Precise

Minimum Requirements for Installation

Version 10.1

IDERA

Precise Minimum Requirements for Installation

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This document details the various hardware and software requirements that need to be met to apply the Precise product offerings to your systems.

Supported operating systems and technologies

Before installing the Precise framework or agents, refer to the current Precise Support Matrix at https://precise.secure.force.com/ for making sure that the relevant operating systems and technologies are supported.

Hardware requirements for Precise framework

The following operating systems are supported for the Precise framework: Linux, Windows, Solaris, HP-UX, and AIX. It is highly recommended to use a 64-bit platform. For detailed OS versions, see the current Precise Support Matrix at http://www.idera.com/support/productsupport.

NOTE	For more information on large environments, see System configuration requirements for large environments.

Table 1-1   Required hardware for framework server

	Cores	Real Memory (GB)	File System (GB)	PMDB Storage (GB)	Comments
Small Systems (5-20 instances)	2-4	4-10	20-50	20-50	
Medium Systems (20-100 instances)	4-8	10-32	20-50	80-200	
Large Systems (100-500 instances)	8-16	32-80	20-50	400-2000	See System configuration requirements for large environments.

NOTE	On large systems it is recommend to use two servers; one for the framework and one for the PMDB. You should also put the PMDB on an external storage system.

Disk requirements for the Precise Collectors

Disk space requirements per Collector (no matter the amount for instances) should be between 500MB and 2GB. The real value depends on the load on the instances.

Requirements for the user interface

Table 1-2   Software configuration required by the Precise user interface.

Component/Feature	Requirement
Browser	Microsoft Internet Explorer version 8+ Chrome Firefox
Report Manager - Reports	Adobe Acrobat version 6 or higher
Report Manager - Customized Reports	Microsoft Excel 2007 or higher

Table 1-3   Hardware configuration required by the Precise user interface

Component/Feature	Requirement
Operating system	One of the following: • Microsoft Windows Server 2008, 2012, 2016 • Microsoft Windows 7, 10
Memory	At least 1 GB
Display	At least 24 bit color palette and SVGA (1024x768) resolution

NOTE	The Precise user interface in general, uses pop-up windows. If you use pop-up blockers, you must prevent them from blocking Precise-related pop-up windows.

Required Vendor patches

Make sure to apply all vendor patches that are required for JRE 1.6 operation on all servers running Precise components.

Table 1-4   List of links for vendor patches.

Platform	Patch Location
HP-UX	http://docs.hp.com/en/HPUXJAVAPATCHES/index.html
AIX	http://www.ibm.com/developerworks/java/jdk/aix/service.html
Solaris, Linux, and Windows	http://www.oracle.com/technetwork/java/javase/system-c onfigurations-135212.html

Communication requirements

Precise uses the following ports listed below. Make sure that these ports are not used by any application in your site.

Table 1-5   Precise ports

Product/Framework Port Location	Port #
Precise Listener	20702 External
Precise GUI (Tomcat)	20790 External
Precise GUI (Tomcat) (control port)	20768 Local
Precise for J2EE Collector	20763 Local
Precise for Microsoft .NET Collector	20755 Local
Precise for Web Client Collector	80 External [Not enabled by default]
Precise for Web Collector	20999 Local
Federation Relay port	20730 Local

NOTE

Enable the TCP ports that are marked as 'external' in the above table, if your environment is firewall-protected. See "Advance Adding Servers" in the *Precise Installation Guide* for information on how to change ports, if this port range is already in use.

If you changed the ports in the previous version, they will not be changed after the upgrade.

Make sure that the port of the NetBios is opened, if you want to monitor SQL server instance remotely and you have a firewall between the local and remote servers.

Insight SmartLink requirements

NOTE   See the SmartLink Transaction Tracking section in the *Precise Installation Guide*.

PMDB requirements

The following table describes the requirements for the PMDB based on the installed platform:

Table 1-6   PMDB requirements

Platform	Requirement
Oracle	Oracle user with DBA privileges
SQL Server	SQL user for login SQL Server with administrator privileges on the PMDB (you can also use OS authentication to connect to the PMDB)

Operating system requirements

The operating system user running Precise agents on monitored UNIX servers should have the following characteristics:

- Password, other than NULL.

- Authorization to use the `cron` facility (only required if you intend to install an Oracle AppTier Collector on the respective server).

- On Linux, read and write permissions to the `/dev/null` special file.

- On Linux, an initial korn shell (KSH). Otherwise, the installation fails. In addition, many of the shell scripts that are included in Precise require KSH.

- Unless you have purchased the AT&T version of KSH, you must download PDKSKH, a korn shell clone in the public domain. If you have Red Hat, you can download the Intel version of PDKSKH from the Red Hat Web site. For other Linux distributions and platforms, search for "pdksh" at: http://rpmfind.net/linux/rpm2html/search.php?query=pdksh.

- Make sure that the user limits are as specified in the list or higher (the user limit can be changed and configured using the `ulimit` command):
time (seconds)	unlimited
file (blocks)	unlimited
data (kbytes)	unlimited

NOTE	If you use the Linux 64 bits OS, install the Linux OS patch to add support for running 32-bit applications. This patch is referred to as the `x86-compat-libs-7.2-1.rpm` patch.

- For installation on Windows, the user must have Local administration privileges.

Additional requirements per supported technology

The following section describes the additional requirements per supported technology:

- Oracle

- Web

- J2EE

- Microsoft .NET

- SQL Server

- Sybase

- DB2

- Precise for Storage

- SAP

- Siebel

- PeopleSoft

- Oracle Apps

- Insight Savvy for OS and Network

- Insight Savvy for MQ

- Insight Savvy for Tuxedo

- Custom Apps and Tuxedo

Oracle

The additional requirements for Oracle are:

- The Precise for Oracle agent reads the Oracle SGA directly. To do so, the user must be in the same group as the Oracle user to have access to the Oracle shared memory.
  UNIX
  For UNIX servers, create a Precise user on every monitored server. Add the Precise user to the same group as the Oracle software owner (e.g. `dba` or `oinstall`). Your DBA group should be the primary group of the Precise user.
  Windows
  For Windows servers, create a domain user, who is then granted local administrator permissions as required on the monitored servers.
  Add the Precise user to the `ora_dba` group.
  On monitored Oracle servers, add the Precise user to the same group as the Oracle user – typically `ora_dba`.

