



Project and Portfolio Management Center

Software Version: 9.40

Upgrade Guide

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Chapter 1: Upgrade Overview

This section contains the following topics:

- ["Related Documentation" below](#)
- ["Supported Upgrade Paths" on the next page](#)
- ["Upgrading Best Practices Content" on page 31](#)
- ["Key Considerations" on page 18](#)

Related Documentation

While this guide provides all of the information you need to prepare for and then perform the upgrade to Project and Portfolio Management Center (PPM) version 9.40, it does not contain details on the effects of the upgrade or on what has changed in version 9.40. Before you perform the upgrade steps presented in this guide, consult the following documents:

- *What's New and What's Changed*

That document contains details about new features, enhancements, and what's changed in 9.40.

- *System Requirements and Compatibility Matrix*

To make sure that your operating environment meets all of the minimum requirements, review the *System Requirements and Compatibility Matrix*.

- *Installation and Administration Guide*

The *Installation and Administration Guide* includes initial product installation procedures as well as configuration, operation, maintenance, migration, and performance information. This guide provides an overview of the PPM Center architecture and optional configurations—this information can help you determine the optimal configuration of your deployment.

- *Deployment Best Practices for PPM Operational Reporting*

The *Deployment Best Practices for PPM Operational Reporting* contains recommendations, best practices, and examples intended to help you get the most out of PPM.

- *Multilingual User Interface Guide*

This document provides important information on the support of multiple languages on a single PPM version 9.40 instance.

- *Release Notes*

The *Release Notes* for PPM version 9.40 provide product information that is not included in the manuals.

To obtain these and other documents related to PPM, go to the HPE Software Product Manuals Web site (<https://softwaresupport.hpe.com>).

Supported Upgrade Paths

To upgrade to PPM version 9.40, you must have PPM version 9.30 (with or without service packs) installed. If an earlier version is installed, you must first upgrade to version 9.30, and then upgrade to PPM version 9.40. For information on how to upgrade to version 9.30, see the *Upgrade Guide* for version 9.30. For information on supported upgrade paths for an Deployment Management Extension, see the documentation for that product.

Note: HPE strongly recommends upgrading to the latest version of PPM Center. In general, each new PPM version includes important product improvements that are not provided in earlier versions.

Caution: If your organization still uses a Documentum-based document management system (either embedded Documentum Content Server software HPE supplies or integration with stand-alone Documentum Content Server software using connector), make sure you migrate it to PPM Center Database DMS using the Administration Console tool DMS Configuration on PPM version 9.13 or later before you upgrade PPM Center to version 9.40.

For detailed instructions about how to migrate a Documentum-based DMS, see the *Document Management Guide and Reference* for PPM version 9.20.

Caution: If you deployed an ALM content bundle for integration purpose on PPM version 9.12 or earlier, and configured any integration solutions using the ALM entities provided, to avoid any potential data loss with your integration solutions, make sure you upgrade PPM to version 9.14, then proceed to upgrade to version 9.20, then 9.30, and then finally to version 9.40.

Note that unless advised otherwise, HPE strongly recommends you keep using the old ALM content bundle. There is no need to deploy a new ALM content bundle, regardless of which version of PPM you upgraded to.

The following table describes supported upgrade paths in more details.

Table 1-1. Supported upgrade paths for current versions

| Current PPM Center Version | Can be Upgraded to | | | | |
|---|--------------------|--------------------------|----------------------------|---------------|------|
| | 8.0x | 9.1x | 9.2x | 9.3x | 9.40 |
| 7.5 SP3 or earlier ¹ | 8.00 or later | 9.10 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 7.5 SP4, 7.5 SP5, 7.5 SP6 ¹ | 8.02 or later | 9.10 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 7.5 SP7 ¹ | 8.03 or later | 9.12 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 8.00 ² | 8.00.01 or later | 9.10 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 8.00.01 ² | 8.02 or later | 9.10 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 8.02 ² | 8.03 or later | 9.10 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 8.03 ² (build 1189 and build 1208) | 8.04 | 9.12 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 8.04 | — | 9.14 (build 1460) | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.10 | — | 9.11 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.11 | — | 9.12 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.12 | — | 9.13 or later | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.13 | — | 9.14 (build 1460) | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.14 (build 1435 or build 1460) | — | — | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.14.0001~9.14.0004 ⁴ | — | — | 9.20 or later ³ | 9.30 or later | 9.40 |
| 9.14.0005~9.14.0006 ⁴ , 9.20 | — | — | 9.21 or later | 9.30 or later | 9.40 |
| 9.14.0007~9.14.0009 ⁴ , 9.21 | — | — | 9.22 or later | 9.30 or later | 9.40 |
| 9.14.0010 ⁴ | — | — | 9.22.0001 or later | 9.30 or later | 9.40 |
| 9.22 | — | — | — | 9.30 or later | 9.40 |
| 9.22.0001~9.22.0003 | — | — | — | 9.30 or later | 9.40 |
| 9.22.0004~9.22.0006 ⁴ | — | — | — | 9.32 | 9.40 |
| 9.22.0007 ⁴ | — | — | — | — | 9.40 |
| 9.30 | — | — | — | 9.31, 9.32 | 9.40 |

Table 1-1. Supported upgrade paths for current versions, continued

| Current PPM Center Version | Can be Upgraded to | | | | |
|----------------------------|--------------------|------|------|------|------|
| | 8.0x | 9.1x | 9.2x | 9.3x | 9.40 |
| 9.31 | — | — | — | 9.32 | 9.40 |
| 9.32 | — | — | — | — | 9.40 |

- If you are upgrading from a version prior to version 8.00, incremental upgrades are necessary (for example: version 7.5 to 8.00, followed by 8.00 to 9.10, and finally 9.10 to 9.20).
- If you are upgrading from version 8.0x to 9.1x, you must initially upgrade to version 9.10 before upgrading to version 9.1x.

For example, PPM Center versions 9.10 and 9.11 were released before versions 8.03 and 9.12. Versions 8.03 and 9.12 include improvements to core functionalities that are not supported on the older versions 9.10 and 9.11.

If PPM Center is running at version 8.03, do not upgrade to and then run at version 9.10, 9.11, or 9.12. Instead, upgrade from version 8.03 to version 9.10 temporarily without running PPM Center, and then upgrade immediately to version 9.12 or later.

If you are upgrading from version 8.0x to 9.30, you must initially upgrade to version 9.10, then proceed to upgrade to version 9.20 before upgrading to version 9.30.
- If your organization still uses a Documentum-based document management system, make sure you migrate it to PPM Center Database DMS using the Administration Console tool DMS Configuration on PPM version 9.13 or 9.14 before you upgrade PPM Center to version 9.20.
For detailed instructions about how to migrate a Documentum-based DMS, see the *Document Management Guide and Reference* for PPM version 9.20.
- Defect fixes included in patches (up until 9.14.0004) on top of version 9.14 are rolled into version 9.20. Version 9.21 contains defect fixes included in patches 9.14.0001 through 9.14.0006. Version 9.22 contains defect fixes included in patches 9.14.0001 through 9.14.0009. Version 9.22.0001 contains defect fixes included in patches 9.14.0001 through 9.14.0010. Version 9.22.0003 contains defect fixes since version 9.22. Version 9.32 contains defect fixes in patch 9.22.0004 through 9.22.0006.

If PPM Center is running at patch 9.14.0005 or 9.14.0006, do not upgrade to and run at version 9.20. Instead, upgrade from 9.14.0005 or 9.14.0006 to 9.20 temporarily without running PPM Center, and then upgrade immediately to 9.21 or later.

If PPM Center is running at patch 9.14.0007~9.14.0009, do not upgrade to and run at version 9.20. Instead, upgrade from 9.14.0007~9.14.0009 to 9.20 temporarily without running PPM Center, and then upgrade immediately to 9.22 or later.

If PPM Center is running at patch 9.14.0010, do not upgrade to and run at version 9.20. Instead, upgrade from 9.14.0010 to 9.20 and then to 9.22 temporarily without running PPM Center, and then upgrade immediately to 9.22.0001 or later.

If PPM Center is running at patch 9.22.0004~9.22.0006, do not upgrade to version 9.30 yet. Upgrade from 9.22.0004~9.22.0006 to 9.30 temporarily without running PPM Center, and then upgrade to 9.32 immediately.

If PPM Center is running at patch 9.22.0007, do not upgrade to version 9.30 yet. Upgrade from 9.22.0007 to 9.30 temporarily without running PPM Center, and then upgrade to 9.40 immediately.

Oracle Database Compatibility

The following tables provide an overview of the Oracle database versions supported for the PPM Server in PPM versions 9.1x, 9.2x, 9.3x, and 9.40. For additional details specific to these versions, see the *System Requirements and Compatibility Matrix* document for each version.

Environments that are *not* supported in version 9.40 of PPM are shown in the lightly shaded areas in the following tables. Combinations shown in unshaded areas are supported for version 9.40 of PPM and may coincide with earlier supported environments.

Note: All installed Oracle versions must include the most recent patches and follow the guidelines provided in the latest *Critical Patch Update*. This information is available from <https://metalink.oracle.com>.

Caution:

There is a known issue in the Oracle 12 side. To address this issue, you should permanently alter the session parameter "optimizer_adaptive_features". To do so:

1. Log on to PPM Center database schema as PPM_SCHEMA.
2. Run the commands as follows:

```
create trigger PPM_LOGON_ORACLE_18311854
after logon on <PPM_SCHEMA_NAME>.schema
begin
execute immediate 'alter session set "optimizer_adaptive_features" = false';
end;
```

- ["Microsoft Windows" on the next page](#)
- ["Oracle" on the next page](#)
- ["HP-UX" on page 11](#)
- ["IBM AIX" on page 12](#)
- ["Red Hat Linux" on page 12](#)
- ["SUSE Linux" on page 13](#)

Microsoft Windows

Table 1. Oracle database and Microsoft Windows platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | Windows Server 2003, Windows Server 2003 SP2 Standard & Enterprise Edition (both 32-bit and 64-bit) | Windows Server 2003 SP1 Standard & Enterprise Edition (32-bit) | Windows Server 2003 R2, Windows Server 2003 R2 SP2 Standard & Enterprise Edition (both 32-bit and 64-bit) | Windows Server 2008 Standard & Enterprise & Datacenter Editions (64-bit) | Windows Server 2008 R2 Standard & Enterprise Editions (64-bit) | Windows Server 2012 R2 Standard & Enterprise Editions (64-bit) |
|--------------------------|---|--|---|--|--|--|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | not supported |
| 11.2.0.1 11.2.0.1 RAC | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 | not supported |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14, 9.2x | 9.12~9.14, 9.2x | 9.12~9.14, 9.2x | 9.12~9.14, 9.2x, 9.3x, 9.40 | 9.12~9.14, 9.2x, 9.3x, 9.40 | 9.3x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.14, 9.2x | 9.14, 9.2x | 9.14, 9.2x | 9.14, 9.2x, 9.3x, 9.40 | 9.14, 9.2x, 9.3x, 9.40 | 9.3x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | not supported | not supported | not supported | 9.3x, 9.40 | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | not supported | not supported | not supported | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 |
| 12.1.0.2 12.1.0.2 RAC | not supported | not supported | not supported | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 |

Oracle

Table 2. Oracle database and Oracle platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | Solaris 9 ^a | Solaris 10 ^b | Oracle Enterprise Linux 5 | Oracle Enterprise Linux 6 |
|--------------------------|-------------------------------|--------------------------------|----------------------------------|----------------------------------|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 | 9.14 | not supported |

| Oracle Version | Solaris 9 ^a | Solaris 10 ^b | Oracle Enterprise Linux 5 | Oracle Enterprise Linux 6 |
|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|
| 11.2.0.1 11.2.0.1 RAC | 9.10~9.14 | 9.10~9.14 | 9.14 | not supported |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14, 9.2x, 9.40 | 9.12~9.14, 9.2x, 9.40 | 9.14, 9.2x, 9.40 | 9.2x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.14, 9.2x, 9.40 | 9.14, 9.2x, 9.40 | 9.14, 9.2x, 9.40 | 9.2x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | 9.3x, 9.40 | 9.3x, 9.40 | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 |
| 12.1.0.2 12.1.0.2 RAC | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 | 9.31-9.40 |

a. PPM Center version 9.1x support includes Solaris 9 Patches 1 through 9.

b. PPM Center version 9.1x support includes Solaris 10 Patches 1 through 8.

