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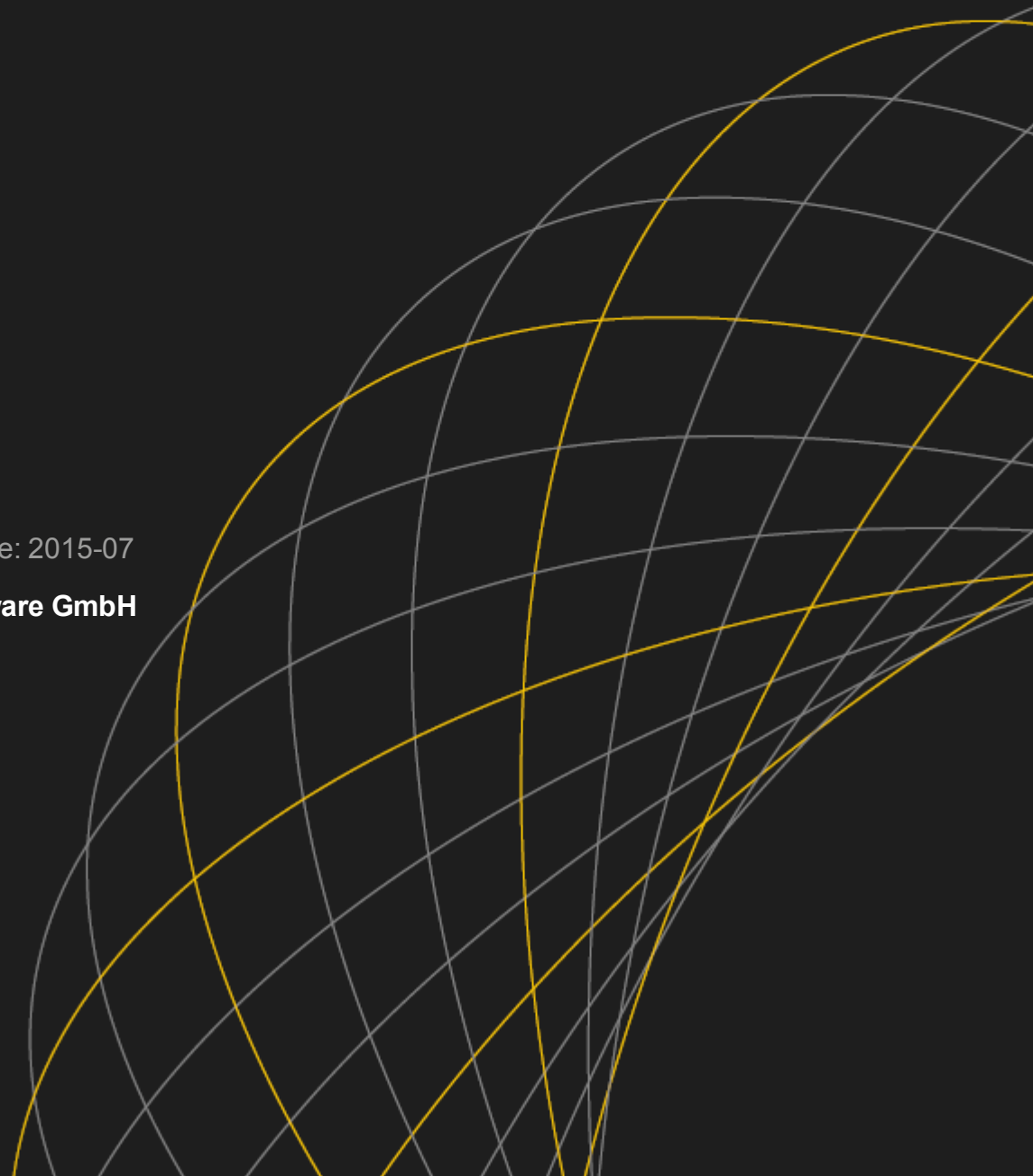
Predictive Analytics Client

ONE Automation Platform

Installation Guide

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1 Introduction to the PCO/PDA Installation

This guide provides all the steps that you need to install the following:

- *Policy Orchestrator* **(PCO) version 10.0.x**
  This is comprised of two parts, which you can install at the same time on the same server, or separately:
  - *The PCO server components*. These are necessary regardless of which frontend you want to use.
  - *The Modelling Studio*. This is the PCO frontend for defining and managing event definitions and behaviors.
- *Predictive Analytics* **(PDA) version 10.0.x**
  This is the frontend for creating visualizations and graphics to analyze the event data that is stored in the EventBases of the PCO. Typically, you install this on a separate clients from the PCO server.