- Make sure you have an Oracle DBA user name and password. The user should also have `SYSDBA` privileges.

- If you are installing on a Sun Solaris operating system, verify that the `/proc` file system is available.

- On UNIX servers, verify that the file system where you plan to install the software is mounted with the `SETUID` option.

- Verify that the shared library path variable (`LD_LIBRARY_PATH`, `SHLIB_PATH`, or `LIB_PATH`, depending on the operating system) is not set in the Precise user environment.

- The `Init.ora` parameter `timed_statistics` should be set to `TRUE`.

| NOTE | During the Oracle AppTier installation, the installer creates a schema in the Oracle database. To do so, it is required to specify an Oracle user with `sysdba` privileges. This user is used only during the installation. Precise products do not use or save the DBA user name or password for future use.

During the installation, a Super-user (root) privilege is required on Linux and all UNIX operating systems. |
|------|---|

Web

The additional requirements for Web are:

- Before you install a Web AppTier, you need to grant special file and directory permissions (including all subdirectories) to the UNIX or Windows user that you intend to use during the installation.

| NOTE | The permissions in the general collection table are not needed for the ongoing operation, only for installation.

Auto-detected values will be shown. If this user does not have these permissions during installation you will not see these auto-detected values and you will have to supply them manually. |
|------|---|

- The Operating System user that runs the Web Server or Web Application should have full control privileges for the <*i3_root*> directory (for example: NETWORK SERVICE for IIS6 and above).

NOTE	For the installation of a Web AppTier, you will need a user with Web administrator privileges.

- Permissions that are required for the GENERAL collection on UNIX and Windows.

Table 1-7   GENERAL collection on UNIX and Windows

Web server	File or directory
iPlanet	`sitename/config` `sitename/config/server.xml`
Apache	Configuration directories (typically: `apache root/conf`) and subdirectories configuration files (typically: `httpd.conf`)

WebLogic	Server installation directory (`WL root`)
	`WL root/site name`
	`WL root/site name/config.xml`

WebSphere	`WS root/properties/version/platform.websphere` and `WS root/properties/version/WAS.product` (only for UNIX) Node directory and all subdirectories, such as: `.../cells/cell1/nodes/node1` Node `serverindex.xml` and `server.xml` files such as `.../cells/cell1/nodes/node1/serverindex.xml` and `.../cells/cell1/nodes/node1/servers/server1/server.xml`
Oracle Applications Server (only for UNIX)	`OC root/inventory/ContentsXML/configtools.xml`
Oracle Applications Server - OPMN	Configuration directory (typically: `oracle as root/opmn/conf`) and all subdirectories Configuration files (typically: `oracle as root/opmn/conf/opmn.xml`)

Table 1-7   GENERAL collection on UNIX and Windows

Web server	File or directory
Oracle Applications Server - Apache	Configuration directory (typically: `oracle as root/Apache/conf`) and all subdirectories Configuration files (typically: `oracle as root/Apache/conf/*.conf`)
Tomcat	Configuration directory (typically: `tomcat root/conf`) and all subdirectories `server.xml` file (typically under: `tomcat root/conf`)
Sun ONE	Configuration directory (typically: `sunone root/domains/domain1/config`) and all subdirectories `domain.xml` file (typically under: `sunone root/domains/domain1/config`)

- Permissions needed for STATIC instrumentation collection on UNIX and Windows:

Table 1-8   Permissions for STATIC instrumentation collection on UNIX and Windows

Web server	File or directory
iPlanet, Apache 1.3	Web application page directory and subdirectories
	Page files in the Web application pages directory (such as .html files, .htm files, and so on)

- To install a Precise for Web instance on IIS7+, the "IIS6 Metabase Compatibility" service and ISAPI filters must be installed.

- If you are going to install SAP WAS ABAP, the following prerequisites are needed:

  o The import of the Precise for Web transport to the monitored SAP system.

  o The download of the SAP Java Connector (JCo).

  o The installation of SAP Java Connector (JCo) on the server on which Precise for Web FocalPoint is installed.

NOTE	Before installing SAP WAS ABAP, check whether Precise supports your version of SAP WAS ABAP in the Precise Support Matrix that can be found on the Precise Customer Portal. Precise for Web does not provide the following features for the supported SAP WAS ABAP versions: • application user collection • server-side monitoring • client-side monitoring of new browsers, such as IE8, Chrome, and Firefox 3

To enable IIS6 Metabase Compatibility on Windows 2008

1. Go to Start > Control Panel > Programs > Programs and Features.

2. On the left Side Bar select Turn Windows features on or off.

3. Go to Roles > Web Server(IIS), click **Add Role Services**.

4. Select IIS6 Metabase Compatibility under IIS 6 Management Compatibility.

5. Select ISAPI filters under Application Development.

6. Click **Next** and follow the instructions on the screen.

To import the Web transport to the monitored SAP system

1. If it is the first Web instance in the Precise Environment:

   a. On the Precise FocalPoint server, go to the \products\i3FP\distribution source\installer\ folder

   b. Extract the files with the following path name from the `PSWW_FP_Shared_ALL.zip` file:
      `products\www\install\sap\abap`

2. Copy the Precise for Web transport files to the SAP System:

   c. Copy the `K900112.WS4` file that is located in
      `<i3_root>\products\www\install\SAP\abap\cofiles\` to the appropriated `trans\cofiles`
      folder on the SAP system.

   d. Copy the `R900112.WS4` file from `<i3_root>\products\www\install\SAP\abap\data\` to the
      appropriated trans\data folder on the SAP system.