HP-UX

Table 3. Oracle database and HP-UX platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | HPE-UX 11i v2 ^a | HPE-UX 11i v3 ^a |
|--------------------------|----------------------------|----------------------------|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 |
| 11.2.0.1 11.2.0.1 RAC | 9.10~9.14 | 9.10~9.14 |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14, 9.2x, 9.40 | 9.12~9.14, 9.2x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.14, 9.2x, 9.40 | 9.14, 9.2x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | 9.31-9.40 | 9.31-9.40 |

| Oracle Version | HPE-UX 11i v2 ^a | HPE-UX 11i v3 ^a |
|---|----------------------------|----------------------------|
| 12.1.0.2 12.1.0.2 RAC | 9.31-9.40 | 9.31-9.40 |
| a. Includes both PA-RISC and Itanium support for version 9.1x, and only Itanium support for version 9.20. | | |

IBM AIX

Table 4. Oracle database and IBM AIX platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | AIX 5L Version 5.3 | AIX Version 6.1 | AIX Version 7.1 |
|--------------------------|--------------------|-----------------------------|------------------|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 | not supported |
| 11.2.0.1 11.2.0.1 RAC | 9.10~9.14 | 9.10~9.14 | not supported |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14 | 9.12~9.14, 9.2x, 9.3x, 9.40 | 9.2x, 9.3x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.12~9.14 | 9.14, 9.2x, 9.3x, 9.40 | 9.2x, 9.3x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | not supported | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | not supported | 9.31-9.40 | 9.31-9.40 |
| 12.1.0.2 12.1.0.2 RAC | not supported | 9.31-9.40 | 9.31-9.40 |

Red Hat Linux

Table 5. Oracle database and Red Hat Linux platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | Red Hat Enterprise Linux AS 4.0 ^{ac} | Red Hat Enterprise Linux AS 5.0 ^{bc} | Red Hat Enterprise Linux AS 6.0 ^c |
|--------------------------|---|---|--|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 | not supported |
| 11.2.0.1 | 9.10~9.14 | 9.10~9.14 | not supported |

| Oracle Version | Red Hat Enterprise Linux AS 4.0 ^{a c} | Red Hat Enterprise Linux AS 5.0 ^{b c} | Red Hat Enterprise Linux AS 6.0 ^c |
|--------------------------|--|--|--|
| 11.2.0.1 RAC | | | |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14 | 9.12~9.14, 9.2x, 9.40 | 9.2x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.12~9.14 | 9.14, 9.2x, 9.3x, 9.40 | 9.2x, 9.3x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | not supported | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | not supported | 9.31-9.40 | 9.31-9.40 |
| 12.1.0.2 12.1.0.2 RAC | not supported | 9.31-9.40 | 9.31-9.40 |

a. PPM Center version 9.1x support includes initial AS 4.0 release and Updates 1 through 6.
b. PPM Center version 9.1x support includes initial AS 5.0 release and Updates 1 through 4.
c. Both 32- and 64-bit platforms are supported.

SUSE Linux

Table 6. Oracle database and IBM AIX platform support for PPM versions 9.1x, 9.2x, 9.3x, and 9.40

| Oracle Version | SUSE Linux Enterprise 9 ^{a c} | SUSE Linux Enterprise 10 ^{b c} | SUSE Linux Enterprise 11 ^c |
|--------------------------|--|---|---------------------------------------|
| 11.1.0.7 11.1.0.7 RAC | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 |
| 11.2.0.1 11.2.0.1 RAC | 9.10~9.14 | 9.10~9.14 | 9.10~9.14 |
| 11.2.0.2 11.2.0.2 RAC | 9.12~9.14 | 9.12~9.14, 9.2x, 9.3x, 9.40 | 9.2x, 9.3x, 9.40 |
| 11.2.0.3 11.2.0.3 RAC | 9.12~9.14 | 9.12~9.14, 9.2x, 9.3x, 9.40 | 9.2x, 9.3x, 9.40 |
| 11.2.0.4 11.2.0.4 RAC | not supported | 9.3x, 9.40 | 9.3x, 9.40 |
| 12.1.0.1 12.1.0.1 RAC | not supported | 9.31-9.40 | 9.31-9.40 |

| Oracle Version | SUSE Linux Enterprise 9 ^{a c} | SUSE Linux Enterprise 10 ^{b c} | SUSE Linux Enterprise 11 ^c |
|----------------|--|---|---------------------------------------|
| 12.1.0.2 | not supported | 9.31-9.40 | 9.31-9.40 |
| 12.1.0.2 RAC | | | |

a. PPM Center version 9.1x support includes initial Enterprise 9 release and SP1 through SP4.
 b. PPM Center version 9.1x support includes initial Enterprise 10 release and SP1 through SP3.
 c. Both 32- and 64-bit platforms are supported.

Extensions and Migrators Compatibility

- ["Deployment Management Extension for Oracle E-Business Suite" below](#)
- ["Object Migrator and Mercury GL Migrator" on the next page](#)
- ["Deployment Management Extension for Oracle Technology" on page 17](#)

Deployment Management Extension for Oracle E-Business Suite

Table 2-7 details the versions of Oracle E-Business Suite that are supported by the various versions of the Deployment Management Extension for Oracle E-Business Suite and PPM.

Versions that are *not* supported on PPM version 9.40 are shown in the lightly shaded areas. Combinations shown in unshaded areas are supported for this version of PPM

Table 2-7. Oracle E-Business Suite and HP Deployment Management Extension for Oracle E-Business Suite versions supported on PPM Center versions

| Oracle E-Business Suite Version | Deployment Management Extension for Oracle E-Business Suite Version 9.40 |
|--|--|
| 11–11.5.6 | 9.10, 9.11 |
| 11.5.7 Application Object Library: FND.E Applications DBA: AD.F Common Modules: AK.D Financials Suite: Family Pack A | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.8 | 9.10~9.14, 9.2x, 9.3x, |

| Oracle E-Business Suite Version | Deployment Management Extension for Oracle E-Business Suite Version 9.40 |
|---|--|
| Application Object Library: FND.F Applications DBA: AD.G Common Modules: AK.E Financials Suite: Family Pack C | 9.40 |
| 11.5.9 ^a Application Object Library: FND.G Applications DBA: AD.H Common Modules: AK.F Financials Suite: Family Pack D | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.10 ^{a, b} Application Object Library: FND.H Applications DBA: AD.I Common Modules: AK.G Financials Suite: Family Pack F | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.10.2 (CU2) ^b Application Object Library: FND.H Applications DBA: AD.I.6 Common Modules: AK.G Financials Suite: Family Pack F | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 12.0.0–12.1.2 Applications Technology: R12.ATG_PF.A–R12.ATG_PF.B.DELTA.2 Applications DBA: R12.A–R12.AD.B.DELTA.1 | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 12.1.3 Applications Technology: R12.ATG_PF.A–R12.ATG_PF.B.DELTA.3 Applications DBA: R12.A–R12.AD.B.DELTA.3 | 9.12~9.14, 9.2x, 9.3x, 9.40 |
| <p>a. 11.5.8 with the FND.G Mini Pack is functionally equivalent to 11.5.9.</p> <p>b. 11.5.8-11.5.9 with the FND.H Mini Pack is functionally equivalent to 11.5.10.</p> | |

Object Migrator and Mercury GL Migrator

Table 2-8 details the versions of Oracle E-Business Suite that are supported by the various versions of the Migrators and the Deployment Management Extension for Oracle E-Business Suite.

Versions that are *not* supported on PPM Center version 9.40 are shown in the lightly shaded areas. Combinations shown in unshaded areas are supported for this version of PPM Center.

Table 2-8. Oracle E-Business Suite and HP Migrator versions supported on HP Deployment Management Extension for Oracle E-Business Suite versions 9.1x, 9.2x, and 9.40

| Oracle E-Business Suite Version | Kintana Object*Mi-grator Version 5.1 | Mercury Object Migrator Version 6.0 | Object Migrator Version 7.5 | Kintana GL*Migrator Version 2.0 | Mercury GL Migrator Version 6.0 |
|---|--------------------------------------|-------------------------------------|-----------------------------|---------------------------------|---------------------------------|
| 11–11.5.1 | 9.1x | 9.1x | 9.1x | 9.1x | 9.1x |
| 11.5.2–11.5.6 | 9.1x | 9.1x | 9.1x | not supported | 9.1x |
| 11.5.7 Application Object Library: FND.E Applications DBA: AD.F Common Modules: AK.D Financials Suite: Family Pack A | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.8 Application Object Library: FND.F Applications DBA: AD.G Common Modules: AK.E Financials Suite: Family Pack C | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.9 ^a Application Object Library: FND.G Applications DBA: AD.H Common Modules: AK.F Financials Suite: Family Pack D | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.10 with FND.H Mini Pack ^{a, b, d} Application Object Library: FND.H Applications DBA: AD.I Common Modules: AK.G Financials Suite: Family Pack F | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 |
| 11.5.10.2 (CU2) ^{c, d} Application Object Library: FND.H Applications DBA: AD.I.6 Common Modules: AK.G Financials Suite: Family Pack F | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 | 9.10~9.14, 9.2x, 9.3x, 9.40 | not supported | 9.10~9.14, 9.2x, 9.3x, 9.40 |

| Oracle E-Business Suite Version | Kintana Object*Mi-grator Version 5.1 | Mercury Object Migrator Version 6.0 | Object Migrator Version 7.5 | Kintana GL*Migrator Version 2.0 | Mercury GL Migrator Version 6.0 |
|---|--------------------------------------|-------------------------------------|--|---------------------------------|---------------------------------|
| 12.0.0–12.1.2 Applications Technology: R12.ATG_PF.A– R12.ATG_PF.B.DELTA.2 Applications DBA: R12.A–R12.AD.B.1 | not supported | not supported | 9.10~9.14 ^e , 9.2x, 9.3x, 9.40 | not supported | not supported |
| 12.1.3 Applications Technology: R12.ATG_PF.A– R12.ATG_PF.B.DELTA.3 Applications DBA: R12.A–R12.AD.B.3 | not supported | not supported | 9.12~9.14 ^e , 9.2x, 9.3x, 9.40 | not supported | not supported |
| <p>a. 11.5.8 with the FND.G Mini Pack is functionally equivalent to 11.5.9.</p> <p>b. 11.5.8-11.5.9 with the FND.H Mini Pack is functionally equivalent to 11.5.10 (for Object Migrator). 11.5.8-11.5.9 with the Financials Family Pack F is functionally equivalent to 11.5.10 (for GL Migrator).</p> <p>c. See the Object Migrator Oracle Apps Version 11.5.10.2 Compatibility Patch (#174141) Readme for details.</p> <p>d. Support for the Oracle Applications E-Business Suite version 11.5.10 with the 10G database version requires installation of patch 154770. See the Object Migrator Version 6.0 Database version 10G Compatibility Patch (#154770) readme for details.</p> <p>e. Apply the patch to Object Migrator 7.5 that makes it compatible with R12.1.2.</p> | | | | | |

Deployment Management Extension for Oracle Technology

There are no changes in the support for the Deployment Management Extension for Oracle Technology in this version of PPM. However, the new version of the Extension must be installed after an upgrade.

