Precise™

Upgrade Guide

Version 9.9.0

precise™

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Contents

Upgrading to 9.9.0

This section includes the following topics:

- About the upgrade to Precise 9.9.0

- Discovering any integrity issues

- Planning the upgrade

- Performing the upgrade

NOTE   This document describes the procedure when upgrading to Precise 9.9.0. You must first upgrade to version 9.8.0 before attempting to upgrade to version 9.9.0.

Therefore, if you are upgrading from an earlier Precise installation, see the relevant *Upgrade Guide*, or if you are installing Precise 9.9.0 on a clean system, see instead the *Precise Installation Guide*.

About the upgrade to Precise 9.9.0

Upgrading to Precise 9.9.0 both upgrades the existing Precise Framework and agents and replaces the previously existing Precise system, while preserving the previously captured monitored data. As a result, the upgrade process involves downtime of the Precise product.

To ensure an efficient and successful upgrade process, verify that you read about and implement the preparations for the upgrade, as they appear in Planning the upgrade.

Once all preparations have been completed, perform the upgrade, as detailed in Performing the upgrade to Precise 9.9.0.

Changes in the Precise for Web logic

In version 9.6.1, we made changes in the Precise for Web logic with regards to the Collector settings. They have been changed from Domain related to Instance and Cluster related.

During the conversion, we analyze per instance the usage of each domain and apply the existing settings based on the results. This may result in the loss of some non-recently used domain settings for that specific instance.

The default parameter settings after the upgrade for all instances & clusters will be "Parameter name only," regardless of the previous definitions. The maximum amount of entries in the Exceptions table will be 15.

Changes in the Precise for Web configuration

In version 9.6.1, the User defined configuration changed. We no longer support User Defined 1 and User Defined 2. Should you have defined them in the previous version and you want to keep using them, you may need to redefine the User Defined 1 and 2 as User Defined Transaction Name. It is also possible that the definition can no longer be used.

Changes in supported platforms

As of version 9.6.1, Precise for Tuxedo is no longer supported. If you start the upgrade process and Precise for Tuxedo is detected, you get the following error message:

        You have Precise for Tuxedo configured for the environments below
        Uninstall Precise for Tuxedo from the following environments:

Uninstall Precise for Tuxedo in the indicated environments and restart the upgrade or refrain from upgrading to Precise version 9.6.1 or later.

Discovering any integrity issues

NOTE	The upgrade to version 9.9.0 can be done only from version 9.8.0.

The version Upgrade Verifier Utility is a standalone utility that should be run prior to the upgrade to Precise 9.9.0. The utility will check, fix (when possible) and report on integrity issues in the Precise infrastructure. By running and following its recommendations, it will reduce the chances for integrity issues when performing the upgrade to version 9.9.0.

The utility performs the following:

- Verifies that Precise FocalPoint is up

- Connects to Performance Warehouse & all Oracle instances connection pools and warns in case of problem

- Removes all 'dangling' lines from INFRA DB:
    - Checks that an AppTier is connected to environment
    - Checks that an instance is connected to AppTier
    - Checks that an instance is connected to server
    - Checks that an installation is connected to server
    - Checks that an installation-instance connection is valid
    - Checks that an instance dependency connection is valid
    - Checks that an instance SLA is connected to instance
    - Checks that downtime calendar is connected to downtime rule

- Warns about 'dangling' instances - ones without a server or without an apptier

- Warns in case any Precise Listener is down

- Warns in case invalid registry file (such as 'Copy of', or not matching file name to XML) is located

- Check that all framework FocalPoints are on the same server

- Checks for unsupported instances

- Checks there are no pending action items

- Check for sufficient disk space
    - On Precise FocalPoint machine - Required disk space: 3GB
    - On any other Precise listener - Required disk space: 1GB

- Check for de-supported instances -
    - WEB SAP ABAP instance
    - Siebel WEB instance with client side monitoring
    - Instances monitored using Web Client Collector
    - Microsoft .Net SQL Server monitoring
    - Oracle version is 9 and below

- Check for de-supported installation -
    - Web static instrumentation
    - SQL Server Hitachi Storage
    - Oracle Hitachi Storage
    - Oracle Shark Point Storage
    - Oracle Veritas Storage

- Precise for Tuxedo environments are no longer supported.

- Monitor view permissions using AppTier, instance or technology scopes are no longer supported. Instead, upgrade the role to use environment scope.

- Proxy relay can't be used during the upgrade process.

- Backs up all action items

- Checks for antiviruses that may cause for locked files errors

- Checks patches that are required for pre/post upgrade

- Checks if the PMDB tablespace folder specified in the registry exists (only for Oracle based PMDB)

- Checks if <hsql-upgraded> tag exists in pools.xml. If it does, remove it

- Checks for uninstalled ddml files under <Precise root>/products/dbms/files/tables_definition/ and renames any relevant file to *.uninstall

- Upgrade from SQL Freemium is blocked

- Checking .NET version on Windows servers

- Checking for missing column (TPTN_SHORTST_RESPONSE_TIME_MIN) in tablesPW_TPTN_TRAN_STATS_B and PW_TPTN_USERS_STATS_B and adding it if necessary

- Checking for s390 servers

- Checking for federation dependency

- Checking for Custom Alerts in federation

This utility should be executed and its recommendations should be handled prior to starting the upgrade to version 9.9.0.

Trying to upgrade prior to successful completion of this utility will fail.