3. Import the transport from the SAP GUI. During the import choose the following options:

   o Leave Transport Request in Queue for Later Import

   o Import Transport Request Again

   o Overwrite Originals

   o Overwrite Objects in Unconfirmed Repairs

Downloading the SAP Java Connector (JCo)

For information regarding the SAP JCo, see [Installing the SAP Java Connector (JCo)](#).

NOTE	Precise for Web only supports SAP JCo version 2.1.9. Precise currently does not support SAP JCo version 3.x. Verify that you download the corresponding JCo bit version (32- or 64-bit) for the operating system that the Precise for Web FocalPoint is installed on.

To download the SAP JCo

1. Open the following URL in a browser window.
   `http://service.sap.com/connectors`

2. Enter your SAP Service Marketplace user name and password, and click **OK**.

3. In the tree view, go to Connectors > SAP Java Connector > Tools and Services.

4. Review the JCo Release notes for the available versions and choose one that is relevant for the operating system of the i³ for Precise for Web FocalPoint server. Note that the JCo may require other prerequisite software as described in the release notes. Use the JCo version as described in the note above.

Installing the SAP Java Connector (JCo)

NOTE	If Precise for Web FocalPoint is not yet installed (no Web instances in the Precise system) then perform all the following sections while considering the "Precise for Web FocalPoint server" as the server you are going to install it on. Of course - some directories will not exist, so you will need to create them by yourself (e.g.`<i3_root>\products\www\bin)`.

To install the SAP JCo

1. Unzip the contents of the downloaded file to a directory of your choice on the Precise for Precise for Web FocalPoint server.

2. From the directory to which you unzipped the downloaded file:
   Copy the `.JAR` file(s) to `<i3_root>\java\3rd_party` directory on your Precise for Web FocalPoint server.

3. If the Precise for Web FocalPoint is installed on Windows:
   Copy the `.DLL` files (from the directory to which you unzipped the downloaded file) to:
   `<i3_root>\products\www\bin` directory on your Precise for Web FocalPoint server.

4. If the Precise for Web FocalPoint is installed on UNIX/Linux:
   Copy the `.SO` files (from the directory to which you unzipped the downloaded file) to:
   `<i3_root>\products\www\bin` directory on your Precise for Web FocalPoint server.

5. Make sure the gateway port between the Precise for Web FocalPoint and the SAP Application Server is open in both directions. The gateway port is 33xx, where xx has to be replaced by the instance number of the SAP Application Server.

6. Maintain the SAP communication ports the services file in:
    Windows
    ```
    %windir%\system32\drivers\etc\services
    ```
    UNIX
    ```
    /etc/services
    ```

7. Replace the following <SID> and <instance-number> with the values from your environment:
    ```
    sapms<SID> 36<instance-number>/tcp
    sapgw<SID> 33<instance-number>/tcp
    sapdp<SID> 32<instance-number>/tcp
    ```
    e.g. for a SAP system with the SID = PRD and Instance Number 01:
    ```
    sapmsPRD 3601/tcp # SAP Message Server
    sapgwPRD 3301/tcp # SAP Gateway
    sapdpPRD 3201/tcp # SAP Dispatcher
    ```

J2EE

The additional requirements for J2EE are:

- If the J2EE Collector is hosted on an AIX server, make sure that the user limits for the Precise user are unlimited for data.

- The user of the application server (regardless of the application server type) must have the following file system permissions:

    Table 1-9   File system permissions

Directory	Permissions	Justification
<i3_root>/logs	Read/write	Write log file, log file rotation
<i3_root>/products/j2ee	Read/write	Various configuration files, status files
<i3_root>/infra/cluster	Read/write	Cluster installation management files

- When Precise for J2EE monitors WebSphere, the privileges of the Precise for J2EE user must be the same as those needed to run the WebSphere administration server.

Microsoft .NET

The additional requirements for Microsoft .NET is:

- Create a Microsoft .NET login name with system administrator privileges and a password.

- The user running the .NET application (regardless of the application type) must have full control privileges for the *<precise_root>* folder.

SQL Server

The additional requirements for SQL Server are:

- Create a Microsoft SQL Server login name with system administrator privileges and a password (optional for the SQL Server AppTier; you may use the Microsoft Windows authentication option instead).

- If you want to use the Recommend/What-If feature in Precise for SQL Server, make sure to install the correct SQL Server Client tool on both the Precise for SQL Server FocalPoint and Collector servers. For example, for SQL Server 2012 you must install the SQL Server client on the FocalPoint and Collector servers.

- When running in remote sampling mode, you are required to provide the Windows user for login into the remote server. This user should have the sysadmin privilege on the remote server, otherwise the installation will fail.

- For the Precise for SQL Server FocalPoint, you need a user for logging in with the server administration privileges.

- When the PMDB is installed using Windows authentication, you need to provide a user that can connect both to the PMDB and to the monitored instance.

Sybase

The additional requirements for Sybase are:

- Make sure you have access to an existing Sybase user name with the system administrator privileges.

- Make sure to install the Sybase PC Open Client of one the supported versions.

Table 1-10   Supported Open Client and related ODBC versions

Open Client	ODBC version
12.5.1 ESD #2	Sybase Adaptive Server Enterprise ODBC driver version 4.20.00.67
12.5.1 ESD 15	Adaptive Server Enterprise version 12.05.01.529
15.x	Adaptive Server Enterprise version 15.0.0.152

- Make sure that the following components are installed:
    - Embedded SQL/C
    - Monitor Client Library
    - ODBC driver

- To enable monitoring of the Sybase AppTier, you need to adjust the Adaptive Server Enterprise (ASE) configuration parameters

The following table specifies the parameter values for ASE version 12.5.0.3 and higher:

Table 1-11   Parameter values

Parameter	Value
max SQL text monitored	16384
enable monitoring	1
SQL batch capture	1
wait event timing	1
SQL text pipe active	0
plain text pipe active	0
statement pipe active	0
errorlog pipe active	0
deadlock pipe active	0
process wait events	0
object lockwait timing	0
statement statistics active	0
per object statistics active	0

NOTE   The value given for the event buffer per engine parameter in the table is a minimum value. You may also use a higher value if required.