Operational Reporting Compatibility

The following table describes compatibility matrix between the Operational Reporting solution and PPM Center.

| Operational Reporting Solution for PPM Center Version | PPM Center Version | | | | | | | |
|---|--------------------|------|-----------|------|------|------|------|------|
| | 9.10 | 9.11 | 9.12-9.14 | 9.2x | 9.30 | 9.31 | 9.32 | 9.40 |
| | | | | | | | | |

| | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|--|
| 9.10 (GA) | ✓ | | | | | | | |
| 9.12 Content Pack 1 | | ✓ | ✓ | | | | | |
| Content Pack 1.1 | | | ✓ | | | | | |
| Content Pack 1.2 | | | ✓ | | | | | |
| Content Pack 1.3 | | | ✓ | ✓ | | | | |
| Content Pack 2.0 | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Content Pack 3.0 | | | ✓ | ✓ | ✓ | ✓ | ✓ | |

Key Considerations

To prepare to install PPM, review the issues described in this section. This section addresses several decisions you must make before you begin to upgrade your PPM products.

Performance Impact on Portlets with Customized SQL-Based Queries

Upgrading PPM can result in decreased performance for some portlets that have complex customized SQL-based queries. If data are loaded quickly into such portlets on your current instance, upgrading PPM may still degrade performance, even with the same database.

You can try to improve the performance of customized portlets post-upgrade by tuning the underlying SQL queries. Bear in mind that HPE does not support customized SQLs in portlets and you are responsible for maintaining any such portlets you have created.

Running on a Single Database Schema (Object Migrator)

Before you upgrade to PPM version 9.40, it is important that you work with your database administration team to determine the appropriate backup and recovery strategy for your instance. HPE recommends that you shut down the database and perform a cold backup of your database and a full file system backup to back up your PPM instance and its configuration files. Your organization may require a different strategy.

If the Object Migrator is installed and running on the same schema as PPM, it is especially important that you perform a cold backup before you begin the upgrade. If you encounter problems during the upgrade, you can revert to the cold backup to preserve your Object Migrator installation.

Running in Graphic (Swing) or Console Mode (UNIX)

On Windows® platforms, you can only upgrade the PPM Server in graphic (or *swing*) mode. On UNIX® platforms, you can either upgrade the PPM Server in graphic mode or in console mode (from the command line).

Note: In this guide, "UNIX" is used to refer to all supported UNIX-based operating systems. For a list of these, see the *System Requirements and Compatibility Matrix*.

In some cases, you can only perform a console upgrade. If you choose to upgrade in graphic mode, and you are accessing the target machine remotely, you may require additional software or configuration. For example, if you access a UNIX system from a Windows system, you must have software that enables the UNIX application to redirect the display to Windows.

Changing the PPM Center System Language

During the upgrade to PPM version 9.40, you have the option of changing your PPM system language. Keep in mind that, after the upgrade is completed, all PPM9.40 boilerplate content, and all of the custom data defined in the PPM 9.30 user space are set to the system language you select at upgrade. For more information, see the *Multilingual User Interface Guide*.

Chapter 2: Preparing to Upgrade to PPM Version 9.40

The section contains the following topics:

- "Preparing to Upgrade" below
- "Upgrading Best Practices Content" on page 31
- "Upgrading Program Financial Summaries, Snapshots, and Approved Budget" on page 35
- "Upgrading Integrations" on page 36

Preparing to Upgrade

Before you start the PPM upgrade procedure, perform the tasks described in this section.

Note: The placeholder `<PPM_Home>` is used throughout this document. It refers to the directory where PPM is installed. The specific name and location of this directory are up to you.

Task 1: If Your Installed Instance is Earlier than PPM Version 9.30

If you have a PPM instance earlier than version 9.30 installed, upgrade to version 9.30.

Note: For information on how to upgrade to PPM version 9.30, see the *Upgrade Guide* for version 9.30.

Note: If you use a Documentum-based document management system, make sure you upgrade your PPM to version 9.14 and then migrate the Documentum-based DMS to PPM Center Database DMS using the Administration Tool DMS Configuration before you upgrade PPM to version 9.20, then to version 9.30, and finally to version 9.40. For instructions on upgrading PPM to version 9.14, see the *Release Notes* for version 9.14.

For instructions on how to migrate a Documentum-based document management system, see the *Document Management Guide and Reference* for version 9.20.

Caution: If you deployed the ALM content bundle on PPM version 9.12 or earlier, and configured any integration solutions using the ALM entities provided, to avoid any potential data loss with your

integration solutions, make sure you upgrade PPM to version 9.14, then proceed to upgrade to version 9.20, then 9.30, and finally 9.40.

Note that unless advised otherwise, HPE strongly recommends you keep using the old ALM content bundle. There is no need to deploy a new ALM content bundle, regardless of which version of PPM you upgraded to.

Task 2: Assess the Impact of Upgrading

Review *What's New and What's Changed* for details about new feature, enhancements, and what's changed in 9.40.

Task 3: Ensure Upgrade Requirements are Met

Review the *System Requirements and Compatibility Matrix* document to ensure that your system meets the minimum requirements for upgrading to PPM version 9.40.

Task 4: Read the Latest Product and Upgrade Information

Review the *Release Notes* for recent changes to the product or upgrade process that are not addressed in the product documentation.

Task 5: Shut Down Your PPM Instance

Stop your PPM Server(s). For information about how to start and stop PPM Server(s), see the *Installation and Administration Guide*.

Task 6: Back Up Your PPM Instance

Before you start to upgrade PPM, back up your PPM instance. This involves backing up both the file system and database schema.

Tip: HPE recommends that you set up a copy of your current instance and run the upgrade on that system before you upgrade your Production instance. For information on how to copy an instance, see the *Installation and Administration Guide*.

Backing Up the File System

There are many ways to back up the PPM Server file system. A common approach is described in ["Backing Up the File System on Windows" on the next page](#) and ["Backing Up the File System On](#)

UNIX" on the next page. Regardless of the method you use, you must stop the PPM Server first.

Caution: The following procedure specifies that you stop the PPM Server and not restart it until after the upgrade is complete. The upgrade cannot run if the server is running. If you do not stop the server, users may be able to access the system; if problems occur, any data stored between the time you backed it up and the time the upgrade completes may be unrecoverable.

Backing Up the File System on Windows

To back up the file system on Windows:

1. Open the control panel.
2. To stop the PPM service, select it (the default name is HPE PPM *ID* where *ID* is the name that you or another PPM administrator gave to the PPM service), and then click **Stop**.
3. Open a Command Prompt window and navigate to the parent directory of *<PPM_Home>*.
4. Create a zip archive by executing the following command:

```
zip <Backup_Filename>.zip -r <PPM_Home>
```

where *<Backup_Filename>* represents the name you give to the archive file.

The archive named *Backup_Filename.zip* is placed in the parent directory of *<PPM_Home>*. Keep this archive at least until you verify that the upgrade completed successfully and works correctly.

If you must restore the file system later, move the *.zip* file into the *<PPM_Home>* directory, and then extract the files.

Backing Up the File System On UNIX

To back up the file system on UNIX:

1. To stop the PPM Server, run the *kStop.sh* script, which is located in the *<PPM_Home>/bin* directory:

```
sh ./kStop.sh -now
```

2. In the *<PPM_Home>* directory, use SQL*Plus to create a *.tar* archive of the complete PPM directory tree by typing the following command (ensure that you have enough disk space):

```
tar cvf ../<Backup_Filename>.tar *
```

where *<Backup_Filename>* is the name you give to the archive file.

Note: For detailed information about creating an Oracle directory, see "Creating Directory

Objects" on the Oracle By Example (OBE) web site (<http://www.oracle.com/technology/obe/start/index.html>).

The `<Backup_Filename>.tar` archive file is placed in the parent directory of `<PPM_Home>`. Keep this archive at least until you verify that the upgrade completed successfully and works correctly.

If you must restore the file system later, move the `<Backup_Filename>.tar` file to the `<PPM_Home>` directory, and then type the following command:

```
tar xvf <Backup_Filename>.tar
```

1. To stop the PPM Server, run the `kStop.sh` script, which is located in the `<PPM_Home>/bin` directory:

```
sh ./kStop.sh -now
```

2. In the `<PPM_Home>` directory, use SQL*Plus to create a `.tar` archive of the complete PPM directory tree by typing the following command (ensure that you have enough disk space):

```
tar cvf ../<Backup_Filename>.tar *
```

where `<Backup_Filename>` is the name you give to the archive file.

Note: For detailed information about creating an Oracle directory, see "Creating Directory Objects" on the Oracle By Example (OBE) web site (<http://www.oracle.com/technology/obe/start/index.html>).

The `<Backup_Filename>.tar` archive file is placed in the parent directory of `<PPM_Home>`. Keep this archive at least until you verify that the upgrade completed successfully and works correctly.

If you must restore the file system later, move the `<Backup_Filename>.tar` file to the `<PPM_Home>` directory, and then type the following command:

```
tar xvf <Backup_Filename>.tar
```

Exporting the Database Schemas

Before you begin the upgrade, back up all PPM schemas (PPM database schema and RML schema) and tablespaces. For information on how to back up your schemas, see the documentation for your version of Oracle software.

Caution: Ensure that all PPM Server connections are closed and shut down the PPM Server before you export or import the schema. For instructions on how to stop and restart the PPM Server, see the *Installation and Administration Guide*.

HPE recommends that you keep the exported file at least until you verify that the upgrade was successful.

Note: For instructions on how to import from the export file, see the *Installation and Administration Guide* or your Oracle documentation.

If you must restore the archive later, remove the schema from the database, re-initialize the database schema, and then import from the export file. Before you can restore an archive, you must first perform two tasks:

1. Before you import the `.dmp` file, run the `CreateKintanaUser.sql` script (as SYSTEM) to create a PPM user.
2. Run the `GrantSysPrivs.sql` script (as SYS DBA) to give the new PPM user to grant the privileges required by the PPM Server.

You can find the `CreateKintanaUser.sql` and `GrantSysPrivs.sql` scripts in the upgrade bundle.

Note: Make sure that for every one million (1,000,000) records in the `itg_compressed_elements` table, you have at least 400 MB of undo tablespace allocated in the PPM database.

Task 7: Back Up the PPM Configuration Files

Make copies of the `tune.conf`, `cache.conf`, `siteminder.conf`, and `LdapAttribute.conf` files. If you have made changes to these, you can revert each `conf` file to `conf.pre9.40` after the upgrade.

Task 8: Back Up Customizations

Back up any customizations (such as request rules and JavaScript methods, which are overwritten during an upgrade) that you want to continue to use with PPM version 9.40.

Task 9: Drop Custom Triggers

If you have configured custom triggers on your PPM instance, drop all of these before you upgrade so that they cannot interfere with the upgrade process. After you complete the upgrade to PPM9.40, you can reconfigure the custom triggers.