Using the Precise Upgrade Verifier Utility

1. Download the utility

2. Place **UpgradeTo9xxVerifier-<latest date>.zip** in the Precise root directory on the MAIN Precise FocalPoint server

3. Extract/unzip the **UpgradeTo9xxVerifier-<latest date>.zip** file into the Precise root directory or extract the files, then move them to the Precise root directory

4. Execute the verifier:

   On Windows:
   (Rename UpgradeTo9xxVerifier.bat.txt to UpgradeTo9xxVerifier.bat)
   UpgradeTo9xxVerifier.bat

   On UNIX:
   (Make sure the UpgradeTo9xxVerifier.sh has 'execute' permissions)
   ./UpgradeTo9xxVerifier.sh

   NOTE   Log file with the output of the utility will be written to: <Precise root>\logs\infra.pre_upgrade_sanity.out.

Planning the upgrade

The upgrade process should be planned in advance, to ensure both the full benefit from your current system and adherence to your schedules and needs.

To ensure a quick and efficient upgrade, it is necessary to consider the following criteria before beginning the procedure:

- Prerequisites for the upgrade

- The order of the servers upgrade

- Downtime of the monitored technologies

- Downtime of the Precise product

- Upgrade planning checklist

Prerequisites for the upgrade

Before planning the upgrade process, verify that:

- All minimum requirements were met as per the *Precise Minimum Requirements for Installation guide.*

- The Precise installation that is going to be upgraded is fully upgraded to the required previous version. If it still has agents that were not yet upgraded to the correct version, complete the upgrade to that version prior to starting to upgrade to the latest version.

- There is free disk space on the servers that have Precise installed, as follows:

  - 0.5GB on each server with Precise Agents

  - 2.5 GB on the Precise Framework server

- There is 0.5GB free disk space on the client server that the upgrade will be executed from.

- You do not have Precise for Tuxedo in your environment.

Server upgrade order

Your existing Precise installation typically spans many servers. Because the upgrade is performed per server, you should plan in advance the order in which you will upgrade all servers comprising your existing Precise installation.

If you are not able to upgrade all servers at once, but will upgrade a few servers at a time, take note of the implications described in

The order of the server upgrade is:

- First all FocalPoint servers need to be upgraded.

- Then all other servers can be upgraded.

When starting the upgrade, you must select all the FocalPoints servers. You can add additional servers for the upgrade later (once the FocalPoints servers are upgraded), or as part of the FocalPoint upgrade (in this case the server upgrade will start once the FocalPoint servers are completely upgraded).

Implications of a phased upgrade to the latest version of Precise

If you are not upgrading all servers at once, but are upgrading a few servers at a time, the following limitations will apply to your Precise system functionality:

- After an upgrade has started, a server that has not fully completed the upgrade cannot have instances installed, edited, or uninstalled.

- For installed Web and J2EE Clusters, new instances will not be installed until the cluster's servers are upgraded.

- If you have created a Template Listener as part of your server's image, new Template Listener installations will fail after the upgrade. You must recreate the Template Listener once the framework upgrade has been completed.

Downtime of the monitored technologies

The upgrade process does not require any downtime of the monitored technologies.

Downtime of the Precise product

The upgrade process involves downtime of the Precise product itself as described below.

FocalPoints

When upgrading the servers with the Precise FocalPoints, your installed Precise performance monitoring system will not be in operation. Once the Precise Framework upgrade is complete, Precise will resume all performance monitoring previously provided by previous versions.

The time required for upgrading a server with the Precise FocalPoints may vary depending on the strength of the server with the FocalPoint, the strength of the server where you are using AdminPoint to apply the upgrade, the file transfer speed, the amount of Precise technologies monitored by Precise, and the time it takes to perform post-application action items. In general, upgrading a server with a Precise FocalPoint is estimated at one hour.

Upgrading a server with a FocalPoint will be fastest when application of the upgrade is performed using AdminPoint on the Main node server with the Precise FocalPoint, and the upgrade is located on storage providing good response time to that server.

If you have a federated Precise deployment, then when upgrading the servers with the FocalPoint of the Main node, your entire Precise federated deployment will not be operable for performance monitoring. When upgrading another node's servers with a FocalPoint, only that node will not be operable for performance monitoring.

Non-FocalPoint agents

Precise agents will not collect performance data while they are being upgraded. The time it takes to upgrade a server running Precise agents varies depending on the technology type and the amount of Precise agents on that server, as well as the factors described above regarding upgrading the server with the Precise FocalPoints. In general, upgrading a Precise agent's server is estimated at 20 minutes.

Upgrade planning checklist

The following checklist can be used to verify that you are ready to start performing the upgrade to the current version of Precise:

❑ https://idera.secure.force.com/precise/ was reviewed for a newer version of this document. If there is a newer version, download it and use it instead of this one.

❑ Minimum requirements for installation were all met prior to upgrading to the latest version.

❑ The upgrade order of the Precise installation was planned according to The order of the servers upgrade on page 9.

❑ Planning according to Planning the upgrade on page 8 was completed.

❑ http://www.idera.com/support/productsupport was reviewed for product upgrades.

❑ Downtime has been coordinated for the Precise product.

Performing the upgrade

The upgrade is performed by downloading the latest version of Precise, applying the upgrade on the desired server(s), and performing additional actions that appear in AdminPoint before and after application.

To upgrade to the latest version of Precise

1. Verify that all planning and preparations as listed in Planning the upgrade on page 8 have been completed.

2. Download the latest version of Precise from https://idera.secure.force.com/precise/.

NOTE	If you are upgrading from the DVD provided by Precise, downloading and unzipping the product is not needed.

3. Complete the upgrade procedure on the desired server(s). See Applying the upgrade on page 11.
   OR
   Complete the upgrade procedure on the desired server(s) using the Precise CLI utility. See Applying the upgrade with the CLI utility on page 12.