- Make sure that the user used to monitor the Sybase instance is a member of the `mon_role` and `sa_role` server roles

NOTE   To grant the `mon_role` server role, run the following command: `grant role mon_role to user name`. (For example, if you connect as system administrator, run the command as: `grant role mon_role to sa`).

- The following tables must be activated:

    o monProcessSQLText

    o monProcess

For instructions on how to activate these tables, see Sybase's book Performance Tuning: Monitoring and Analyzing at
http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.dc20022_1251/html/monitoring/monitoring61.htm

- Make sure that the master.sysservers table includes the following entry: `sp_addserver logical name,'local',physical name`
  where: `logical name` is the name used to address the server on your system and `physical name` is the name of the instance as it appears in the interface file ((this file is usually located in the `sybase root dir/ini/sql.ini` directory or the `sybase root dir/interfaces` directory)

NOTE	The entry points to the Sybase instance as the local server (srvclass=0). If this entry does not exist, add it to the table.

- To function properly, the Statistics workspace requires that you comply with the following requirements:

    o Run the sp_sysmon system stored procedure with the noclear option set only. (i.e. for example: `sp_sysmon "00:01:00", noclear`)

- When the PMDB is installed using Windows authentication, you need to provide a user that can connect both to the PMDB and to the monitored instance

To check which PC Open Client and ODBC driver versions are installed

1. Open the command prompt and run the following command: "`%SYBASE%\%SYBASE_OCS%\bin\isql`" `-v` (This shows the PC Open Client version.)

2. Click Setting>Control Panel>Administrative Tools>Data Sources(ODBC). (This shows the ODBC driver version.)

DB2

The additional requirements for DB2 are:

- Refer to the Precise Support Matrix for information on supported DB2 versions and FixPak levels

- Precise software components are installed on each monitored DB2 server. You require a dedicated Precise OS user to be created on each monitored server. The name "precise" is used as an example.
  Windows
  On Windows, generally a domain user is created, who is then granted local administrator permissions as required on monitored servers.
  UNIX
  For UNIX servers, you need to create a Precise user on every monitored server. For monitored DB2 servers, create the Precise user as follows:

    o Non-null password, not containing special characters, and has a maximum length of 15 characters

    o Connected to the `DB2 SYSADM` group (as reported by the `DB2 GET DBM CFG` command)

    o Login shell is `ksh`, with "dot" (.) in the Path variable

    o The shared library path (`LD_LIBRARY`, `SHLIB_PATH`, `LIB_PATH`) is not set in this user's environment

- For monitoring purposes, the Precise user must have the `DBADM` and `SYSMON` privileges or `SYSADM` privileges

NOTE	The Precise for DB2 AppTier installation creates a schema in either an existing or new tablespace. If you prefer to create a new tablespace, the user must also have `DBADM` and `SYSCTRL` privileges or `SYSADM` privileges.

- When monitoring DB2 on HP, make sure the database default charset isn't roman8 (CP1051)

- Close the Services window in the Control Panel if you are installing on a Windows server

SAP

Define the fields that Precise for SAP will retrieve for organization and user areas. By default, Precise for SAP retrieves the Department field for organization and the Building field for user area.

The additional requirements for SAP are:

- Precise for SAP function modules are installed on the monitored SAP system (For more information, see the *Precise Installation guide.*)

- You need to have SAP user account with the authorization profile Z_PRECISE (For more information, see the *Precise Installation guide.*)

- The SAP Java Connector (JCo) version 2.1.9 is installed on the Precise for SAP FocalPoint server

- To install Precise for SAP BW, the SAP BW technical content needs to be enabled (For more information, see the *Precise Installation guide*.)

PeopleSoft

The additional requirement for PeopleSoft is:

- Verify that the PeopleSoft Applications server can be brought down for a short window of time (approximately 15 minutes) to set the database monitoring parameter to TRUE: `EnableDBMonitoring=1`

Oracle Apps

The additional requirements for Oracle Apps are:

- FORMS LISTENER MODE: The relevant port number is defined by the FORMS_PORT environment variable in the `adfrmctl.sh` script found in the Oracle Applications installation directory

NOTE	If the Precise Insight Savvy for OA is to be deployed, the Forms server must be a UNIX server and must have the Precise Listener and Insight Savvy for Network agents installed to monitor the Forms Tier of Oracle Applications.

- FORMS SERVLET MODE: If the Precise Insight Savvy for OA is to be deployed, the Forms server must be a UNIX server and must have the Precise Listener and Precise for J2EE agents installed to monitor the Forms Tier of Oracle Applications

- Access to the Oracle Database with a userid having `sysdba` priveliges

- Must be able to run command: GRANT EXECUTE ON DBMS_PIPE TO <COLLECTOR_SCHEMA_USER>

- Verify that the Oracle Applications server can be brought down for a short window of time (approximately 30 minutes)

- To make the required modifications:

  - No users can be logged on to the Oracle Applications server

  - No batch jobs or reports can be running on the Oracle Applications server

  - The Concurrent Manager must be shut down

- Verify that you can change the `CUSTOM.pll` and `CUSTOM.plx` forms library.

Insight Savvy for OS and Network

The additional requirements for Insight Savvy for OS and Network are:

- On UNIX, verify the file system where you will install the software is mounted with the `SETUID` option and no security monitoring system (for example CA Etrust) is blocking `setuid`

- Verify you have access to use a userid `root`, this is required for installation action items

Insight Savvy for Tuxedo

The additional requirement for Insight Savvy for Tuxedo is:

- On UNIX operating systems you will need Super-user (root) privileges (only for the installation) If the automatic detection does not work, the following procedures can be performed:

To obtain the Tuxedo version number

1. Log on as the Tuxedo operator.

2. Run the following command:
   tmadmin -v

To obtain the Tuxedo domain ID

1. Look for the BBL process on the server.

2. Use the name following the DOM option

3. Alternatively, look for the UBBCONFIG file (or a file containing UBB in its name)

4. Use the value of the DOMAINID variable in the RESOURCES section.

If you are not sure what the Tuxedo domain ID is, you can use the UNIX user name running the BBL process on the server, or simply use an arbitrary name. In upgrade mode, this is the name of the Tuxedo domain you want to upgrade. Via the auto-detection mechanism, invalid characters for Precise may appear. This should be changed manually.