Task 10: Install Java Development Kit (JDK) version 1.7.0 Update 45 or Later

Make sure you obtain and install JDK version 1.7.0 update 45 or later for your PPM Server platform before you proceed to the next step.

For instructions about installing the JDK, see the *Installation and Administration Guide*.

Note: PPM 9.40 adds support for OpenJDK 8 for Windows and Linux platform. You can also install OpenJDK 8 on these platform.

- For Windows platform, only Azul Zulu (a certified build of OpenJDK 8) is supported.
- For Linux platform, only OpenJDK 8 built into Linux distributions is supported.

Task 11: Gather Required Information

Collect the information you are required to provide during the upgrade process. This information is listed in the following table.

Table 2-1. Required upgrade information

| Prompt | Description |
|---------------------------|--|
| PPM Schema | PPM database schema password. |
| System Password | System password (if required). |
| Autopass License Key File | The Autopass license key file contains valid PPM license keys that you generated from the HPE Licensing for Software portal. If you do not have a valid Autopass license key file, see <i>Installation and Administration Guide</i> for information about how to generate an Autopass license key file. |
| JAVA_HOME | Directory in which Java is installed. Note: The directory path shall not contain any spaces. |
| ORACLE_HOME | Directory in which Oracle is installed. |

Task 12: Extract the Upgrade Files

To extract the upgrade files:

1. Obtain the upgrade software.
2. Extract the files in ppm-940-upgrade.zip to <PPM_Home>. This creates a new upgrade_940 directory that contains the upgrade executable file (upgrade.exe for Windows and upgrade.sh for

UNIX systems.)

Caution: Do not rename the `upgrade_940` directory. If you do, the upgrade will fail.

Task 13: Setting Up a Shared Folder for a Server Cluster

If your PPM instance has a server cluster configuration, you must set up a shared folder to give all nodes access to the same `server.conf` file.

Caution: If you plan to configure the server cluster configurations on multiple machines, keep in mind that the nodes in the cluster must all run on the same operating system. Shared access to the `server.conf` file does not support mixed operating systems.

Setting Up a Shared Folder on a Windows System

To set up the shared folder for a server cluster on a Windows system:

1. Create a shared folder on your PPM Server. (Example: `//<IP_Address>/shared_folder`)

Note: Use only forward slashes (/) to specify the folder path.

2. Using a text editor, create a file named "ppm_server_conf.env".
3. Open the new `ppm_server_conf.env` file and add the following text to it:

```
export PPM_SERVER_CONF_DIR=//<IP_Address>/shared_folder
```

4. Save and close the file.

Setting Up a Shared Folder on a UNIX System

To set up the shared folder for a server cluster on a UNIX system:

1. Create a local shared folder. Example: `<PPM_Home>/shared_folder`

Note: You can mount the local folder using NFS (Network File System).

2. Using a text editor, create a file named "ppm_server_conf.env".
3. Open the new `ppm_server_conf.env` file and type the following text:

```
export PPM_SERVER_CONF_DIR=\\<PPM_Home>/shared_folder
```

4. Save and close the file.

Task 14: Optionally Evaluate Freestanding Budgets and Benefits for Prior Upgrade from Version 7.5

If you upgrade from version 7.5 to version 8.00 then to version 9.10, then to version 9.20, 9.30, and finally to version 9.40 *without* running the `drop_75_objects.sql` database cleanup script after either upgrade, you can still assign former freestanding budgets and benefits retained in the version 7.5 database to requests you specify. Then you can import the budgets and benefits as financial summary snapshots for those requests.

This capability is useful for preserving version 7.5 data that represented, in effect, a snapshot of the planned budget or benefit of a proposal or project.

Note: Since you cannot view the freestanding budgets and benefits in PPM after the upgrade to version 8.00, you might want to evaluate them before that upgrade to determine whether and how you intend to use them after the upgrade. HPE recommends that you delete obsolete freestanding budgets and benefits before you perform the upgrade. For more information, see the *Upgrade Guide* for version 8.00.

Task 15: Verify Environment Variables

PPM requires that the `JAVA_HOME` and `ORACLE_HOME` environment variables be set in the system environment of the user account that is to be used to start the PPM Server(s).

Determining the `JAVA_HOME` or `ORACLE_HOME` Path on a Windows System

To determine the environment variable path from the command prompt on a Windows system:

- At the command line, type `echo %<Environment_Variable_Name>%`

where `<Environment_Variable_Name>` represents either the `JAVA_HOME` or `ORACLE_HOME` environment variable.

Determining the `JAVA_HOME` or `ORACLE_HOME` path on a UNIX System

To determine the environment variable path in a UNIX shell (`SH`, `BASH`, or `KSH`):

- At the prompt, type `echo $<Environment_Variable_Name>`

where `<Environment_Variable_Name>` represents either the `JAVA_HOME` or `ORACLE_HOME` environment variable.

Setting the Environment Variables from the Control Panel on a Windows System

To set the environment variable value on a Windows system:

1. Open the Control Panel.
2. Open the System Properties window.
3. Click the **Advanced** tab.
4. Click **Environment Variables**.

The Environment Variables window opens.

5. In the **System variables** section, click **New**.

The New System Variable dialog box opens.

6. In the **Variable name** field, type %<Environment_Variable_Name>%
7. In the **Variable value** field, type the full install directory path.
8. To save the new variable and close the New System Variable dialog box, click **OK**.
9. In the Environment Variables window, click **OK**.
10. In the System Properties window, click **OK**.

Setting the Environment Variables from the Command Prompt

To set the environment variable value from the command prompt, run the following command:

```
set <Environment_Variable_Name>=<Install_Directory>
```

where <Install_Directory> represents either the directory in which Java is installed, or the home directory for the Oracle client tools on the PPM Server machine.

Using the Bourne Shell to Set the Environment Variables on a UNIX System

To set the environment variable value in UNIX using the Bourne shell (SH, BASH, or KSH), run the following commands:

```
<Environment_Variable_Name>=<Install_Directory>
```

```
export <Environment_Variable_Name>
```

where <Install_Directory> represents either the directory in which Java is installed, or the home directory for the Oracle client tools on the PPM Server machine.

Task 16: Modify Oracle Database Parameters

This section provides information about temporary changes that you must make to the Oracle database before you upgrade PPM. It also contains information on how you can modify Oracle database parameters to improve upgrade performance.

Note: To modify these parameter settings, you must have SYS DBA privileges.

After you verify a successful upgrade, you can restore your original database parameter settings.

Archive Logging

Because archive logging adds additional overhead, HPE recommends that you turn it off before you upgrade. The upgrade can migrate or update large volumes of data, which can result in unnecessary storage demands. In addition, archive logs are unnecessary since they would not provide any useful transactional data in this case; the upgrade completes or it does not.

For instructions on how to turn off archive logging, see the documentation for your Oracle software.

Caution: This recommendation is based on the assumption that PPM is the only application using the Oracle database instance that contains the data to be upgraded. If data for other third-party applications resides in the same Oracle database instance, then disabling archive logging might not be appropriate.

NLS_LENGTH_SEMANTICS Parameter

HPE strongly recommends that you use a database whose NLS_LANG_SEMANTICS value is set to CHAR, especially if you are running a non-English version of PPM. If NLS_LENGTH_SEMANTICS is set to CHAR, Oracle allocates storage for VARCHAR fields in characters, not bytes. This is important if data contains international characters, which require more than one byte to store. So if NLS_LENGTH_SEMANTICS is set to BYTE, it accepts strings with international characters with length of two to three times less than the declared field length.

To see the current value set for NLS_LENGTH_SEMANTICS, run the following statement:

```
select * from v$nls_parameters;
```

To change the value to CHAR, run the following statement:

```
alter system set NLS_LENGTH_SEMANTICS=char scope=both;
```

Alternatively, you can change this parameter in (or add it to) the `init.ora` file.

UNDO_RETENTION Parameter

The database parameter `UNDO_RETENTION` specifies the minimum length of time that the system keeps undo information. The Oracle database retains undo information for at least the time specified for this parameter, and automatically tunes the undo retention period to satisfy the undo requirements of the queries. The default value for `UNDO_RETENTION` is 900 seconds, or 15 minutes.

Note: To determine the amount of time for which undo information is retained for the Oracle database for the current undo tablespace, query the `TUNED_UNDORETENTION` column of the `V$UNDOSTAT` dynamic performance view.

Because upgrade operations can run for hours, especially with large databases, HPE strongly recommends that you set the `UNDO_RETENTION` parameter value to 21,600 seconds, or six hours.

To set the `UNDO_RETENTION` parameter dynamically, run the following statements:

- `show parameter UNDO_RETENTION`
- `alter system set UNDO_RETENTION = 21600 scope=both;`

Note: After you verify a successful upgrade, you can restore the original setting.

LOG_BUFFER Parameter

For systems with 50 or more concurrent users, set the `LOG_BUFFER` parameter value to 25 (expressed in MB).

To change the parameter value, run the following statements:

- `show parameter LOG_BUFFER`
- `alter system set log_buffer=25 scope=spfile;`

UNDO_TABLESPACE Parameter

For a large deployment (more than 1,000 projects), set the tablespace specified in the `UNDO_TABLESPACE` parameter to be at least 10 GB.

REDO LOG GROUPS

To reduce expensive log switches for large deployments (more than 1,000 projects), drop and then re-create the redo log groups. Create two redo log groups, each on a separate fast disk, and each with a single redo log file of 250 MB.

CURSOR_SHARING Parameter

Set the `CURSOR_SHARING` parameter to `Exact`. This value only enables statements that have identical text to share a cursor. HPE recommends that you set the `CURSOR_SHARING` parameter to `EXACT`. If any other value is used, PPM Server will try to force the value of this parameter to `EXACT` for all PPM-related databases transactions.

PGA_AGGREGATE_TARGET Parameter

Automatic Program Global Area (PGA) memory management is enabled by default (unless `PGA_AGGREGATE_TARGET` is explicitly set to 0 or `WORKAREA_SIZE_POLICY` is explicitly set to `MANUAL`). `PGA_AGGREGATE_TARGET` defaults to 20 percent of the size of the SGA, unless explicitly set.

The `PGA_AGGREGATE_TARGET` parameter value determines the aggregate Program Global Area (PGA) memory available to all PPM Server processes attached to the instance. This parameter enables the automatic sizing of SQL working areas used by memory-intensive SQL operators such as sort, group-by, hash-join, bitmap merge, and bitmap create.

`PGA_AGGREGATE_TARGET` replaces the traditional `SORT_AREA_SIZE` parameter. Use it with the `WORKAREA_SIZE_POLICY` parameter set to `AUTO`.

Recommended Setting

Set the `PGA_AGGREGATE_TARGET` parameter value to a minimum of 450 MB. For very large databases, you can set the parameter to 1 GB.

Task 17: Prepare a Back Out Plan

If there is an error during a PROD environment upgrade, restore the backup of the file system and database schema so PROD environment down time is minimal. Then restore the PROD file system and database schema to the STAGE environment and test the upgrade again.

Upgrading Best Practices Content

If the product license your organization purchased (for PPM version 7.5 or earlier) included Best Practices, you had the option of installing request types and workflows specifically designed to enhance your use of Demand Management, Project Management, and Portfolio Management.

All Best Practices content in your current instance is preserved during the upgrade to version 9.40. This includes request types and workflows that are not delivered in version 9.40.

