documentation/default-1923957.html>

From this location you can either view libraries online or download them to have local copies. We recommend viewing them from OTN to ensure you always access the latest versions, including critical corrections and enhancements.

Primavera Gateway is configured to access its help system on OTN. However, you can also install a local version when you install the software.

The documentation assumes a standard setup of the product, with full access rights to all features and functions.

The following table describes the core documents available for Primavera Gateway and lists the recommended readers by role.

Title	Description
<i>Gateway Help</i>	Describes how to work with Primavera Gateway and provides information to help users accomplish tasks. All users should read the Help.
<i>Gateway Developer's Guide</i>	Provides information on how third-party systems such as enterprise resource management (ERP) and enterprise asset management (EAM) systems can create their own providers in order to integrate with Primavera products. Developers of third-party providers that integrate with Primavera products via Primavera Gateway should read this book.


Title	Description
<i>Gateway Customization Guide</i>	<p>Provides information on how to customize an existing third-party integration.</p> <p>Developers interested in customizing existing third-party providers that integrate with Primavera products via Primavera Gateway should read this book.</p>
<i>Gateway Provider Reference Guide</i>	<p>Provides a list of the business objects available for each supported provider.</p> <p>Developers of third-party providers that integrate with Primavera products via Primavera Gateway should read this book.</p>
<i>EBS Provider Reference Guide</i>	<p>Provides a list of the business objects available for the EBS provider.</p> <p>Developers of third-party providers that integrate with Primavera products via Primavera Gateway should read this book.</p>
<i>VCP Provider Reference Guide</i>	<p>Provides a list of the business objects available for the VCP provider.</p> <p>Developers of third-party providers that integrate with Primavera products via Primavera Gateway should read this book.</p>
<i>Manual Deployment Guide</i>	<p>Provides information on how to manually install and configure Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.</p>
<i>Gateway Installation and Configuration Guide</i>	<p>Provides information on how to install and configure Primavera Gateway. Primavera Gateway is a product that facilitates integrations with Primavera products and third-party systems such as enterprise resource management (ERP) and enterprise asset management (EAM) systems.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.</p>
<i>Gateway Upgrade Guide</i>	<p>Provides a sequence of procedures that must be completed to upgrade to a new version of Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.</p>

Title	Description
<i>Gateway Performance and Sizing Guide</i>	<p>Provides hardware and software requirements for deploying Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.</p>
<i>Gateway Security Guide</i>	<p>Provides guidelines on establishing a highly secure environment for all Primavera Gateway environments.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.</p>
<i>Gateway API Programmer's Guide</i>	<p>Provides instructions on how to access and use Primavera Gateway REST APIs.</p> <p>The Primavera Gateway network administrator/database administrator and Primavera Gateway users having the Gateway Developer role should read this guide.</p>
<i>Connecting with Instantis EnterpriseTrack</i>	<p>Provides instructions on how to setup the integration environment for Oracle Instantis EnterpriseTrack in Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party system should read this guide.</p>
<i>Connecting Prime and P6 EPPM</i>	<p>Provides instructions on how to setup the integration environment between Oracle Primavera Prime and P6 Enterprise Project Portfolio Management in Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party system should read this guide.</p>
<i>Connecting Unifier and P6 EPPM</i>	<p>Provides instructions on how to setup the integration environment between Oracle Primavera Unifier and P6 Enterprise Project Portfolio Management in Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator for the third-party system should read this guide.</p>
<i>Migrating P6 Data Between Distinct Environments</i>	<p>Provides instructions on how to setup the integration environment between distinct P6 deployments to transfer P6 data in Primavera Gateway.</p> <p>The Primavera Gateway network administrator/database administrator and the administrator should read this guide.</p>

Title	Description
<i>Connecting E-Business Suite</i>	Provides instructions on how to setup the integration environments for Oracle E-Business Suite with P6 Enterprise Project Portfolio Management and Instantis EnterpriseTrack in Primavera Gateway. The Primavera Gateway network administrator/database administrator and the administrator for the third-party system should read this guide.
<i>Connecting Value Chain Planning and P6 EPPM</i>	Provides instructions on how to setup the integration environment between Oracle Value Chain Planning and P6 Enterprise Project Portfolio Management in Primavera Gateway. The Primavera Gateway network administrator/database administrator and the administrator for the third-party system should read this guide.
<i>Configuring Gateway for Single Sign On</i>	Provides instructions on how to configure Oracle Access Manager (OAM) and then enable Single Sign On for Primavera Gateway. The Primavera Gateway network administrator/database administrator should read this guide.
<i>Gateway Licensing Information User Manual</i>	Lists licensing information of all third-party software that is used or associated with the Oracle software program.
<i>Tested Configurations</i>	Lists the configurations that have been tested and verified to work with Primavera Gateway. The Primavera Gateway network administrator/database administrator and the administrator for the third-party or ERP system should read this guide.

Distributing Information to the Team

You can copy the online documentation to a network drive for access by project participants. Each team member can then view or print those portions that specifically relate to his or her role in the organization.

Throughout this documentation, the Security Guidance icon  helps you to quickly identify security-related content to consider during the installation and configuration process.

Where to Get Training

To access comprehensive training for all Primavera products, go to:
<http://education.oracle.com>

Oracle Learning Library

The Oracle Learning Library (OLL) provides online learning content covering Primavera products. Content includes videos, tutorials, articles, demos, step-by-step instructions to accomplish specific tasks, and self-paced interactive learning modules.

To access the learning library's Primavera content, go to:

<http://www.oracle.com/goto/oll>

Where to Get Support

If you have a question about using Oracle products that you or your network administrator cannot resolve with information in the documentation or help, click <http://support.oracle.com/>. This page provides the latest information on contacting Oracle Global Customer Support, knowledge articles, and the support renewals process. For more information about working with Support, visit <https://support.oracle.com/epmos/faces/DocumentDisplay?id=888813.2> to view Support Tools & Tips.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/us/support/contact-068555.html> or visit <http://www.oracle.com/us/corporate/accessibility/support/index.html> if you are hearing impaired.

Using Primavera's Support Resource Centers

Primavera's Support Resource Center provides links to important support and product information. Primavera's Product Information Centers (PICs) organize documents found on My Oracle Support (MOS), providing quick access to product and version specific information such as important knowledge documents, Release Value Propositions, and Oracle University training. PICs also offer documentation on Lifetime Management, from planning to installs, upgrades, and maintenance.

Visit <https://support.oracle.com/epmos/faces/DocumentDisplay?id=1486951.1> to access links to all of the current PICs.

PICs also provide access to:

- ▶ **Communities** are moderated by Oracle providing a place for collaboration among industry peers to share best practices.
- ▶ **News** from our development and strategy groups.
- ▶ **Education** contains a list of available Primavera product trainings through Oracle University. The Oracle Advisor Webcast program brings interactive expertise straight to the desktop using Oracle Web Conferencing technology. This capability brings you and Oracle experts together to access information about support services, products, technologies, best practices, and more.

For more information about working with Support, visit <https://support.oracle.com/epmos/faces/DocumentDisplay?id=888813.2>.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Legal Notices

Oracle Primavera Prime Gateway API Programmer's Guide

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