To obtain the path of the Tuxedo installation directory

1. Log on as the Tuxedo operator.

2. Check the value of the TUXDIR environment variable.

3. Alternatively, locate the Tuxedo bin directory where the BBL program is located. The Tuxedo installation directory is immediately above it.

To find the Tuxedo configuration file

1. Log on as the Tuxedo operator.

2. Check the value of the TUXCONFIG environment variable.

This is a binary file. Do not confuse it with the textual UBBCONFIG file. In a PeopleSoft installation, the name of the Tuxedo configuration file is usually PSTUXCFG. This file is located in the PeopleSoft installation directory/appserv/PeopleSoft Domain directory. For example:
/home/hrprd/hrprd831/appserv/HR_PRD831/PSTUXCFG

> **NOTE** Refer to the Precise Support Matrix for supported versions.

Custom Apps and Tuxedo

The additional requirements for Custom Apps and Tuxedo are:

- When performing an upgrade:

Table 1-12 Prerequisites

Directory	Permissions	Justification
J2EE	Restart of the monitored application server after installing the v9.x upgrade patch on its server.	Permission to use the operating system user of the Web/application server.
Web	Restart of the monitored application server after installing the v9.x upgrade patch on its server.	Permission to use the operating system user of the Web/application server.
Tuxedo	If the COBRA Interceptor DLL has been deployed, the Tuxedo domain will need to be shut down for the duration of the upgrade on the Tuxedo server.	

- When performing an installation:

Table 1-13 Prerequisites

Application	Needed Downtime	Permissions	Manual Actions
J2EE	Restart of the monitored application server after installing the v9.x agent for it.	The Web/application server operating system user must have permission to read/write from the Precise installation directory (the <*i3_root* directory) and all of its subfolders.	

Web	Restart of the monitored application server after installing the v9.x agent for it.	The Web/application server operating system user must have permission to read/write from the Precise installation directory (a.k.a. the <*i3_root*> directory) and all of its sub folders.	To be performed using the operating system user of the Web/application server at the end of the installation process, before determining downtime:
			
			• Editing the Web/application server configuration files (e.g. server.xml, httpd.conf, etc.)
			
			• For monitoring a J2EE application, the additional actions will also be required:
			
			  ○ Editing the application server startup script for adding Precise classes to the JVM classpath.
			
			  ○ Editing the Web descripton (web.xml) inside WAS or EAR of the application.

A

About Large Environments

This section includes the following topics:

- System configuration requirements for large environments
- In our laboratory tested environments

System configuration requirements for large environments

Precise configuration

Precise registry parameters should be set in the
<*Precise_root*>\products\i3fp\registry\products\infrastructure\sts\settings.xmlfile:

Table A-1   Registry parameters in the settings.xml file

Parameter	Value
correlation-queue-max-size	700000000
queue-max-size	200000000
backup-max-total-files-size	3000000000

NOTE	To reserve more space in the backup folder, you can increase the size of the backup-max-total-files-size parameter. This may be useful when your database or PMDB is down or experiences a data load delay. After changing the above parameters, you need to restart the Precise FocalPoint and Precise Listeners.

In the <*Precise_root*>\products\i3fp\registry\products\pw\maintain\db-sizes.xmlfile:

Table A-2   Registry parameters in the db-sizes.xml file

Parameter	Value
save-oracle-db-sizes	false

and in the <*Precise_root*>\products\i3fp\registry\products\insight\focalpoint.xmlfile:

Table A-3   Registry parameters in the focalpoint.xml file

Parameter	Value
sts-max-number-of-threads-for-cor relation	5
sts-max-files-in-processor-files-fold er	50000

> **NOTE**   After changing the above parameters, you need to restart the Insight FocalPoint.

In large environments you have to update the memory configuration for the Precise framework JVMs in the relevant XML files. The following code example indicates where you have to insert the parameter in those files (replace <number> with a number). The <jvm-options> section appears in all files:

```
– <main>
    …
    …
    …
  – <jvm-options>
      <option>-Xmx<number>m</option>
      …
      …
      …
    </jvm-options>
    …
    …
    …
</main>
```

The memory configuration for the Precise framework JVMs (XMX configuration) should be as follows:

Table A-4   Memory configuration

Component	Size	Location
Precise FocalPoint	1024 MB	*<Precise_root>*\products\i3fp\bin\psin_i3fp_init.xml
J2EE FocalPoint	512 MB	*<Precise_root >*\products\j2ee\bin\psje_focal_init.xml
PMDB FocalPoint	768 MB	*<Precise_root >*\products\pw\bin\pspw_focal_init.xml
Insight FocalPoint	2048 MB	*<Precise_root>*\products\insight\bin\psis_focal_init.xml
Web FocalPoint	768 MB	*<Precise_root>*\products\www\bin\psww_focal_init.xml
Web Data Loader	768 MB	*<Precise_root>*\products\www\bin\psww_dataloader_init.xml
GUI FocalPoint	1024 MB	*<Precise_root>*\products\gui\website\bin\psin_gui_init.xml

> **NOTE**
>
> After making changes in size of one or more of the components above, you will need to restart the related component(s).
>
> If you define multiple alerts, you may want to increase the XMX-size of the Alerts FocalPoint and Informpoint.
>
> If you intend to create several reports, you may want to increase the XMX-size of the Report Manager FocalPoint.

The memory configuration for each production server with either J2EE, Web, or .NET should be as follows

Table A-5   Memory configuration

Component	Size	Location
Listener	356 MB	*<Precise_root>*\infra\bin\psin_listner_java_init.xml

> **NOTE**   After making changes in size of the component above, you will need to restart the related component.