Project Management and Portfolio Management access the request type content installed as part of Best Practices. This includes HPE-supplied menu items that attempt to access these request types. The following table lists the Best Practices request types and their associated workflows, and provides descriptions of the product functionality they provide.

Caution: For PPM products to function correctly, you must have Best Practices installed on your system.

Table 1-2. Product functionality enabled by Best Practices content

| Request Type /Workflow | Description | Menu Selections | Field Groups |
|---|---|--|--|
| PFM - Proposal / PFM - Proposal | Represents a proposal for a project. | <ul style="list-style-type: none"> • Create > Proposal • Open > Portfolio Management > Create Proposal | PFM Proposal |
| PFM - Project / PFM - Project | Represents the data and process associated with a project. This request type is connected to a project type. | Not accessible as a menu selection. This request type must be connected to a project type. | PFM Project |
| PFM - Asset / PFM - Asset | Represents the ongoing costs and maintenance of the result of a project. | <ul style="list-style-type: none"> • Create > Asset • Open > Portfolio Management > Create an Asset | PFM Asset |
| Project Issue / Issue Management Process | Represents issues associated with a project. (Also associated with a project type. This enables users to create requests of this type from the Project Overview page.) | <ul style="list-style-type: none"> • Search > Project Issues • Create > Project Issue • Open > Project Management > Project Controls > Submit Project Issue • Open > Program Management > Issues > Search Project Issues | <ul style="list-style-type: none"> • Project Issue • Project Reference |
| Project Risk / Risk Management Process | Represents the risks associated with a project. (Also associated | <ul style="list-style-type: none"> • Search > Project Risks • Create > Project Risk • Open > Project Management > Projects | <ul style="list-style-type: none"> • Project Risk • Project Reference |

Table 1-2. Product functionality enabled by Best Practices content, continued

| Request Type /Workflow | Description | Menu Selections | Field Groups |
|---|--|---|---|
| | with a project type. This enables creating a request of this type from the Project Overview page.) | <ul style="list-style-type: none"> Controls > Search Project Risks • Open > Project Management > Projects Controls > Submit Risk • Open > Program Management > Risks > Search Project Risks | |
| Project Scope Change Request / Scope Change Request Process | Represents scope changes associated with a project. | <ul style="list-style-type: none"> • Search > Project Scope Changes • Open > Project Management > Project Controls > Search Scope Changes • Open > Project Management > Project Controls > Submit Scope Change • Open > Program Management > Scope Changes > Search Scope Changes | <ul style="list-style-type: none"> • Project Scope Change • Project Reference |
| Program Issue | Represents issues associated with a program. | <ul style="list-style-type: none"> • Search > Program Issues • Create > Program Issues • Open > Program Management > Issues > Search Program Issues • Open > Program Management > Issues > Submit Program Issue | <ul style="list-style-type: none"> • Program Issue • Program Reference |
| Program Risk / Program Risk Management Process | Represents risks associated with a program. | <ul style="list-style-type: none"> • Search > Program Risks • Create > Program Risk • Open > Program Management > Issues > Search Program Risks • Open > Program Management > Issues > | <ul style="list-style-type: none"> • Program Risk • Program Reference |

Table 1-2. Product functionality enabled by Best Practices content, continued

| Request Type /Workflow | Description | Menu Selections | Field Groups |
|--|--|---|---|
| | | Submit Program Risk | |
| DEM - Application Enhancement / DEM - Enhancement Request Process | Represents requests for new functionality in current applications. | <ul style="list-style-type: none"> • Create > Request • Search > Requests • Open > Demand Management > Create Request • Open > Demand Management > Search Requests • Open > Demand Management > Request Browser > Browse Requests | <ul style="list-style-type: none"> • Demand Management SLA Fields • Demand Management Scheduling Fields |
| DEM - Database Refresh / DEM - Database Refresh | Represents the database refresh requests made for applications in the testing phase. | <ul style="list-style-type: none"> • Create > Request • Search > Requests • Open > Demand Management > Create Request • Open > Demand Management > Open > Search Requests • Open > Demand Management > Request Browser > Browse Requests | <ul style="list-style-type: none"> • Demand Management SLA Fields • Demand Management Scheduling Fields |
| DEM - Application Bug / DEM - Bug Request Workflow | Represents reported defects in current applications. | <ul style="list-style-type: none"> • Create > Request • Search > Requests • Open > Demand Management > Create a Request • Open > Demand Management > Search Requests • Open > Demand Management > Request Browser > Browse | <ul style="list-style-type: none"> • Demand Management SLA Fields • Demand Management Scheduling Fields |

Table 1-2. Product functionality enabled by Best Practices content, continued

| Request Type /Workflow | Description | Menu Selections | Field Groups |
|---|---|--|---|
| | | Requests | |
| DEM - Initiative / DEM - Project Initiative Process | Represents requests for key projects for future quarters. | <ul style="list-style-type: none"> • Demand Management > Create a Request • Demand Management > Search Requests • Demand Management > Request Browser > Browse Requests | <ul style="list-style-type: none"> • Demand Management SLA Fields • Demand Management Scheduling Fields |

Upgrading Program Financial Summaries, Snapshots, and Approved Budget

The following sections describe the results of the upgrade in regard to the conversion of version 9.20 financial summaries, snapshots, and approved budget into version 9.40 financial summaries, snapshots, and approved budget for programs.

The financial summary of a program is available when the **Enable Financial Management for this program** checkbox is selected in the Program Settings page for the program.

Program Financial Summaries

The upgrade process consolidates the two financial summaries that are associated with a program (the roll-up financial summary and the editable financial summary). Both financial summaries are consolidated into a single financial summary where roll-up data is not editable and editable data remains editable.

The upgrade process also converts data stored in the local currency in the program financial summary to the base currency. Program financial summaries in version 9.40 are displayed and saved in the base currency only.

Program Financial Summary Snapshots and Approved Budget

The upgrade process converts data stored in the local currency in the program financial summary snapshot and approved budget to the base currency. Program financial summary snapshots and approved budget are displayed and saved in the base currency only.

Upgrading Integrations

Integrations with Application Lifecycle Management

If you upgrade your PPM instance to version 9.40, and you then upgrade an integrated Quality Center version 10.00 instance to Application Lifecycle Management version 11.00 or later, existing integrations of PPM requests and Quality Center entities (defects or requirements) on that instance are not upgraded. Integrations that you reestablish operate as new integrations.

Caution: If you deployed the ALM content bundle on PPM version 9.12 or earlier, and configured any integration solutions using the ALM entities provided, unless advised otherwise, HPE strongly recommends you keep using the old ALM content bundle to avoid any potential data loss with your integration solutions.

There is no need to deploy a new ALM content bundle, regardless of which version of PPM you upgrade to.

For detailed instructions on how to upgrade an integrated Quality Center version 10.00 instance to Application Lifecycle Management version 11.00 or later, see the *Solution Integrations Guide*.

Integrations with Agile Manager

PPM version 9.40 uses Agile Manager Connector 2 to realize the integration with Agile Manager. Agile Manager Connector 1 is deprecated. The integrations using Agile Manager Connector 1 are still kept after you upgrade PPM to version 9.40.

Integrations with Service Manager

For the integration between PPM requests and Service Manager changes, you need to generate Web service stubs for new installations of ALM content bundle and after any upgrade of PPM.

For instructions of generating Web service stubs, see *Solution Integrations Guide*.

Upgrading Custom Integrations

If you have custom integrations that can be used to update PPM version 9.40 data, make sure that you perform the updates using a supported method. Using SQL to update the data directly in the database is very risky and could corrupt the data. HPE strongly discourages direct updates to the database tables.

Upgrading Excel Reports

If you are using some Excel reports that require adding some JAR files `<SERVER_HOME>/lib` or `<SERVER_HOME>/deploy/itg.war/WEB-INF/lib`, or adding some class files in `<SERVER_HOME>/deploy/itg.war/WEB-INF/classes`, make sure these files are backed up and re-applied to your PPM instance after the upgrade as they will be removed during PPM upgrade.

Chapter 3: Upgrading to PPM Version 9.40

This section contains the following topics:

- ["Default Permissions for PPM Schemas" below](#)
- ["Performing the Upgrade" on the next page](#)
- ["Upgrading a PPM Server Cluster" on page 50](#)

Default Permissions for PPM Schemas

By default, the PPM database schema and RML database schema accounts (PPM_USER and RML_USER) are granted Oracle database privileges from an overall PPM perspective, which works for all customer scenarios and environments. Some of these privileges are required, but some are not, and can be revoked without affecting the PPM system.

The PPM database schema account is granted Oracle CONNECT role privileges. If this presents a problem for your organization, you can have your DBA revoke the CONNECT role privilege for the PPM database schema account.

Although revoking the CONNECT role privilege does not affect the PPM system, the PPM schema does require the following grants:

- grant create session
- grant create database link
- grant create procedure
- grant create sequence
- grant create synonym
- grant create table
- grant create view
- grant create trigger
- grant create job
- grant execute on ctxsys.ctx_ddl

The RML database schema account is granted Oracle RESOURCE role privileges. Because the RML schema requires the RESOURCE role privilege, it cannot be revoked. You can, however, revoke the following privileges, which are also granted to the RML database schema account:

- CREATE CLUSTER
- CREATE INDEXTYPE
- CREATE OPERATOR

Performing the Upgrade

This section provides the steps used to upgrade from PPM version 9.30 to version 9.40 on Windows and UNIX systems. It includes instructions for upgrading a stand-alone instance and additional PPM Servers in a clustered system configuration. "[Post-Upgrade Tasks](#)" on page 55 provides information on what to do after you upgrade.

Note: HPE strongly recommends that you upgrade a test instance before you upgrade your production instance. If you do not have a test instance, consider creating one for this purpose. For instructions on how to do this, see the *Installation and Administration Guide*.

The upgrade executable (Windows) or upgrade utility (UNIX) starts the file system and database schema upgrade process. Upgrading the database schema can take several hours. The upgrade utility asks you for the password for the PPM user, and for a user with system-level database accounts.

Caution: The PPM database must have at least 400 MB of undo tablespace allocated for every one million (1,000,000) records in the ITG_COMPRESSED_ELEMENTS table.

Upgrading On a Windows System

Perform the following steps to upgrade from PPM version 9.30 to PPM version 9.40 on a Windows system.

1. (Documentum-based DMS only) If you use a Documentum-based document management system, make sure you upgrade your PPM to version 9.14 and then migrate the Documentum-based DMS to PPM Center Database DMS using the Administration Tool DMS Configuration before you upgrade PPM to version 9.20, then to version 9.30, and finally to version 9.40.

For detailed instructions on how to migrate a Documentum-based document management system, see the Document Management Guide and Reference for version 9.20.

2. Stop the PPM Server. If you have a server cluster setup, stop all nodes in the cluster.

Note: For information about how to start and stop the server, see the *Installation and Administration Guide*. For information on how to upgrade a server cluster, see "[Upgrading a PPM Server Cluster](#)" on page 50.

3. Navigate to the <PPM_Home>\upgrade_940 directory, and then double-click upgrade.exe.
4. In the language selection window, select the language that you want the upgrade wizard to use to display steps, and then click **OK**.

The upgrade wizard starts and displays basic requirements information.

5. Click **Next**.

The wizard asks if you want to check tablespace space availability before you continue.

6. To check space availability for the tablespaces, in the **Oracle System User Password** field, type your Oracle system user password. To skip this check, leave the field empty.