4. Verify that your Precise system is working properly. If you experience any problems, see https://idera.secure.force.com/precise/ or contact Precise Customer Support.

Applying the upgrade

To apply the upgrade on Precise servers

1. Go to **AdminPoint>Management>Updates** and select **Apply Upgrades**. The Upgrade Installation wizard opens.

2. In the "Select Upgrades" screen, click **Add Upgrade** and enter the `\Upgrade to v9.x.x\Upgrade.zip` file path from the folder you unzipped the download to, or click the browse button and select the path, then click **OK**. The upgrade will appear in the "Available Upgrades" table.

3. Select the V9xx_UPGRADE upgrade from the Available Upgrades table and, using the arrows between the tables, move it to the Upgrades to apply table.

NOTE	Once this step has been successfully completed, the upgrade is saved in the Available Upgrades table. If, after this step has been successfully completed, the application process is restarted or repeated for any reason, skip this step.

4. Click **Next**. The Select servers screen will appear. This screen displays all the servers to be upgraded.

NOTE	By default, all displayed servers will be selected to be upgraded. According to your preparation, as mentioned in <u>The order of the servers upgrade</u> on page 9, you can choose to exclude servers which you do not want to upgrade at this point by clearing their selection.

5. Click **Next**. The upgrade preparation will begin. If there are pre-action items screen (depends on your installation configuration) to be performed, they will appear on your screen. Perform the action items and mark them as done.

NOTE	At this point, while the Precise FocalPoint is being restarted, an empty screen may appear.

6. Once all pre-action items are completed, or if no pre-action items are required, the upgrade will continue automatically. The Applying upgrade screen will appear, displaying a progress bar for the upgrade.

7. After the upgrade application is complete, additional steps appear on screen. It is recommended, but not mandatory, to perform each action item shown on screen before progressing to the next step.

8. Click **Next**. The "Finish" screen appears, announcing that the application is complete.

Applying the upgrade with the CLI utility

The upgrade can also be applied with the CLI utility. Before applying the upgrade using the CLI utility, verify that you follow the planning and preparations mentioned above. To apply the upgrade with the CLI utility, see <u>Upgrading to v9.7.0 using the CLI utility</u> on page 12.

NOTE	All steps in <u>Performing the upgrade</u> on page 10, except for those involving AdminPoint, are also relevant when applying the upgrade with the CLI utility.

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Upgrading using the CLI utility

This section includes the following topic:

- Applying the upgrade with the CLI utility

Applying the upgrade with the CLI utility

To apply the upgrade

1. Run the CLI i3-upgrade-load command to load the upgrade.zip file:
    Windows   infra\bin\psin_cli.bat
                     -action i3- upgrade-load
                     -i3-user admin
                     -i3-clear-password admin
                     -zip-file *Precise DVD\Upgrade to v9.9.0\Upgrade.zip*
    UNIX   ./infra/bin/psin_cli.sh
                     -action i3- upgrade-load
                     -i3-user admin
                   -i3-clear-password admin
                     -zip-file *Precise DVD\Upgrade to v9.9.0\Upgrade.zip*

2. Run the CLI i3- upgrade-prepare command to prepare the upgrade:
    Windows   infra\bin\psin_cli.bat
                     -action i3- upgrade-prepare
                     -i3-user admin
                     -i3-clear-password admin
                     -{-servers "*<servers>*" | -all-servers true}
                     - upgrades-ids V990_UPGRADE
    UNIX   ./infra/bin/psin_cli.sh
                     -action i3- upgrade-prepare
                     -i3-user admin
                     -i3-clear-password admin
                     -{-servers "*<servers>*" | -all-servers true}
                     - upgrades-ids V990_UPGRADE

3. Run the CLI i3- upgrade-install command to apply the upgrade:
    Windows   infra\bin\psin_cli.bat
                     -action i3- upgrade-install
                     -i3-user admin
                     -i3-clear-password admin
                      {-servers "<servers>" | -all-servers true}
                     - upgrades-ids V990_UPGRADE
    UNIX   ./infra/bin/psin_cli.sh
                     -action i3- upgrade-install
                     -i3-user admin
                     -i3-clear-password admin
                      {-servers "<servers>" | -all-servers true}
                     - upgrades-ids V990_UPGRADE

4. Perform the post- upgrade action items that appear.

Troubleshooting

This section describes:

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Troubleshooting the Precise Upgrade

This section describes a number problems and solutions on how to solve problems that occur during the upgrade of Precise.

An error occurs when running the prepare stage on the Precise FocalPoint server

When an error occurs during the prepare stage on the Precise FocalPoint, you may be asked to reopen the user interface. Using the "regular" URL will result in an error. Therefore, use `<precise-url>/admin`.

When starting the upgrade, a message appears to uninstall Precise for Tuxedo

This message indicates the environments in which Precise for Tuxedo is found. Precise for Tuxedo is no longer supported and therefore it needs to be uninstalled should you decide to perform upgrade.

Glossary

abandonment rate   In Web, a counter that keeps track of the percentage of users that abandon the loading of the Web page before it completes downloading.

action   An operation that Alerts FocalPoint automatically performs when detecting a warning or critical status for a specific metric. According to the defined action, Alerts FocalPoint opens a message box, sends an email or SNMP trap, or executes a program.

action item (manual)   Some installation steps cannot be executed automatically by Precise Installer. The administrator is required to execute them manually. Action Items are presented (when necessary) at end of installation or product upgrade.