Oracle-based PMDB configuration

Oracle 11g

In Oracle 11g the automated maintenance tasks infrastructure known as AutoTask enables Oracle to automatically schedule Automatic Maintenance Tasks. AutoTask schedules automatic maintenance tasks to run in a set of Oracle Scheduler windows known as maintenance windows. Maintenance windows are those windows that are members of the Oracle Scheduler window group `MAINTENANCE_WINDOW_GROUP`.

Oracle 11g includes three automated database maintenance tasks:

- Automatic Optimizer Statistics Collection - Gathers stale or missing statistics for all schema objects. The task name is `auto optimizer stats collection`.

- Automatic Segment Advisor - Identifies segments that could be reorganized to save space. The task name is `auto space advisor`.

- Automatic SQL Tuning Advisor - Identifies and attempts to tune high load SQL. The task name is `sql tuning advisor`.

NOTE	If you experience performance problems in Precise during the default maintenance times, we recommend to change the maintenance schedules or ask advice from your Oracle DBA.
	It is recommended to use a block size of 16 Kbytes.

The following tables describe the Oracle-based PMDB configuration parameters and sizing recommendations that need to be inserted in the `init.ora` file for Oracle 11g:

Table A-6   Oracle 11g-based PMDB configuration parameters

Parameter	Value
MEMORY_TARGET	45 GB
MEMORY_MAX_TARGET	45 GB
LOG_BUFFER	5 MB
SESSIONS	1500
PROCESSES	1000
UNDO_RETENTION	7200
DB_WRITER_PROCESSES	4

Table A-7   Oracle 11g-based PMDB sizing recommendation

Description	Value
Redo Log	500 MB for 90 instances, 1000 MB for 180 instances, 2000 MB for 450 instances
PMDB Temporary Tablespace	4 files and each file is 32 GB
Undo Tablespace	4 files and each file is 32 GB

If on a Linux server you get an ORA-845 error, `/dev/shm` needs to be mounted with its proper size. The size is directly influenced by the SGA size of your PMDB. If you set it too low you will get this error.

To mount it, log in as a root user and use the following command:
```
# mount -t tmpfs shmfs -o size=<SGA size> /dev/shm
```

To activate the setting and make it permanent after a restart, add the entry in `/etc/fstab`.

SQL Server-based PMDB configuration

> **NOTE**   You should place the data and log files on different disks.

The following table describes the SQL Server-based instance configuration parameters:

Table A-10   SQL Server-based instance configuration parameters

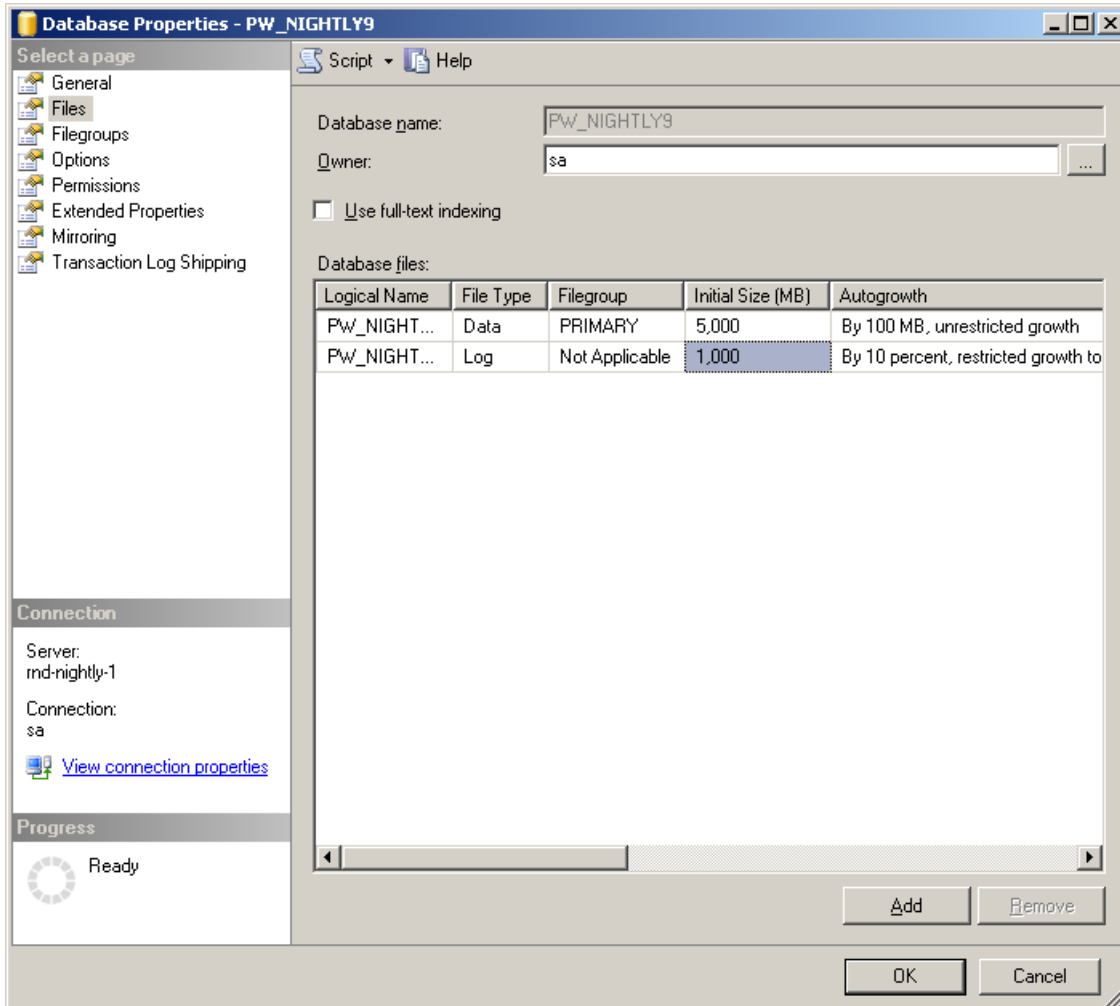| Parameter	Value
SQL Server memory	44000 MB
Minimum memory per query	307200 KB
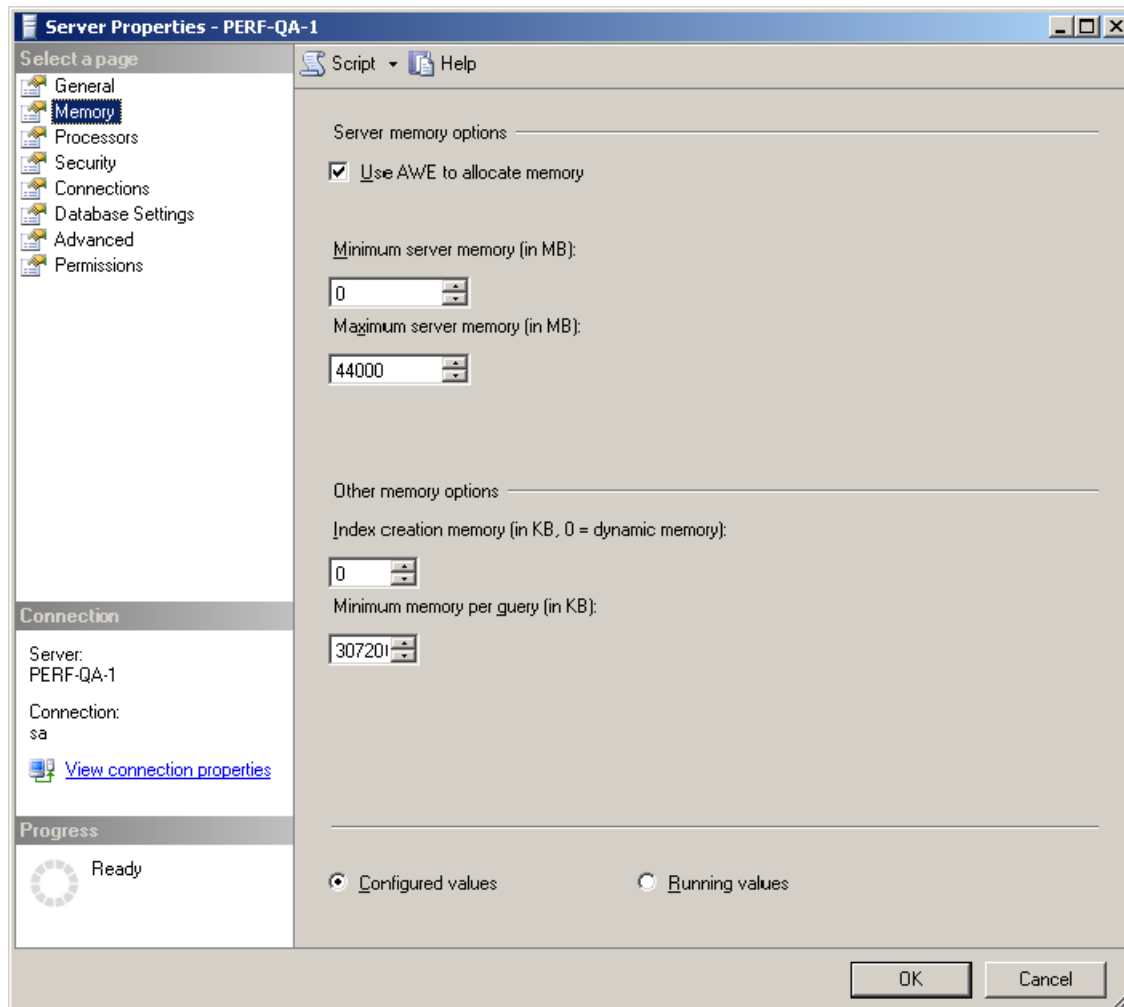
The following table describes the SQL Server-based PMDB (database) configuration parameters for the files:

Table A-11   SQL Server-based PMDB (database) configuration parameters for the files

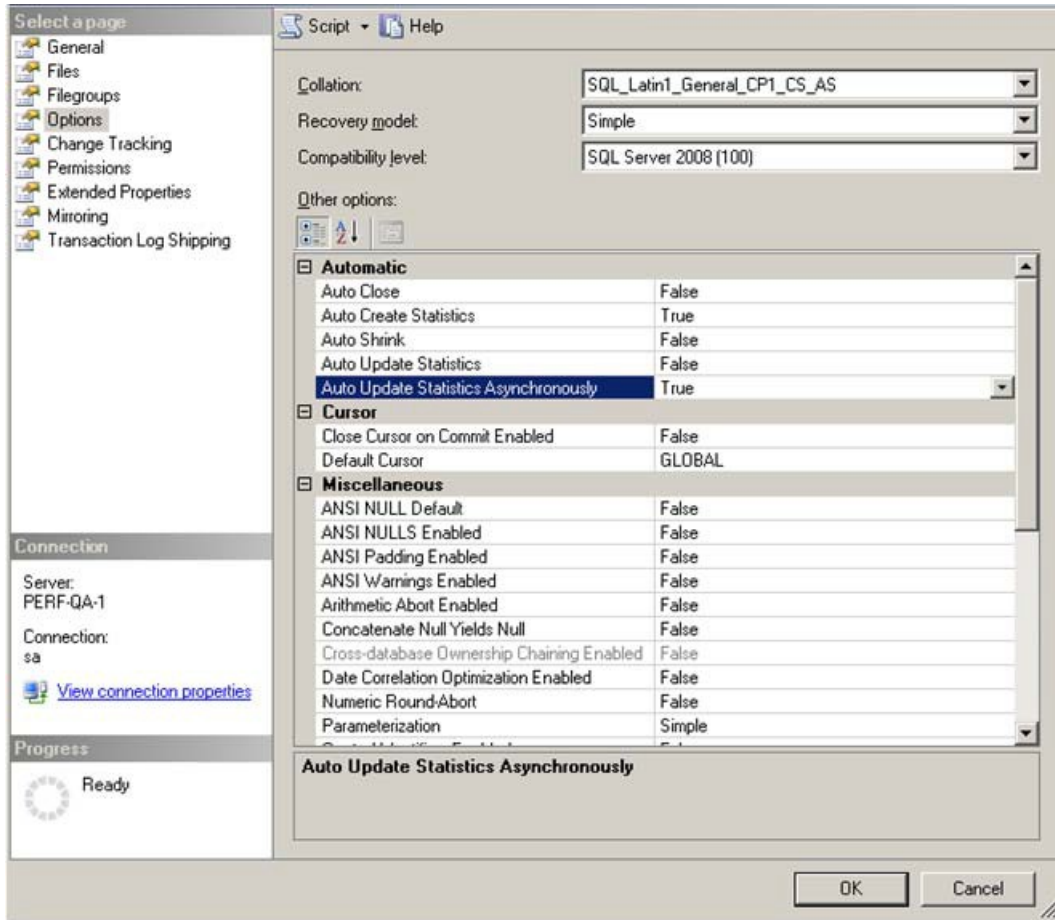| Parameter	Value
Data	5000 MB
Log	1000 MB