7. Click **Next**.

If you provided your Oracle system user password, the upgrade tool displays information about the tablespaces created for the PPM schemas. If information about a tablespace is displayed in red text, then the available space is too small for this upgrade. HPE recommends that you quit the upgrade, resize the tablespace, and then restart the upgrade.

Note: If any system tests fail, follow the prompts to fix the problem. After all temporary tables are reconciled, you can restart the upgrade. If you then encounter unexpected errors, visit the HPE Software Support Web site (<https://softwaresupport.hpe.com>).

8. Click **Next**.

9. In the **Password** field, type the PPM schema password.

10. Click **Next**.

11. The wizard asks whether you want to run the prevalidation step. To perform prevalidation, leave **Yes, I would like to run prevalidation step now** selected, and click **Next**. To skip prevalidation, select **No, I would like to skip the prevalidation step**, and then click **Next**.

Note: HPE strongly recommends that you perform this step as part of the upgrade. Prevalidation checks for data inconsistencies that might cause upgrade problems. For more

details, see ["About Prevalidation" on page 49](#).

12. If you run prevalidation:

- a. Review the `PreValidationResultsIndex.html` file, which is located in the `<PPM_Home>/upgrade_940/logs/reports/html/integrity/validator` directory.

The report lists all issues that you must resolve before you can successfully upgrade to PPM 9.40.

- b. If prevalidation revealed problems, cancel the upgrade, resolve the problems, and then begin the upgrade again.

Note: If you need assistance with database issues, consult your database administrator.

- c. If prevalidation uncovered no problems, click **Next**.

Next, the upgrade utility:

- Checks to ensure that the PPM Server is shut down.
- Checks for old tables.
- Determines the directories in `<PPM_Home>/server` to upgrade and lists these.
- Lists the PPM Server or servers declared in the `server.conf` file, and which of these is to be upgraded.
- Deletes records of services with both `SERVICE_ID<10000` and history of exceptions from the `PPM_SERVICE_RECORDS` table.

Note: Only records of customized services with history of exceptions are deleted from the `PPM_SERVICE_RECORDS` table as they can cause upgrade failure.

13. Click **Next**.

14. If the **Directory Name** field does not display the Java installation directory path, provide the path.

15. Click **Next**.

The system language selection step opens.

16. From the list of supported languages, select your preferred system language.

Note: Be cautious when selecting this option. It is intended for use only by those who developed the content in an unsupported language in 7.5, for which English was the only system language. Now with version 9.40 multilingual user interface (MLU) capabilities, such a user can now set the system language correctly.

The system language is the PPM default language for the installation. It is used as the default language setting for all regions (and by extension, all users). The system language is also the language used to generate system-level information such as server logs. For more information about the system language, see the *Multilingual User Interface Guide*.

17. Click **Next**.

The additional languages selection step opens.

18. (Optional) Select the checkboxes for any additional languages to install.

Note: If your organization includes staff in other countries who use this PPM instance, the additional languages you install enable them to work with PPM in their own languages (if supported). If you prefer not to install additional languages now, you can install them any time later. For more information about the session language, see the *Multilingual User Interface Guide*.

19. Click **Next**.

The wizard displays the current server mode (Stand-alone or Cluster) of the PPM instance.

20. Click **Next**.

The wizard lists the current server configuration settings for the PPM Server and Tomcat server. The server configuration parameters listed for a stand-alone PPM Server are different than those listed for the primary PPM Server (the first node) in a server cluster.

21. If necessary, change the values for the listed parameter, and then click **Next**.

Note: For descriptions of and valid values for these parameters, see the *Installation and Administration Guide*.

The upgrade utility displays the directory path in which the upgrade is to be installed, and the total size (in MB) of the upgraded files.

22. Click **Next**.

The upgrade utility displays labeled indicators so that you can monitor the upgrade process.

To improve system performance, the upgrade utility can generate statistics for the Oracle optimizer.

23. To generate database statistics, leave **Yes. Gather the statistics now** selected. To skip this step, select **No. I will gather the statistics myself later**.

The upgrade utility installs additional languages you selected (if any) in [step 18](#).

24. Click **Next**.

After the upgrade is completed, the upgrade utility displays the upgrade log file path and asks you to check subsequent screens for information about what (if any) actions you need to take regarding the PPM Server.

25. Click **Next**.

The upgrade process checks the database tables and generates log files.

26. Click **Next**.

27. After the upgrade is completed, click **Finish**.

28. Locate the `server.conf` file, update the values for the following Java plug-in related parameters:

- `WORKBENCH_PLUGIN_VERSION`
- `JAVA_PLUGIN_VERSION`
- `JAVA_PLUGIN_PATH_IE`
- `JAVA_PLUGIN_PATH_NS`
- `JAVA_PLUGIN_XPI_PATH`
- `JAVA_PLUGIN_CLASSID`

Or, you can comment out these parameters from the `server.conf` file instead.

Save the modified `server.conf` file.

29. Start the PPM Server.

Upgrading On a UNIX System

Perform the following steps to upgrade from PPM version 9.30 to PPM version 9.40 on a UNIX system.

Note: "UNIX" is used to refer to all supported UNIX-based operating systems. For a list of these, see the *System Requirements and Compatibility Matrix*.

Note: (HP-UX only) Make sure that there is at least 2GB free disk space for the root directory. Otherwise you may receive a message similar to the following: "WARNING: / partition has insufficient space to install the items selected."

1. (Documentum-based DMS only) If you use a Documentum-based document management system, make sure you upgrade your PPM to version 9.14 and then migrate the Documentum-based DMS to PPM Center Database DMS using the Administration Tool DMS Configuration before you upgrade PPM to version 9.20, then to version 9.30, and finally to version 9.40.

For detailed instructions on how to migrate a Documentum-based document management system, see the Document Management Guide and Reference for version 9.20.

2. Stop the PPM Server.

Note: For information about how to start and stop the server, see the *Installation and Administration Guide*.

3. Navigate to the `<PPM_Home>/upgrade_940` directory:

```
cd <PPM_Home>/upgrade_940
```

4. Start an X Window session.

Note: To run X Window System applications on a remote Unix or Linux system and have the graphics displayed on your Microsoft Windows workstation, you must run an X Window server on your workstation. If you need assistance with this, contact your system administrator.

5. Run the upgrade script (as the SYSTEM user) and specify the upgrade mode.

Example:

```
sh ./upgrade.sh [-swing|-console]
```

where `-swing` represents the GUI-based mode (this requires an X Window session) and `-console` represents the interactive command-line mode.

Note: Although the remaining steps describe the GUI-based upgrade steps, the information you are required to provide is the same.

A language selection window opens.

6. Select the language that you want the upgrade wizard to use to display steps, and then click **OK**.

The upgrade wizard starts and displays basic requirements information.

7. Click **Next**.

The wizard asks if you want to check tablespace space availability before you continue.

8. To check space availability for the tablespaces, in the **Oracle System User Password** field, type

your Oracle system user password. To skip this check, leave the field empty.

9. Click **Next**.

If you provided your Oracle system user password, the upgrade tool displays information about the tablespaces created for the PPM schemas. If information about a tablespace is displayed in red text, that the available space is too small for this upgrade. HPE recommends that you quit the upgrade, resize the tablespace, and then restart the upgrade.

Note: If any system tests fail, follow the prompts to fix the problem. After all temporary tables are reconciled, you can restart the upgrade. If you then encounter unexpected errors, visit the HPE Software Support Web site (<https://softwaresupport.hp.com>).

10. Click **Next**.

11. In the **Password** field, type the PPM schema password.

12. Click **Next**.

13. The wizard asks whether you want to run the prevalidation step. To perform prevalidation, leave **Yes, I would like to run prevalidation step now** selected, and click **Next**. To skip prevalidation, select **No, I would like to skip the prevalidation step**, and then click **Next**.

Note: HPE strongly recommends that you perform this step as part of the upgrade. Prevalidation checks for data inconsistencies that might cause upgrade problems. For more detail, see "[About Prevalidation](#)" on page 49.

14. If you run prevalidation:

- a. Review the `PreValidationResultsIndex.html` file, which is located in the `<PPM_Home>/upgrade_940/logs/reports/html/integrity/validator` directory.

The report lists all issues that you must resolve before you can successfully upgrade to PPM 9.40.

- b. If prevalidation revealed problems, cancel the upgrade, resolve the problems, and then begin the upgrade again.

Note: If you need assistance with this, consult your database administrator.

- c. If prevalidation revealed problems, click **Next**.

Next, the upgrade utility:

- Checks to ensure that the PPM Server is shut down.
- Checks for old tables.

- Determines the directories in `<PPM_Home>/server` to upgrade and lists these.
- Lists the PPM Server or servers declared in the `server.conf` file, and which of these is to be upgraded.
- Deletes records of services with both `SERVICE_ID<10000` and history of exceptions from the `PPM_SERVICE_RECORDS` table.

Note: Only records of customized services with history of exceptions are deleted from the `PPM_SERVICE_RECORDS` table as they can cause upgrade failure.

15. Click **Next**.
16. If the **Directory Name** field does not display the Java installation directory path, provide the path.
17. Click **Next**.

The system language selection step opens.

18. From the list of supported languages, select your preferred system language.

Note: Use care in selecting this option. It is intended for use only by those who developed the content in an unsupported language in 7.5, for which English was the only system language. Now with version 9.40 multilingual user interface (MLU) capabilities, such a user can now set the system language correctly.

The system language is the PPM default language for the installation. It is used as the default language setting for all regions (and by extension, all users). The system language is also the language used to generate system-level information such as server logs. For more information about the system language, see the *Multilingual User Interface Guide*.

19. Click **Next**.

The additional languages selection step opens.

20. (Optional) Select the checkboxes for any additional languages you want to install.

Note: If your organization includes staff in other countries who use this PPM instance, the additional languages you install enable them to work with PPM in their own languages (if supported). If you prefer not to install additional languages now, you can install them any time later. For more information about the session language, see the *Multilingual User Interface Guide*.

21. Click **Next**.

The wizard displays the current server mode (Stand-alone or Cluster) the PPM instance.

22. Click **Next**.

The wizard lists the current server configuration settings for the PPM Server and Tomcat server. The server configuration parameters listed for a stand-alone PPM Server are different (and fewer) than those listed for a PPM Server that is the primary node in a server cluster.

23. If necessary, change the values for the listed parameter, and then click **Next**.

Note: For descriptions of and valid values for these parameters, see the *Installation and Administration Guide*.

The upgrade utility displays the directory path in which the upgrade is to be installed, and the total size (in MB) of the upgraded files.

24. Click **Next**.

The upgrade utility displays labeled indicators so that you can monitor the upgrade process.

The PPM standard interface uses Java Server Page (JSP) technology to display dynamic content. Each page must be compiled the first time it is accessed, which results in a delay for users. This process can take several minutes

25. To precompile all JSP pages now, leave **Yes, I would like to compile all JSP files now** selected. To skip this step, select **No, I will let the server compile them at run-time**.

Note: HPE strongly recommends that you recompile the JSP pages during the upgrade.

26. After the JSP files are all compiled, click **Next**.

To improve system performance, the upgrade utility can generate statistics for the Oracle optimizer.

27. To generate database statistics, leave **Yes. Gather the statistics now** selected. To skip this step, select **No. I will gather the statistics myself later**.

The upgrade utility installs additional languages you selected (if any) in [step 18](#).

28. Click **Next**.

After the upgrade is completed, the upgrade utility displays the upgrade log file path and asks you to check subsequent screens for information about what (if any) actions you need to take regarding the PPM Server.