AdminPoint   The central administration console of Precise that facilitates the maintenance, configuration, and management of all installed Precise components, such as monitoring the status of all Precise agents and PMDB processes, getting license information, starting and stopping the agents, getting log data on agents and events, changing PMDB settings, and installing patches. See also PMDB and agent.

advice   In Oracle, an algorithm that is designed to recommend on gathering statistics, creating new indexes, change existing indexes, and add or delete hints to make Oracle's Optimizer choose a better access path and make the statement perform better. Can be activated from any DML (Data Manipulation Language) statement.

agent   A program that runs on a server machine to collect, process, or communicate performance information. The Precise installation consists of multiple agents.

alert   The state of an Alerts metric that has reached a near-critical or critical status. An alert is issued by Alerts, triggering an action and informing of a problem that has occurred or is likely to occur within the area sampled by the specific metric. See also action.

Alerts   These products provide alerts to problematic conditions before they turn into performance problems, based on predefined metrics and thresholds. Alerts can automatically perform an action, such as displaying a pop-up message, sending an email message or SNMP trap, or running a program.

Alerts FocalPoint   An agent that receives data from the InformPoint agents, stores it, and performs any action that has been user-defined for that specific alert, such as displaying a pop-up message, sending an email message or SNMP trap, or running a program. See also InformPoint.

alert type   In Alerts, the status of all metrics belonging to a metric group or a monitored instance, indicating the current performance level through colors. See also alert and metric.

application server metric   In J2EE, a metrics that is provided by the application server or by customer code. This can include metrics published by the Java Management Extension (JMX) APIs or vendor-specific APIs, such as IBM's Performance Management Interface (PMI).

AppTier	The abbreviation for an application tier in a Precise environment. An AppTier contains one or more instances of the same technology and purpose. Application tiers do not necessarily correspond to distinct physical servers: in many cases, the tiers are logical, with one server running multiple AppTiers or one AppTier spans a cluster of servers. A Precise environment may contain multiple AppTiers on the same technology. For example, you may group J2EE instances (JVMs) into a J2EE Presentation AppTier and a J2EE Business Logic AppTier. Segmenting application service time into the contribution of individual application tiers is helpful in identifying the source of performance problems. Analyzing the performance and behavior of each tier separately is crucial for isolating the root causes of performance problems.
cabinet	In Oracle, SQL Server, DB2, and Sybase, the highest logical level in the SQL workspace hierarchy. A cabinet contains folders and, within folders, statements.
call path	A subset of a stack trace including only those methods that have been instrumented.
client cache	In Web, a counter that keeps track of the percentage of requests taken from the client cache (http status 304).
client side collection	See Web client browser side.
cluster	A group of servers or instances that are configured to be treated as a single entity. In Oracle, all Oracle instances of the same Oracle database (RAC configuration) are treated as a cluster and presented in the Precise for Oracle UI as a Database. In J2EE, a group of JVMs that serve the same application can be defined as Cluster (even if they are not defined as a cluster in the application server configuration). All JVMs of the same cluster share the same configuration.
collapsed access plan	In SQL Server and Sybase, the access plan of a unique group of statements or batches that belong to the same collapsed statement or batch but have different access plans. This can differ due to the constants in the text of the original (not collapsed) statements. See also explained statement and collapsed statement.
collapsed statement	In Oracle, SQL Server, Sybase, and DB2, a statement whose constants are replaced with parameters. Each collapsed statement can have several access plans, according to the occurrences of its statements. See also collapsed access plan.
collector	The program that runs on the monitored server to collect performance information. Some technologies allow a single Collector (agent) to serve multiple instances running on the same server. Other technologies require a dedicated Collector per monitored instance.
	In most cases, it must be installed on the monitored server. Collectors for SAP, SQL Server, and Sybase may reside on a remote server. See also agent.
collector slice size	In J2EE, the smallest unit of data presentation and storage. It can be configured as 30 seconds or five minutes. If SmartLink is configured, relevant Web and Microsoft .NET Collectors will report to SmartLink using the same collector slice size. Regardless of the defined collector slice size, the most granular slice size presented on both the Precise for Web UI and the Precise for Microsoft .NET UI will be 15 minute intervals.
completion rate	In Web, a counter that keeps track of the percentage of users that completed the loading of a Web page.
count	The number of occurrences observed during a measurement interval.
CPU time	The average amount of time consumed by the operating system actively processing instructions on behalf of a running activity.
critical status	In Alerts, the status represented by a red bullet indicating that the value of the sampled metric has exceeded the near-critical and critical threshold values. See also metric.
Cross-App Tiers	In Insight, Report Manager, and Alerts, a perspective that provides high-level information about the performance of all AppTiers in an environment including operating system data. It provides a holistic view of the entire environment and helps understand how the AppTiers interact. See also AppTier.
current data	In SmartLink, the end-to-end activity, detected by Precise over the last five minutes, including activities that are still in progress. In all databases products, a workspace that presents Current Sessions and the SQL statements that were executed including statements that are still in progress.
custom	Represents invocations of a type not specifically defined.
	See also work time.
customized metric	In Alerts, a user-defined metric that measures site-specific parameters.
drilldown	Within Precise products and Insight SmartLink, the filtering of analyzed data by clicking a specific entity.
	Then, additional information about the selected entity is presented, plus a breakdown of its activity by another entity. For example, drilldown on a transaction and get an overtime graph of the selected transaction, plus a list of top users that executed the selected transaction.
entry point	Usually a top-level HTTP or EJB request. An entry point can originate when a user clicks in a

browser or an E-commerce server invokes a remote EJB. J2EE makes a distinction between service request invocations and other invocations. The first HTTP or EJB invocation within a call path is designated as an entry point.

environment
The highest Precise logical group. It may contain multiple AppTiers of various technologies that serve an application together. For example, a Payroll Production environment may contain all Web servers, application servers, transaction managers, databases, and servers that serve this application. Alternatively, it may contain any set of instances that form together an administrative group. Since Precise version 8.5, an instance can belong to more than one environment. Let's say a single Oracle database serves two different applications plus the DBA wants to associate this database with a group of other databases under his responsibility regardless of served applications. In this case the Oracle database will be associated to three different Precise environments. See also AppTier and instance.