> **NOTE**   The autogrowth parameter should be 100 MB.

The following table describes the SQL Server-based PMDB (database) configuration parameters for the options:

**Table A-12**   SQL Server-based PMDB (database) configuration parameters for the options

Parameter	Value
Auto Update Statistics	True
Auto Update statistics Asynchronously	True
Auto Create Statistics	On
Recovery Model	Simple

The following table describes the SQL Server-based tempdb configuration parameters:

Table A-13   SQL Server-based tempdb configuration parameters

Parameter	Value
tempdb Auto Update Statistics	False
tempdb Auto Update Statistics Anonymously	False
tempdb Auto Create Statistics	False
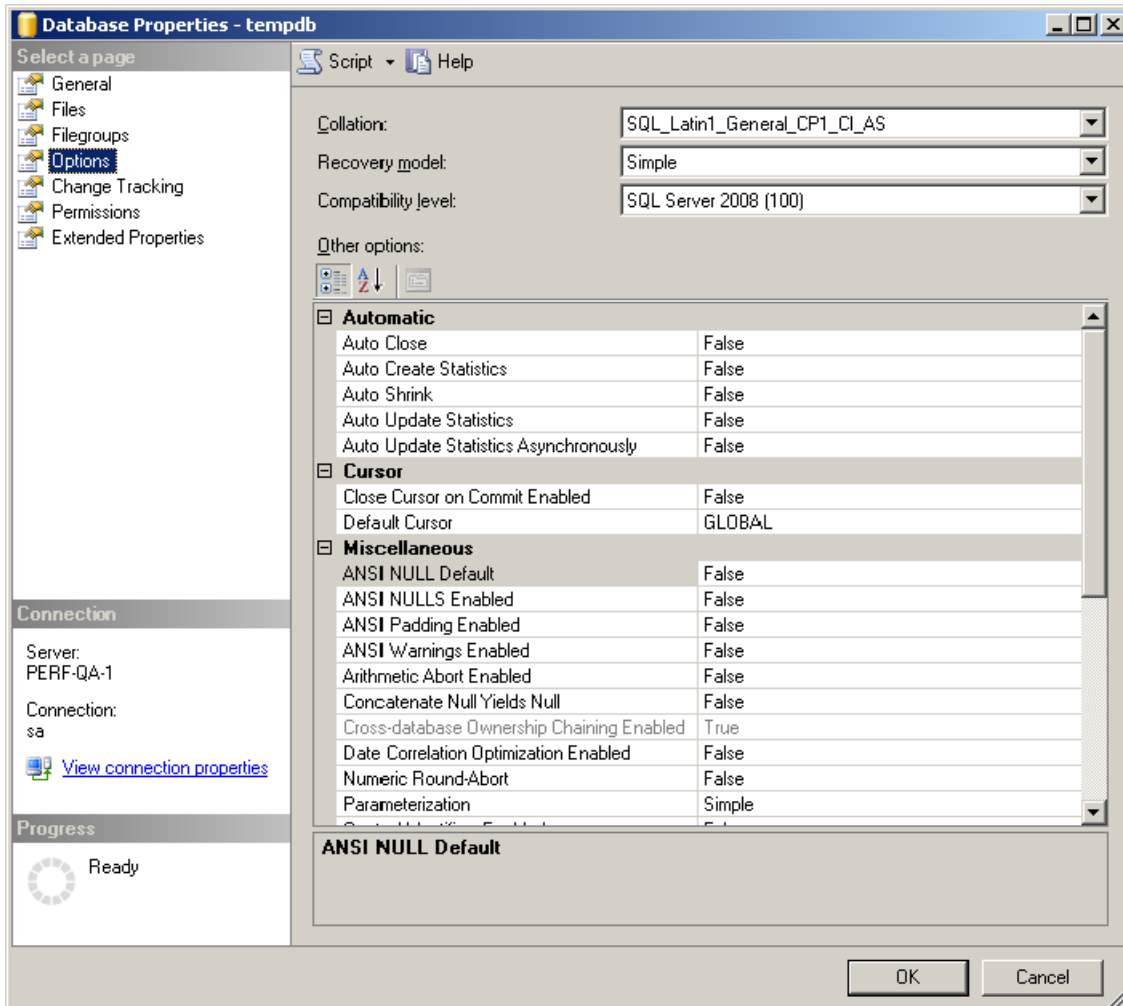
In our laboratory-tested environments

The following table shows the environments that we tested in our laboratory:

Table A-14 Tested environments

Criteria	Oracle-based PMDB	SQL Server-based PMDB
J2EE instances	300	180
Web instances	150	90
Total number of instances	450	270
Server platform	Linux 64-bits	Windows 2008 64-bits
Processors	Dual quad code CPU X5570 (8 cores)	Dual 6 core CPU X5670 (12 cores)
Physical memory	68 GB (Oracle SGA – 45 GB)	60 GB (SQL Server memory – 44 GB)
Storage for data files	EMC Symmetrix VMAX	Local 15 K SAS disks
Data files size	1.5 TB	1 TB