29. Click **Next**.

The upgrade process checks the database tables and generates log files.

30. After the upgrade is completed, click **Finish**.

31. Start the PPM Server.

If you are upgrading a server cluster, see "[Upgrading a PPM Server Cluster](#)" on page 50 for information on how to upgrade the remaining PPM Servers in the cluster.

In Case of Upgrade Failure

Do the following:

- **Implement the Back Out Plan**

If an error occurs during a PROD environment upgrade, implement the Back Out Plan.

- **Run kSupport.sh Script**

If the upgrade fails at any point, run the `kSupport.sh` script. This extracts relevant information about the problem from the database log tables and log files and generates an HTML file that contains the information.

The generated HTML file helps pinpoint the root cause by listing each upgrade task and indicating whether the task was successfully run, failed, or was not run. It also includes the upgrade build number for reference. For information about the `kSupport.sh` script and how to run it, see the *Installation and Administration Guide*.

- **Check Upgrade Log Files**

Upgrade log files are stored in the `<PPM_Home>/upgrade_940/logs` directory. The `ppm_upgrade.log` file in this directory may serve as an entry point, pointing you to other logs in the directory.

It is possible that you may need to run the upgrade process in several iterations. Every time you run an upgrade iteration, PPM will create a "run iteration number", so the `ppm_upgrade.log` file may point to a directory like this: `<PPM_Home>/upgrade_940/logs/<Run_Iteration_Number>`.

For example, your first upgrade iteration fails and you run the upgrade process again, then you should see the following log directories:

```
<PPM_Home>/upgrade_940/logs/1
```

```
<PPM_Home>/upgrade_940/logs/2
```

```
...
```


About Prevalidation

After you start the upgrade process, you have the option to run the *prevalidation* step. HPE strongly recommends that you select this option. Prevalidation checks for data inconsistencies that might cause upgrade problems. If you run prevalidation, the upgrade utility creates one or more html reports in the `<PPM_Home>/PPM_Upgrade/upgrade_940/logs/reports/html/integrity/validator` directory.

HPE recommends that, at a minimum, you start the upgrade just to run the prevalidation step for upgrades performed in advance of your production system upgrade. Running the prevalidation step can give you a good estimate of how long it takes to run prevalidation scripts against your specific data set, and allow you to plan your upgrade appropriately.

If the time to execute prevalidation scripts against your environment consumes a significant amount of the time allocated for the production upgrade, then consider performing the prevalidation step and resolving any uncovered issues before you upgrade your production instance.

Prevalidation Reports

Prevalidation may generate several reports that list any problems detected, their cause, and any corrective action to take before you start the upgrade process. The warnings and errors in these reports indicate potential problems with data that may cause the upgrade to fail. HPE strongly recommends that you take corrective action for warnings and errors before you proceed to upgrade your PPM instance.

The following table lists the generated prevalidation report files.

| Prevalidation Report File Name | Invalid Data Reported |
|--------------------------------|--|
| INTPreValidation.html | Reports any of the following, if detected: <ul style="list-style-type: none"> • Requests integrated with Mercury Application Mapping that must now be moved to Universal CMDB tables • Request types that contain the MAM Impact Analysis field group, which must now be replaced with the uCMDB field group |
| JVM PreValidation.html | Reports the following, if detected: <ul style="list-style-type: none"> • JVM (Java virtual machine) is not installed and configured on the Oracle database server. |

| Prevalidation Report File Name | Invalid Data Reported |
|--------------------------------|--|
| | <ul style="list-style-type: none"> • PPM Workbench Java plug-in version has been customized. |
| MLUPreValidation.html | Lists any calendars with names that conflict with system calendars. |
| PGMPreValidation.html | Reports whether the state is missing on any business objectives. |
| PMPreValidation.html | Reports whether the start and finish periods for some projects are missing from the project field groups table. |
| RMPreValidation.html | Reports any of the following, if detected: <ul style="list-style-type: none"> • Values in the resource_pool_seq column for parent resource pool are not continuous in the rsc_resource_pools table • At least one row in the table rsc_rp_distribution_entries table has no start time • Incorrect parent org unit ID |
| SYSPreValidation.html | Lists any missing access grants that are required for the PPM user. |
| TBLSPCPreValidation.html | Lists any tablespaces that are configured in PPM but are missing from your database. The tablespace names are configured in the kins_tablespaces table in the database schema. If problems are detected, you must manually update the kins_tablespaces table. |
| TMPreValidation.html | Reports on whether any actuals in Time Management do not match the corresponding actuals in Project Management any tasks or projects. |

Prevalidation also detects invalid configuration and insufficient database access rights.

Upgrading a PPM Server Cluster

To upgrade a PPM server cluster, Tomcat clustering technology requires parameters that are specific to the cluster, as well as parameters that are specific to each node in the cluster. Without this configuration, all nodes would use the same default port configuration, which can lead to server startup failure or other problems.

Note: Make sure that you set the cluster-specific and the server-specific parameters *before* you begin the upgrade process. The *Installation and Administration Guide* provides information on all of the server configuration parameters required for server cluster setup.

To upgrade a PPM server cluster:

1. Make sure that you have set up a shared folder to give all nodes in the cluster access to the `server.conf` file. (See "Task 13: Setting Up a Shared Folder for a Server Cluster" in "Preparing to Upgrade" on page 20.)

2. Stop all nodes in the cluster.

Note: For information on how to stop and start a PPM Server, see the *Installation and Administration Guide*.

3. Perform the upgrade on the primary node in the cluster. (See "Upgrading On a Windows System" on page 39 and "Upgrading On a UNIX System" on page 43.)

Note: When you run the upgrade on the first server, both the file system and the database portions of the upgrade are executed.

4. If the nodes in the server cluster are hosted on multiple machines, run the upgrade on each host machine, one at a time.

After you configure the first server to include all additional nodes,

- a. Copy the entire `<PPM_Home>/` directory from machine1 to machine2, to the `BASE_PATH` defined in the `@node` directive.
- b. Zip the file, send it using FTP, and then unzip it at the destination.
- c. After you copy the file, change the directory to `<PPM_Home>/` on the new machine, and then rename the `<PPM_Home>/server/node1` directory to `<PPM_Home>/server/node2`.

The server name must match the value set for the `KINTANA_SERVER_NAME` parameter.

Example

The directories on machine1 could be:

```
<PPM_Home>
+ server/
+ node1
```

The directories on machine2 could be:

```
<PPM_Home>
+ server/
+ node2
```

- d. Put a new license on machine2, as required by the new IP address.

Run `kUpdateHtml.sh` on both host machines to apply the `server.conf` changes.

- e. Repeat [step a](#) through [step d](#) on each of the remaining host machines in the cluster.

Note: This upgrades only the file system on subsequent machines, without upgrading the PPM database schema.

5. Restart the nodes, one node at a time.

Caution: Make sure that you wait until each node is fully started before you start the next node.

Note: You can define all nodes (clustering ports and node-specific configuration settings) in a single `server.conf` file, even if they are distributed among different machines. Each node configuration correctly reflects the same information. This allows scripts such as `kStatus.sh` to gather information from all the nodes in the cluster, and not just the nodes that reside on the machine from which you run the script. You can reuse this `server.conf` file on other machines with nodes that are part of the same cluster. This assumes that you modify the machine-specific server configuration parameter values.

For detailed information about server cluster configurations, see the *Installation and Administration Guide*.

Chapter 3: After the Upgrade

This section contains the following topics:

- "Verifying the Upgrade" below
- "Execution Log Files" on page 55
- "Post-Upgrade Tasks" on page 55
- "Switching Between Stand-Alone and Server Cluster Configurations" on page 59

Verifying the Upgrade

To verify the installation, perform the following tasks:

1. Open the `ppm_upgrade.log` file (located in the `<PPM_Home>/upgrade_940` directory) and check for error messages at the end of the file.

If your review of the `ppm_upgrade.log` file reveals errors, do the following. Otherwise, continue to the next step.

- a. Run the `kSupport.sh` script to gather information useful to HPE Software Support in diagnosing system problems, and create a Zip file with a timestamp in the `support/zipfiles` directory. For information about the `kSupport.sh` script and how to run it, see the *Installation and Administration Guide*.
 - b. Contact HPE Software Support Web site (<https://softwaresupport.hpe.com>) and provide them with the `Log.txt` file produced by the `kSupport.sh` script run.
2. Open the `DBChangeReport.html` file (located in the `<PPM_Home>bin\support\upgrade\output\etc\DBChangeCheck` directory).

The screenshot below is an example of the `DBChangeReport.html` file.

Trigger Comparison

| Missing (In Baseline, Not found in Customer Database) | |
|---|--|
| Name | |
| KCRT FG PROJ ISSUE 31171 1 | |
| KCRT FG PROJ RISK 31081 1 | |
| KCRT FG PROJ SCOPE C 31111 1 | |
| KCRT REQ RHT AUDIT 31081 1 | |
| KCRT REQ RHT AUDIT 31111 1 | |
| KCRT REQ RHT AUDIT 31141 1 | |
| KCRT REQ RHT AUDIT 31171 1 | |
| REQ DET ADT 31110 1 | |
| Custom (In Customer Database, Not found in Baseline) | |
| Name | |
| KCRT FG PROJ ISSUE 30872 1 | |
| KCRT FG PROJ SCOPE C 30871 1 | |
| KCRT REQ RHT AUDIT 30871 1 | |
| KCRT REQ RHT AUDIT 30872 1 | |
| KCRT REQ RHT AUDIT 30873 1 | |
| REQ DET ADT 20000 1 | |
| REQ DET ADT 20002 1 | |
| REQ DET ADT 2 1 | |
| REQ DET ADT 31025 1 | |
| REQ DET ADT 4 1 | |

Index Comparison

| Custom (In Customer Database, Not found in Baseline) | | | | | | |
|--|-----------------------|------------|------------|---------------|-----------------|---------|
| INDEX_NAME | TABLE_NAME | INDEX_TYPE | UNIQUENESS | COLUMN_NAME | COLUMN_POSITION | DESCEND |
| JMS_MESSAGES_DESTINATION | JMS_MESSAGES | NORMAL | NONUNIQUE | DESTINATION | 1 | ASC |
| JMS_MESSAGES_TXOP_TXID | JMS_MESSAGES | NORMAL | NONUNIQUE | TXOP | 1 | ASC |
| JMS_MESSAGES_TXOP_TXID | JMS_MESSAGES | NORMAL | NONUNIQUE | TXID | 2 | ASC |
| RSC_POSITION_FORECAST_N6 | RSC_POSITION_FORECAST | NORMAL | NONUNIQUE | POSITION_ID | 2 | ASC |
| RSC_POSITION_FORECAST_N6 | RSC_POSITION_FORECAST | NORMAL | NONUNIQUE | FORECAST_DATE | 3 | ASC |
| SYS_C0021007707 | JMS_ROLES | NORMAL | UNIQUE | USERID | 1 | ASC |
| SYS_C0021007711 | JMS_SUBSCRIPTIONS | NORMAL | UNIQUE | CLIENTID | 1 | ASC |
| SYS_C0021007711 | JMS_SUBSCRIPTIONS | NORMAL | UNIQUE | SUBNAME | 2 | ASC |
| SYS_C0021007714 | JMS_MESSAGES | NORMAL | UNIQUE | DESTINATION | 2 | ASC |
| SYS_C0021007714 | JMS_MESSAGES | NORMAL | UNIQUE | MESSAGEID | 1 | ASC |
| SYS_C0021007715 | JMS_TRANSACTIONS | NORMAL | UNIQUE | TXID | 1 | ASC |

Constraint Comparison

| Custom (In Customer Database, Not found in Baseline) | | | | |
|--|-------------------|-----------------|-------------|-----------------|
| CONSTRAINT_NAME | TABLE_NAME | CONSTRAINT_TYPE | COLUMN_NAME | COLUMN_POSITION |
| SYS_C0021007711 | JMS_SUBSCRIPTIONS | Primary Key | CLIENTID | 1 |
| SYS_C0021007711 | JMS_SUBSCRIPTIONS | Primary Key | SUBNAME | 2 |
| SYS_C0021007715 | JMS_TRANSACTIONS | Primary Key | TXID | 1 |
| SYS_C0021007707 | JMS_ROLES | Primary Key | USERID | 1 |
| SYS_C0021007707 | JMS_ROLES | Primary Key | ROLEID | 2 |
| SYS_C0021007714 | JMS_MESSAGES | Primary Key | MESSAGEID | 1 |
| SYS_C0021007714 | JMS_MESSAGES | Primary Key | DESTINATION | 2 |
| SYS_C0021007704 | JMS_USERS | Primary Key | USERID | 1 |

After the upgrade process is finished, the system calls the supersupport tool and generates this DB change check report automatically. The report shows comparison results for triggers, indexes, and constraints. The comparison result table for each of the objects contains Missing and Custom parts. The Custom part for all tables can be ignored safely. In the Missing part, the lines with green background are also safe, which is for your reference only.