ERP Extension
In Oracle, DB2, and SQL Server, an extension to the Collector that provides detailed information on the activities and resource consumption of packaged application components. It correlates the database information and the packaged application information and lets you see users, transactions, reports, and other elements of ERP applications, such as Oracle Applications, SAP, PeopleSoft, and Siebel.

event
In Alerts, the occurrence of a sampling or progress. A sampling occurrence occurs every time a metric samples. A progress occurrence occurs when a metric's progress status is changed or when the investigated status reaches the end of the given investigation time. In AdminPoint, all occurrences reported by Precise agents, including informational events, warnings, and errors related to one of the agents. All events are shown in the Events view. See also metric and progress.

executions
In Oracle, SQL Server, DB2, and Sybase, the number of times a SQL statement was executed during the selected time frame. In SmartLink and SAP, the number of times a transaction was executed during the selected time frame.

explained statement
In Oracle, SQL Server, DB2, and Sybase, a statement whose access path (chosen by the RDBMS Optimizer) is clarified and translated into a visual display. Explained results include information on the objects referenced by the statement and the operations performed on these objects.

extended collection
In Oracle, a function that proactively specifies a future period during which Oracle activity data is collected and organized for subsequent analysis. Extended collections are an easy means to view collected information, assess application resource consumption, and identify bottlenecks that are inhibiting application performance and end-user productivity.

Federated Precise
Federated Precise is a version of Precise (starting with version 8.5) that can manage multiple Precise installations within unified StartPoint and AdminPoint screens, displaying and managing all environments, instances, and installations.

findings
A ranked list of top performance problems in the selected context. They are presented in Oracle, SQL Server, .NET, and J2EE. Each finding provides: a short explanation of the problem, detailed background information, and most important: one or more links to further investigate the problem and possibly get more granular findings on the selected context.

first byte time
In Web, a counter that keeps track of the time that it takes from the moment a new Web page is called until the first byte arrives back from the Web server.

FocalPoint
An agent that communicates with the Listeners installed on the monitored servers, receives data from the Collectors, periodically processes and stores this data in the PMDB, and serves UI requests.

folder
In SQL Server, Oracle, DB2, and Sybase, the intermediate logical level in the SQL workspace hierarchy.

Folders are grouped into cabinets and contain SQL statements.

See also cabinet.

Framework Installer
The application that facilitates the installation of Precise framework components. It can be invoked from the installation DVD to install a new Precise deployment. It can also be invoked from an existing Precise deployment to install an additional framework node and attach it to the originating Precise deployment. See also Framework node.

Framework node
A set of FocalPoint agents that are installed together and manages a set of monitored instances. The performance data of these instances will be loaded into a dedicated PMDB. A single Precise deployment may contain multiple framework nodes (using a separate PMDB for each node). An environment cannot span over multiple framework nodes.

garbage collection
An automatic process in the Java runtime environment that periodically reclaims memory used by objects that are no longer referenced. The process can impact an application's performance while

	memory is being reclaimed. Java programmers may initiate garbage collection explicitly.
grouper	In Web, the identifier that is used to group other identifiers, such as sites or URLs.
hint	In Oracle, an instruction directed at the Oracle Optimizer that includes considerations for an execution plan.
	The Oracle Optimizer will build an execution plan based on the hint, ignoring its own set of considerations.
hour group	A unit that reflects the type and level of activity within the system at different times. By defining the times of the day that are peak and off-peak, or day and night, the performance analysis can be focused on those particular times of the day. If, for example, most performance problems occur within nighttime and weekend batches, it can be useful to focus only on them.
InformPoint	In Alerts, an agent that retrieves performance data from all installed Precise products, analyzes it, and sends an alert to the Alerts FocalPoint when the predefined thresholds are exceeded.
	See also agent.
Insight	The Precise product family that facilitates the process of monitoring and correlating system performance. It consists of Insight.
	See also Report Manager.
	See also FocalPoint.
Insight FocalPoint	An agent that receives performance information from Insight Savvies, which monitor the environment.
	Insight FocalPoint then correlates, processes, and stores this information in a centralized location. The Insight performance history is stored in the PMDB.
	See alsoSavvy.
	See also PMDB.
instance	A monitored object of a specific technology. The following list specifies what constitutes an instance for the various supported technologies: J2EE - a Java Virtual Machine (JVM - a logical name set by the user), Microsoft .NET - a Common Language Runtime (CLR - a logical name set by the user), Oracle Applications - an Oracle Applications Form server, Oracle - an Oracle instance, SAP - a SAP system, SQL Server - an SQL instance, Sybase - a Sybase instance, Tuxedo - a Tuxedo domain, Web - a Web server, WebSphere MQ - an IBM WebSphere Queue Manager, DB2 - a DB2 non-partitioned database or a DB2 database partition. During installation, the instance is associated with one AppTier and environment. An Instance can be moved to a different environment or associated with multiple environments without re-installation nor losing historical data.
	See also environment.
instance statistics	See performance counter.
instance/database changes	In SQL Server and Oracle, the part of the Collect Schema Changes process that captures instance definition changes and database option changes and saves them in the PMDB.
instrumentation	The process of inserting fault-tolerant recording hooks in Java byte code, .NET MSIL, HTML pages, or other monitored components, resulting in the capture of performance metrics. In J2EE, a mechanism that enables collecting performance information when an application is executed. The process involves inserting special fault-tolerant recording hooks into application class objects. In WEB, the insertion of recording hooks into HTML pages can either be in memory (Dynamic Instrumentation) or file-based (Static Instrumentation).
instrumentation context	See invocation context.
internal invocation	The process of invoking a request from an HTTP request (Servlet or JSP) or an EJB. J2EE displays an internal invocation like any other invocation.
invocation	An execution of a J2EE entity (a Servlet, EJB, SQL Statement, method, and so on). When mentioned in plural (Invocations), means the amount of times that the entity was executed.
invocation context	The context within which a method is invoked. For example, if Method A is invoked both from Method B and from Method C, there will be two different invocation contexts for the performance metrics collected for Method A, one for when it is invoked from Method B and one for when it is invoked from Method C.
	See also call path and instrumentation context.
JRE (Java Runtime Environment)	As the runtime part of the Java software, the combination of the components that enable the execution of a Java program: a Java virtual machine, the core class libraries, and the files that form the Java platform.
JSP (Java Server Page)	An HTML page with special tags for Java scripting. An application server processes the tags and generates a Servlet.
JVM (Java Virtual	An instance of a JRE that executes Java programs. A server-side Java application server is itself