The full installation

You will find the information for a complete installation in the following topics:

- System Requirements
- Installation Preparation
- Full Installation of Policy Orchestrator & Predictive Analytics

Component installations

In the full installation, you install and configure all components for PCO and PDA as the same time. Alternatively, you can install individual components separately. You will need to do this when you install components on different servers. For instructions, see the related topics:

- The Analysis Node
- The Gateway
- Additional EventBases
- A PDA client

Also in this guide

In addition to the installation instructions, you can find additional instructions and information for supporting tasks such as:

- Oracle installation scenarios
- Managing configurations via the command prompt
- Configuring the online help
- Upgrading to new versions
- Migrating previous versions
- Login and user management
- Uninstalling
- Installing and Setting üp ECC web components

2 System Requirements

2.1 System Requirements

To install and use *Policy Orchestrator* (PCO) and/or *Predictive Analytics* (PDA) you need to be sure to have various components installed and available. These are described in the following topics:

- Requirements for the PCO Server Components
- Database Requirements
- Requirements for the Frontend Tools
- Automic Product Requirements

2.1.1 Requirements for the PCO Server Components

The machine on which you install the PCO server components must have the required hardware and software before you begin the installation.

These requirements also cover installing the PCO server and its frontend tools, the *Modelling Studio* and *Predictive Analytics* (PDA). Typically, you would install PDA and maybe even the Modelling Studio on a different machine than the PCO server. You would do this partly because the client products must be installed locally and partly for better performance. However, you could install them on the same machine, for example, for a test environment. In this case, the requirements here will also cover the needs of installing all three on the same machine.

For database specifications, see Database Requirements.

Hardware Requirements

The machine where you want to install the *Policy Orchestrator* server components must have at least the hardware and system capabilities that are listed in the following table. These requirements also apply if you install the PCO Modelling Studio and PDA on the same machine as the PCO server components.

Requirement Type	Requirement Specifications
Processor (CPU)	*Minimum*: 2.7 GHz 64-bit dual-core processor *Recommended*: 2.7 GHz 64-bit quad-core processor
RAM	*Minimum*: 8 Gigabytes *Recommended*: 16 Gigabytes
Hard Disk	20 GB
Display	1280 x 1024 24-bit

Requirement Type	Requirement Specifications
Processor (CPU)	*Minimum*: 2.7 GHz 64-bit dual-core processor *Recommended*: 2.7 GHz 64-bit quad-core processor
RAM	Minimum: 8 Gigabytes Recommended: 16 Gigabytes

Requirement Type	Requirement Specifications
Hard Disk	20 GB
Display	1280 x 1024 24-bit

⚠ **Important**: Make sure that the Microsoft Security Update KB928365 is *NOT* installed on your Windows machine.

Software Requirements

To install and use the frontend products, each computer on which you install the *Modelling Studio* and/or PDA must have at least the following hardware and system capabilities.

You will need at least the following software installed on the machines where you want to install and use the PCO Server, PCO Modelling Studio and/or PDA.

Requirement Type	Requirement Specifications
Operating System	Any of the following: • Microsoft® Windows Server™ 2008 R2, Standard Edition • Microsoft® Windows Server™ 2008 R2, Enterprise Edition
Framework	Microsoft .NET Framework 4.0
Microsoft Graphics APIs	This applies only to machines with PDA installations: Microsoft® DirectX End-User Runtime, March 2009 version or higher ⓘ This is available for free download on: http://www.microsoft.com/downloads/Browse.aspx?displaylang=en&categoryid=2

2.1.2 Database Requirements

You can run the Policy Orchestrator product suite with either of the following source database types:

• MS SQL Server
• Oracle

The compatible products and versions for each of these are listed below.