If there are lines with white background in the **Missing** part, you may need to contact HPE Software Support Web site (<https://softwaresupport.hpe.com>) for support. The lines with white background could cause potential issues, such as performance issue.

3. Log on to PPM.

4. Start the PPM Workbench.
5. Run a report.
6. Create a request.
7. Test the graphical view of the request.

If you encounter any problems, or have questions about the upgrade, visit the HPE Software Support Web site (<https://softwaresupport.hpe.com>)

Execution Log Files

The upgrade process generates and maintains several log files that you can use to assist with troubleshooting should a problem occur. You can find these log files in the `<PPM_Home>/install_940/logs` or `<PPM_Home>/upgrade_940/logs` directory (where `<PPM_Home>` represents the path where the PPM software was installed).

Post-Upgrade Tasks

This section addresses tasks to perform after you upgrade to PPM version 9.40.

Installing Unicode Fonts for Export to PDF

The PPM Dashboard supports exporting PPM portlet content in PDF format in supported languages. To do this, the PPM Dashboard must have access to Unicode fonts.

The Unicode character encoding standard enables the sharing of messages and other items in a multilingual environment when the languages involved span multiple code pages. This means that translated portlet content is exported to PDF files in multiple languages, in one string, and in different locales.

Some operating systems, such as Windows, provide Unicode fonts. If your PPM instance runs on an operating system that does not provide Unicode, you must install a Unicode font on the machine that hosts the PPM Server, and then specify the font location by setting the `com.kintana.core.server.dashboard.PDF-Unicode-Font-File-Path` dashboard server configuration parameter. You can use any Unicode font (for example, Arial Unicode MS or Code2000). You can set additional font directory paths by setting the

`com.kintana.core.server.dashboard.Fonts-Directory-Path` dashboard server configuration parameter in the `server.conf` file.

The PPM Dashboard looks for a Unicode font in the standard font locations for the operating system. The table below lists the fonts directories for supported operating systems.

Note: Unicode is the default mode that the PPM Dashboard uses. However, if it cannot locate a Unicode font, it switches to regular mode.

Table 3-1. Operating system-specific fonts directories

| Operating System | Fonts Location |
|------------------|---|
| UNIX | <ul style="list-style-type: none"> • <code>/usr/openwin/lib/X11/fonts/TrueType</code> • <code>/usr/X11/lib/X11/fonts/TrueType</code> • <code>/usr/X11/lib/X11/fonts/Type1</code> |
| HPUX | <ul style="list-style-type: none"> • <code>/usr/contrib/xf86/xterm/fonts</code> • <code>/usr/lib/X11/fonts/ms.st/typefaces</code> |
| Linux | <ul style="list-style-type: none"> • <code>/usr/share/fonts/truetype</code> • <code>/usr/share/fonts/local</code> |
| Windows | <ul style="list-style-type: none"> • <code>C:\\WINDOWS\\Fonts</code> • <code>C:\\WINNT\\Fonts</code> |
| AIX | <code>/usr/lpp/Acrobat3/Fonts</code> |

For information about how to install fonts, see the documentation for your operating system. For information about how to set server configuration parameters, see the *Installation and Administration Guide*.

Enabling JDK 64-bit (HP-UX Systems Only)

After you upgrade PPM Center to version 9.40 on the HP-UX system, you must enable JDK 64-bit by the following instructions:

1. In `<PPM_HOME>/bin/kStart.sh`, add `SYSTEM_PROPS="$SYSTEM_PROPS -d64"` under `SYSTEM_PROPS="$SYSTEM_PROPS -Dorg.owasp.esapi.resources=$KNTA_HOME/server/$SERVER_NAME/esapi-props/`.
2. Delete or rename `<PPM_HOME>/bin/os/HP-UX.sh`

Assigning the Portfolio Mgmt: Edit All Portfolios Access Grant

The Portfolio Manager access grant has been renamed View All Portfolios, and it no longer allows users to create and manage business objectives. Assign the new Edit All Portfolios access grant to users who need to be able to create and manage business objectives.

(Optional) Adding the Portfolio Field to PFM Request Types

Any request type that uses the PFM Asset, PFM Project, or PFM Proposal field group, including the PFM - Proposal, PFM - Project, and PFM - Asset request types, now includes the new **Portfolio** field. This field displays the portfolio, if there is one, that includes the proposal, project, or asset. For upgrades, this field is hidden by default so the requests do not appear to have changed. The administrator can make the new **Portfolio** field visible by editing the applicable request header type.

(Optional) Preventing Submission of Time Sheets with Lines that Have No Data

The ability of users to submit time sheets that contain "empty" lines (lines in which all values are 0) is controlled by the setting of a new server configuration parameter `ENABLE_TM_ALLOW_EMPTY_ITEM` and by a corresponding setting on each time sheet policy. *By default*, the time sheet policy setting initially reflects the server configuration parameter setting. You can change the time sheet policy setting, which controls the operation when users submit time sheets with empty lines. By default, after the upgrade, the server configuration parameter is set to `WARNING`—if a user submits a time sheet that contains any empty lines, a message tells the user which of the lines have no time entered (with options to delete all the empty lines at once or move them all to the user's My Items list), but the user is allowed to submit the time sheet anyway. In the past, a user could submit a time sheet with empty lines without seeing a message.

To *prohibit* users from submitting time sheets that have empty lines, HPE strongly recommends that you change the value of the server configuration parameter `ENABLE_TM_ALLOW_EMPTY_ITEM` from `WARNING` to `RESTRICT`. Thereafter, *new* time sheet policies (on the **Time Sheet Policy** tab) will, by default, prevent users assigned to those policies from submitting time sheets that have empty lines. To prohibit users assigned to *existing* time sheet policies from submitting time sheets that have empty lines, on the **Time Sheet Policy** tab of those time sheet policies, change the option for specifying the level of enforcement for empty lines to **Prevent the Resource from submitting a Time Sheet containing empty lines**. The resource must enter time on all lines in the time sheet (or remove the empty lines) before it can be submitted.

For more information about the `server.conf` parameter, see the *Installation and Administration Guide*.

For more information about configuring time sheet policies, see the *Time Management Configuration Guide*.

(Optional) Allowing Users to Include Items from Previous Period When They Create a New Time Sheet

By default, when users create a new time sheet, they can no longer include (copy) items from a time sheet for the most recent previous period. Instead, they can copy all open items from their personal My Items lists.

If you want to allow users to continue to be able to include items from time sheets for the previous period, change the `TM_DISABLE_INCLUDING_LAST_TS_ITEMS` parameter in the `server.conf` file from `true` to `false`. For performance reasons, HPE recommends keeping this parameter set to `true`.

If you change this parameter, users can still choose to include all open items from their My Items lists, but Time Management prevents users from including items from both their My Items lists and a time sheet for the previous period.

(Optional) Importing Freestanding Budgets and Benefits

If you have upgraded from version 7.5 to version 8.00 and then to version 9.40 *without* running the `drop_75_objects.sql` database cleanup script after either upgrade, you can still assign former freestanding budgets and benefits retained in the version 7.5 database to requests you specify, and then import the budgets and benefits as financial summary snapshots for those requests. For more information, see "Task 14: Optionally Evaluate Freestanding Budgets and Benefits for Prior Upgrade from Version 7.5" in "[Preparing to Upgrade](#)" on page 20 and the *Upgrade Guide* for version 8.00.

Configuring the FTP Server (Windows Systems Only)

PPM uses FTP to move files between machines. To transfer files between machines on a network, each source and destination machine must be running an FTP server. On UNIX platforms, this is standard functionality, but machines running Windows require additional FTP server configuration to function with PPM.

If you are configuring PPM Server after upgrading, you probably already have an FTP server set up. If you do, ensure that the installed FTP server is supported. For information about how to configure an FTP server, see the *Installation and Administration Guide*.

Supported communication software is documented in the *System Requirements and Compatibility Matrix* document.

Switching Between Stand-Alone and Server Cluster Configurations

If you upgrade a stand-alone instance of PPM, and you later determine that a server cluster configuration better meets the needs of your organization, you can switch to a clustered server setup. Conversely, if you have configured a server cluster for a test or development instance and you determine that a stand-alone setup would be adequate, you can transition to a stand-alone deployment. This section provides instructions for performing both of these transitions.

Note: For information about server clustering, see the *Installation and Administration Guide*.

Switching from Server Cluster to Stand-Alone Configuration

If you plan to migrate data from a Production instance to a Development, Test, or Sandbox instance, and you do not want to migrate all the cluster configurations, you can switch from a server cluster to a stand-alone deployment.

To switch from a server cluster configuration to a stand-alone configuration:

1. Stop all PPM Servers. (For instructions, see the *Installation and Administration Guide*.)
2. Remove the additional node configuration from the `server.conf` file.
3. Remove the additional node file system from `<PPM_Home>/server`.
4. Run the `kUpdateHtml.sh` script.
5. After the script run is completed, run the `kStart.sh` script to start the PPM Server.

Note: For information about the `kStart.sh` script, see the *Installation and Administration Guide*.

Switching from Stand-Alone to Server Cluster Configuration

To switch from a stand-alone to a server cluster deployment:

1. Stop the PPM Server. (For instructions, see the *Installation and Administration Guide*.)
2. Open the `<PPM_Home>/bin/server.conf` file in a text editor, and check to make sure it contains all of the following server cluster-related port parameters, and that they are uncommented:
 - `APP_SERVER_UII2_BINDING_PORT`
3. Save and close the `server.conf` file.
4. Complete the PPM Server cluster environment setup as described in the "Configuring a Server Cluster" section of the *Installation and Administration Guide*.

5. Run the `kUpdateHtml.sh` script.
6. After you complete the server cluster setup, following the steps described in the "Verifying Successful Cluster Configuration" section of the *Installation and Administration Guide*.
7. After the script run is completed, run the `kStart.sh` script to start the PPM Server.

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Feedback on Upgrade Guide (Project and Portfolio Management Center 9.40)

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We appreciate your feedback!