Machine)	a Java program that runs inside a JVM. Servlets, JSPs and EJBs are Java programs (applications) that run within the application server's JVM. J2EE monitors the JVM running the application server and the server-side
	Java applications within the application server.
JVM Heap Memory	The amount of real computer memory that is allocated to the JVM for executing Java programs.
key metric	In Alerts, a parameter that monitors a very important performance aspect. The status of the Oracle instance (up/down), for example, is crucial for system performance. If the instance is down, this is the first problem that needs to be solved. Marking a metric as key metric ensures that a critical alert raised for this metric receives top priority by the person that is responsible to handle alerts at any time. It can also help determine which alert to handle first in case of multiple alerts. In Alerts, key metrics are always displayed at the top of a metric table when it is sorted by alerts so that they get immediate attention.
Listener	The agent that facilitates the communication between the various Precise agents across different servers must be installed on every server where Collectors or FocalPoint agents are installed. The Listener allows communication with all other agents installed on the monitored server, while only the Precise Listener port is known by other servers.
login name	In SQL Server and Sybase, the session identifier that represents the credential used to connect to the database. When an ERP extension is installed, the user name of the packaged application's client overrides the login name. For example, when SAP extension is installed, the SAP user name overrides the login name.
machine	A session identifier. A machine as sampled, for example, by the SQL Server Collector is the identification of the machine where the client process executes. Machine is also sampled by Oracle, DB2 and Sybase. In Insight terminology Machine is called Client machine.
Main framework node	A main framework node is the single point for login and also serves as the Precise FocalPoint for the entire deployment.
major collection count	Number of estimated major garbage collection events that occurred during the last J2EE collector slice. A major garbage collection can stop the application while JVM heap memory is being reclaimed.
	See also garbage collection.
major garbage collection time	Percentage of time spent by the JVM executing major garbage collection events during the displayed interval.
	See also garbage collection.
MBean	A Java object that represents a manageable resource. In J2EE, MBeans, or Managed Beans, are used for application server metrics.
memory logger interval	The interval at which the J2EE Collector gathers JVM heap memory data. All snapshots of the memory logger's data collected according to the memory logger interval are summarized with counters in the current aggregation interval. The memory logger interval's time span is typically a small fraction of the aggregation interval.
metric	In Alerts, a query that helps measure performance in the environment. Three types of metrics are available: System metrics relate to the internal resources, operations, and objects of the monitored infrastructure; application metrics reflect the way the applications perform; user-defined metrics can be customized to specifically relate to a site. When a metric's value exceeds one of the defined thresholds, its status changes to near-critical (yellow bullet) or critical (red bullet).
	See also key metric.
metric set	In Alerts, a unit that groups metrics that measure related performance aspects. The following metric sets exist:
	Status: includes metrics that alert to functional problems related to the instance.
	Performance: includes metrics that alert to performance problems related to the instance.
	Load: includes metrics that alert to instance-related load problems that may later cause errors or crashes.
	Service: includes metrics that alert to instance-related SLA breaches. The metrics in this set are sampled by Insight.
	Performance Trending: includes metrics that alert to potential future performance problems. The metrics in this set are sampled by Report Manager.
	Load Trending: includes metrics that alert to potential future load problems. The metrics in this set are sampled by Report Manager.
	Customized: includes user-defined metrics.
	Precise Status: includes metrics that alert to the near-critical or critical status of the installed Precise environment.
module	A session identifier. In Oracle it contains the value of MODULE column in V$SESSION table. In

DB2 it contains the command name of non-SQL statements or the package name for SQL statements.