MS SQL Server

You can use any of the following MS SQL database servers for *Policy Orchestrator* and *Predictive Analytics*:

Product	Versions
Microsoft® SQL Server Express Edition with Advanced Services	• 2005 service pack 3 or higher • 2008 service pack 1 or higher

Product	Versions
Microsoft® SQL Server Standard Edition	• 2005 service pack 3 or higher • 2008 service pack 1 or higher
Microsoft® SQL Server Developer Edition	• 2005 service pack 3 or higher • 2008 service pack 1 or higher
Microsoft® SQL Server Enterprise Edition	• 2005 service pack 3 or higher • 2008 service pack 1 or higher

For more information about Microsoft® SQL Servers, see the following page of the Microsoft homepage:
http://www.microsoft.com/sql/default.mspx

Before you can install PCO/PDA you will need to do a number of tasks to prepare your MS SQL database environment. These are described in "Preparing MS SQL Databases."

Oracle Database

To optimally install and run a production environment of PCO/PDA using Oracle databases, you should create the databases for PCO/PDA on a dedicated database server. This is especially true when your source data is coming from a medium- to large-sized AE/OM or AM system. This applies to both a standalone and clustered Oracle databases.

You can use the following versions of an Oracle database for the *Policy Orchestrator* product suite:

Product	Versions
Oracle	• Version 10 (10.2.0.4 or higher) • Version 11.1 • Version 11.2 / 11gR2

For more information about Oracle databases see the following website:
http://www.oracle.com/us/products/database/index.htm

Before you can install PCO/PDA you will need to do a number of tasks to prepare your Oracle database environment. These are described under "Preparing Oracle Databases."

2.1.3 Requirements for the Frontend Tools

The frontend tools that use the Policy Orchestrator server are:

- PCO *Modelling Studio*
- *Predictive Analytics* client

To install and use these frontend products, each computer on which you install one or both of these frontend must have the required hardware and software.

Hardware Requirements

To install and use the frontend products, each computer on which you install the *Modelling Studio* and/or PDA must have at least the following hardware and system capabilities.

Requirement Type	Requirement Specifications
Processor (CPU)	*Minimum*: 2.7 GHz 64-bit dual-core processor *Recommended*: 2.7 GHz 64-bit quad-core processor
RAM	8 Gigabytes
Display	1280 x 1024 24-bit

⚠ **Important:** Make sure that the Microsoft Security Update KB928365 is *not* installed on your Windows machine.

Software Requirements

Each computer on which you install the *Modelling Studio* and/or PDA must have the following software.

Requirement Type	Requirement Specifications
Operating System	Any of the following: • Microsoft® Windows Server™ 2008 R2, Standard Edition • Microsoft® Windows Server™ 2008 R2, Enterprise Edition
Framework	Microsoft .NET Framework 4.0
Microsoft Graphics APIs	This applies only to machines with PDA installations: Microsoft® DirectX End-User Runtime, March 2009 version or higher ⓘ This is available for free download on: http://www.microsoft.com/downloads/Browse.aspx?displaylang=en&categoryid=2

2.1.4 Automic Product Requirements

The following table lists the Automic products and versions that you need before you can install and use *Policy Orchestrator* 10.0.*x* and/or *Predictive Analytics* 10.0.*x*:

Product	Versions
Automation Engine	10.0 .x
Applications Manager *Optional*: Applies if you want to work with data from its database.	The latest service pack for version 8.0
Enterprise Control Center	2.0 .x

3 Installation Preparation

Before installing *Policy Orchestrator* and/or *Predictive Analytics*, you need to complete some general preparation steps and then prepare your database management tool, MS SQL or Oracle. You find these steps in the following sections:

1. Install DirectX (only for PDA installations)
2. Start MSDTC and Modify Its Security Settings
3. Deactivate User Access Control
4. Prepare databases for your database management system
   - MS SQL
   - Oracle

3.1 Preparing for Installation: General Tasks

Before installing *Policy Orchestrator* and/or *Predictive Analytics*, you need to complete the following preparation tasks:

1. Install DirectX (only for PDA installations)
2. Start MSDTC and Modify Its Security Settings
3. Deactivate User Access Control

After these, you need to prepare your database management tool, using the steps that apply:

3.1.1 Install DirectX

This is required only for machines on which *Predictive Analytics* (PDA) runs.