near critical status	In Alerts, a status indicating that the value of the sampled metric has exceeded the defined near-critical threshold. A near-critical status is indicated by a yellow bullet.
network time	In Web, a counter that keeps track of the time spent on network activity from the server side perspective.
	This includes the time to read the request from the network and the network time to send the response back to the client.
node	See [Framework node](#).
	Note: when creating a new installation from DVD, it would be called "Framework." In the UI screens (columns in tables, choosing a system for a new environment etc), we would call them "Nodes." For example: choose a node for the new environment.
	When adding a new system within AdminPoint, it would be called a "Framework node".
packaged application	An application that is created and/or maintained by a third party and is not custom-built to one's specific needs. The following packaged applications have special treatment by Precise: SAP, Oracle Applications, PeopleSoft, and Siebel. They are harder to modify because the application code is either not available or hard to understand.
	See also [ERP Extension](#).
page size	In Web, a counter that keeps track of the amount of data loaded from the server to display the page.
page views	In Web, a counter that keeps track of the number of Web pages viewed at a specific Web site during a selected time period.
parent metric	In Alerts, a joining of several child metrics. Each time a parent metric samples, it gathers data from a set of child metrics and presents it as a single metric query. The individual child metric values are displayed on the Thresholds tab of the Properties dialog box in Alerts.
	See also [submetric](#).
performance counter	In SQL Server, a Windows performance counter as reported by the operating system. In Oracle, an instance level statistic as gathered from some Oracle V\$ views. In Sybase, a sysmonitors counter collected by Sybase. In Web, an operating system or a Web server performance counter.
PMDB	The Precise data warehouse of performance and availability data. It can be hosted on an Oracle or SQL Server database.
portal server	An application server for Web-based applications that commonly provide personalization, single sign-on, and content aggregation from different sources and that host the presentation layer of Information Systems. Aggregation is the action of integrating content from different sources within a Web page. A portal may have sophisticated personalization features to provide customized content to users. Portal pages may have a different set of portlets creating content for different users.
portlet	A Java-based Web component, managed by a portlet container, that processes requests and generates dynamic content. Portlets are used by portals as pluggable user interface components that provide a presentation layer to Information Systems.
Precise deployment	An independent Precise system. It contains and manages various agent types and provides centralized monitoring and administration. A Precise deployment may contain multiple framework nodes. One of them is defined as the main framework node and it manages all other nodes of the Precise deployment.
Precise FocalPoint	See [Precise FocalPoint agent](#).
Precise FocalPoint agent	An agent that manages all agents in a single Precise deplotment. Additional product FocalPoint agents manage specific technologies and resources.
Precise Proxy agent	When multiple Framework Nodes are managed by a single Precise deployment, the Precise FocalPoint agent manages all of the agents of the main Framework node, while every other framework node has a Precise Proxy agent to manage all its agents.
precise_root	This is the term used in a path for the Precise installation directory. The terms *<i3_root>* or i3 root can appear in text too.
program	A session identifier in Oracle, DB2, SQL Server, Sybase, Insight, and Alerts. A program as sampled, for example, by the SQL Server Collector, is the name of the executable that connects to the database. Applications that do not set the application name have N/A as program. When a SAP extension is installed, the SAP transaction overrides the program, and it may change during the application's lifetime. When a Siebel extension is installed, the Siebel views override the program, and it may change during the application's lifetime. In Insight, program is the name of an executable as recognized by the operating system. If an executable is invoked from a script (a batch or a shell), the script is displayed as the command entity. In Alerts, program is part of the customized metrics definition and is the name of the executable or stored procedure executed in

the database that runs when the metric is sampled. In action definitions, program is the name of the executable that will run if the metric exceeds its threshold.

progress	In Alerts, the management state of a metric for which an alert has been raised. The following statuses exist: **Open**: An alert is raised. **Investigated**: The alert is taken care of. **Closed**: The problem has been solved.
Proxy FocalPoint	See [Precise Proxy agent](#).
recommended index	In SQL Server, a function that uses the Microsoft Index Tuning Wizard to recommend on adding indexes or statistics for a selected statement, batch, or table. Based on the results of this function, the Optimizer will choose a better access plan and make the respective statement or batch perform better. For statements and batches, recommendations are based on the content of the statement or batch. For tables, recommendations are based on all the statements that are stored in the PMDB, are executed during the selected time period, and have an average duration time greater than the value defined in the registry (where 0 is the default). See also [advice](#).
related SQL	In Oracle, a generated statement that uses alternative syntax to access the database in different ways and returns the same output as the original statement.
relative frequency	Number of contributor invocations per entry point. For example, if a service request calls three methods each time it is invoked, the Relative Frequency for the method is three invocations per service request execution. Similarly, if a service request calls one method every other time it is invoked (half of the time), the Relative Frequency for the method is 0.5 invocations per service request execution.
rendering time	In Web, a counter that keeps track of the time that it takes for a Web page to be loaded from the moment the first byte arrives until the Web page is fully loaded or the user interrupts or abandons the loading process.
report	A collection of queries, programming code, and layout settings that Report Manager executes to generate graphical results like tables and charts.
Report Manager	Uses historical information to identify problematic conditions, track long-term performance, volume trends and patterns, view availability problems over long periods of time and on different levels, compare the performance of similar systems, correlate between performance metrics of different products, assist in capacity planning, and generate demand-driven, user-defined reports.
Report Manager FocalPoint	An agent that examines the PMDB tables to produce scheduled performance reports. See also [PMDB](#).
report parameter	In Report Manager, a keyword used in a report. Its value is set during the report execution. A parameter's value can be upgraded either permanently or for the current execution only.
report property	In Report Manager, the attributes that define a specific report, consisting of report parameters and scheduling information. See also [report parameter](#).
request	In Web, a counter that keeps track of the number of HTTP requests sent for a viewed entity.
request error	In Web, a counter that keeps track of the percentage of requests completed with an HTTP error.
sampling	In Alerts, the process during which a metric queries a Precise product for a specific instance, retrieves values, and calculates the metric's alert level.
sampling base	In Alerts, the start time of a scheduled sampling process (by default Sunday, 00:00 AM).
sampling period	In specific Alerts, metrics, the time frame during which statistical data is returned from other Precise products. Such a metric is for example Oracle's General Behavior metric, which returns database behavior for a certain period of time.
sampling rate	In Alerts, the frequency of a metric's regular sampling schedule. The sampling rate is measured in minutes.
Savvy	An Insight agent that collects AppTier-specific performance data.
scalability	A system's ability to withstand load. For example, positive scalability means that the system continues to function properly even when it is called upon to service a larger number of users.
schema changes	In Oracle and SQL Server, a process that captures schema changes and saves them in the PMDB. In SQL Server, instance configuration parameters and database option changes are also captured.
Script installer	A component of Precise Agent Installer that enables adding a small JavaScript script, also known as a Web browser-side agent, to the Web pages of your Web site.
server	Also called a host machine or server machine. The combination of a computer and associated operating system software that is accessed by multiple clients to perform requested functions and typically returns results to the clients.