DirectX End-User Runtime is required to start and run PDA. If Direct X End-User Runtime is not already installed on the machine, do this using the following steps:

1. Execute '`directx_mar2009_redist.exe`'.

2. Enter a temporary path for extracting the files (e.g. '`C:\temp\directX`').

3. If the setup does not start automatically, open the temporary path in your Explorer and execute '`DXSETUP.exe`'.

4. Follow the installation instructions and install DirectX End-User Runtime with the default settings.

3.1.2 Start MS DTC and Modify Its Security Settings

You can skip this step when you plan to have *all* PCO server components and *all* databases (the Admin database and all EventBase databases) on the same computer. Otherwise, you must start the Windows-MS DTC (Microsoft Distributed Transaction Coordinator) Service and be sure that specific security options are activated. You must do this on all computers where you want to install or use any PCO or PDA component.

Steps...

Use the following steps to modify the necessary security settings for MSDTC and to start the Windows service in Windows 7 or Windows 2008:

1. Open the **Component Services Console** by going to the Windows **Start** menu and opening the **Run** program, and then running the command "**dcomcnfg**".

2. Navigate to **Component Services** > **Computer** > **My Computer** > **Distributed Transaction Coordinator**.

3. Right-click **Local DTC** and from the context menu select **Properties**.

4. On the **Security** tab, select the following settings:

    - Network DTC Access
        - Allow Remote Clients
        - Allow Inbound
        - Allow Outbound
        - No Authentication Required
    - Enable XA Transactions
    - Enable SNA LU 6.2 Transactions

5. Click **OK**.

6. Check that a Windows Service exists for the **Distributed Transaction Coordinator** (Control Panel -> Administrative Tools -> Services). Make sure that the service hast the following settings:

    - Status: **Started**
    - Startup Type: **Automatic**

3.1.3 Deactivate User Access Control

'User Access Control' must be deactivated in order to use *Predictive Analytics* (PDA).

3.2 Preparing MS SQL Databases

If you are using MS SQL as the database management system for *Policy Orchestrator*, then you need to prepare your MS SQL system using the steps that follow.

Steps...

1. Start your MS SQL system.

2. Start the "Full-Text Indexing" Windows Service.

3. Enable remote connections for the database. Without this, the Configuration Manager will not be able to find the selected database.

    For MS SQL Server 2005:

    a. Go to the **Configuration Tools** and open the **SQL Server Surface Area Configuration**.
    b. In the menu item **Database Engine** > **Remote Connection**, select the setting **Local and Remote Connections**.

For MS SQL Server 2008:

    a. Open the **SQL Server Configuration Manager**.
    b. From **SQL Server Network Configuration**, select '**Protocols for MSSQLSERVER**'. Then select **Named Pipes** and **TCP/IP**.

4. Define a database system user with necessary roles. You will need this regardless of whether you define the databases now or during the installation process.

   When you define an EventBase, you need to specify an MS SQL system user for the EventBase. This user needs to be defined in your MS SQL Server database. You can use the same user for more than one EventBase, but each MS SQL system user must have at least the following roles assigned to it:

User Role	Purpose
DBOWNER	**Always mandatory**. This user role is needed to complete the installation process.
DBCREATOR	**Only mandatory for creating databases during installation**. This role is needed when you want to be able to create the database from within the installation process.

5. *Recommendation*: Define at least two databases.

   - One for the Admin database for metadata
   - One EventBase database for each data source system (OM/AE or AM).

   You can have the installation process create the databases, but it is recommended to prepare them beforehand in MS SQL yourself.

   ### Considerations for the Admin database

   For performance reasons, in a production environment, you should define a separate database user for the Admin database.