server-side collection	In Web, the collecting of performance data from the Web server instance through the Web server agent.
service + network time	In Web, a counter that keeps track of the service and network time, including the total amount of time the request took to reach the server.
Service Level Agreement	See SLA (Service Level Agreement).
service time	In Web and SmartLink, the time elapsed from when a request is received by the server to the time a response is sent back to the computer that made that request. The service time is measured on the server side. In J2EE, the time it takes an invocation to complete execution. In other words, service time is the average length of time between the start time and end time of a Java method execution. For example, the SQL service time is the time it takes the JDBC method executing the SQL statement to be completed. The service time includes CPU and wait time. The service times are reported in the interval in which they complete execution. Though a contributor's average service time may be very small, the contributor may be called many times. As a result, a contributor's overall contribution to performance may be large even though its average service time is low.
servlet	A class that is loaded only once and for which the application server uses multithreading to process requests. The servlet generates an HTML page that is sent back to the Web browser.
size	In Web, a counter that keeps track of the bytes sent and received.
SLA (Service Level Agreement)	A formal definition of an information system's performance goals. Within Precise, an SLA consists of clauses corresponding to various system activities. Once a system's SLA is defined, its SLA compliance can be analyzed, and breaches can be isolated to identify their causes.
SmartLink	In Insight, a component that provides transactive, correlated information across AppTiers from the user's perspective. Insight SmartLink functions in PeopleSoft and Web applications environments.
SmarTune	In Oracle, SQL Server, and .NET, an algorithm that analyzes performance metrics, identifies and ranks potential problem areas, and provides advice for correcting the problems.
socket	An I/O abstraction layer that enables processes to communicate with each other, regardless of whether they are on the same server. Sockets are bi-directional FIFO pipes that look like regular file I/O to the developer with the abstraction layer handling all of the low-level communication details.
StartPoint	The opening page of Precise. It provides a quick overview of the environment status and links to launch any of the Precise products.
Statistics workspace	In Oracle, DB2, SQL Server, Sybase, J2EE, and Web this workspace presents instance level statistics such as hit ratios, utilization, JMX metrics, logging, and more.
submetric	Also called child metric. In Alerts, the subquery of a parent metric. A child metric gathers its own data and combines it with the data gathered by other child metrics to form the result of the parent metric. Each child metric has its own thresholds and may be enabled or disabled individually. See also parent metric.
summary table	A container that stores the information collected by the Precise agents and loads it into the PMDB. Summary tables store the same data at different levels of granularity: time slice, hourly, daily, weekly, and monthly. By storing data in multiple summary tables, Precise can present a detailed view and progressively higher-level views of the same data. Summary tables are particularly useful for data aging. A data purging policy can be implemented for each summary table so that detailed data is retained for short-term historical analyses while more summarized data is used for long-term analyses and trending.
technology	A technology identifies the monitored object. For example, Oracle, SQL Server, Sybase, and DB2 are different technologies, while all Web servers (such as: Apache, IIS, and WebSphere) are defined as a single Web technology. A single monitored object can be monitored by two different technology's Collectors. For example, WebLogic server can be monitored by both a Web Collector and a J2EE Collector.
throughput	The number of average completions per second that are observed during an interval.
time slice	A unit used to break up long sessions into smaller time periods. The length of a time slice is preset and cannot be changed. It represents the maximum time that passes before the data collected can be displayed. For example, if the length of a time slice is 15 minutes, the collection is only upgraded at 15-minute intervals. The length of a time slice is different for each technology: In Oracle, SQL Server, Sybase, DB2, Web, .NET, MQ, Tuxedo, Network, and OS, a time slice is 15 minutes. In J2EE and SmartLink, a time slice is either 30 seconds or 5 minutes. In Precise for SAP, a time slice is 5 minutes. See also collector slice size.
URI (Uniform Resource	The relative path to a resource after the location (network node) is found.

Identifier)

URL mapping In Web, a function that defines rules that map URLs (Uniform Resource Locators) with dynamic parameters originating from a specific domain to a format that identifies the Web pages and prevents them from having different URLs.

Web client browser side In Web, the gathering of performance data from the browser running on the desktop of the Web application's user, through the static or dynamic instrumentation of Web pages.

Web server A program that receives client requests for Web pages, retrieves the static pages and/or issues a request for dynamic page creation to an application server, and sends the pages to the client. In Web, a computer that delivers (serves up) Web pages. Every Web server has an IP address and possibly a domain name.

work time The time spent in the specific entity excluding time spent by called (other) entities. In J2EE, work time of a method is calculated as the service time of that method minus the service time of the methods it invoked.

work type In Web, a counter that keeps track of the type of the Web instance, such as Web, PeopleSoft, SAP, or Siebel.

workspace A display unit in Precise products. All workspaces display data from different perspectives. For example, in Oracle, SQL Server, and Sybase, the Current workspace shows information on the sessions currently active in an application, and the Objects workspace displays information on Oracle or SQL Server database objects that can be used to understand relationships and associations between database schema objects.