   ### Considerations for the EventBase databases

   Typically, you define one EventBase for each source system database. You could also define more than one EventBase for a single source system database. In this case, all EventBases are loaded with the relevant data from the source database. What you should NOT do is to have more than one source database write to the same EventBase, because then the data will be mixed and provide irrelevant results.

   If you have multiple source systems, give each database that will be used for an EventBase a unique name across your PCO environment.This will prevent unwanted data mix-ups.

3.3 Preparing Oracle Databases

If you are using Oracle the database management system, then you need to do several tasks to prepare your Oracle system. You must do these *before* you can begin the installation process. Later, during the installation, you configure PCO to find and access the databases that you have prepared.

To optimally run a production environment of PCO/PDA, you should run the databases on a dedicated Oracle server. On this server, you need to prepare databases to be used for the following PCO databases:

- The Admin database
- The EventBase database(s)

Overview of preparation tasks

The following table lists the tasks for preparing your Oracle database environment to install the full PCO/PDA package.

✓	Step	Notes
	1. Prepare the Hardware and Infrastructure for Oracle	
	2. Install OraMTS	
	3. Install the Database: Steps for PCO/PDA	
	5. Configure Oracle DB Parameter Settings	
	6. Optimize an Applications Manager Source Database Only needed when the source data comes from an AM database.	
	4. Create Databases in Oracle	
	7. Download the PCO Package	
	8. Create Oracle Users - A user to access the source data in your source system (OM/AE or AM database) - A user for the Admin database - A user for *each* EventBase database	

After these steps you can continue with the installation of PCO/PDA. For an overview of all steps, based on the database installation scenario that your are implementing, see "Installation with Oracle: Overview."

3.3.1 Prepare the Hardware and Infrastructure for Oracle

This section refers to preparing an Oracle *production* environment. To optimally install and run a production environment of PCO/PDA using Oracle databases, you should create the databases for PCO/PDA on a dedicated database server. This is especially true when your source data is coming from a medium- to large-sized AE/OM or AM system. This applies to both a standalone and clustered Oracle databases.

Important: Get Automic support during planning

The hardware and software configurations include recommendations for running the PCO and PDA on their own database server. The required hardware resources depend on your particular implementation and the installation requirements of your database provider. Therefore, to help plan your PCO/PDA database environment, please contact Automic Support Site

(https://automationpassion.com/) or an Automic expert to discuss the specifics of your individual implementation.

Requirements

Requirement Type	Requirement Specifications
Processors (CPUs)	*Minimum*: 2.7 GHz 64-bit quad-core processor Make sure that the database system(s) include enough CPUs. You can use the length of the run queue of available processors under a heavy load as a bench value. If the run queue often exceeds 1, you should consider adding more CPUs. `RUN QUEUE LENGTH <= COUNT of CORES`
RAM	*Minimum*: 16 Gigabytes *Recommended*: 20 Gigabytes The database server must have an adequate SWAP area on the local disk: • For RAM <= 2 GB, then SWAP = RAM • For RAM > 2 GB, then SWAP = RAM • No SWAP IN

Connection optimization:

- For the data files, we recommend that you use an external disk subsystem with a connection by a fiber channel, or for Oracle versions 11gR2 or higher, Direct NFS over a 10-GBit Ethernet.

  ⊗ **Warning**: Never use local disks with RAID software because it negatively affects the performance of your databases and the whole system.

- Keep the number of active components (such as the routers, switches or firewalls) on the path between the Decision Worker, the AnalysisNode or Predictive Analytics(PDA) and the database to a minimum in order to avoid decelerated access and single points of failure.

- Avoid high latency times when the database is accessed by the Decision Worker, AnalysisNode or PDA (ping response with an 8k package size should be <1ms). The same applies when you use RAC or Data Guard for the communication between database nodes.

Clustered environment: Not recommended

Automic does not recommend installing the PCO/PDA databases in a clustered environment. To set up your PCO/PDA databases in an Oracle clustered environment, you would need to use the Oracle's RAC cluster technology. However, PCO and PDA are not fully RAC compatible. Although they can benefit from a RAC system's high availability, you will not have any performance improvements with RAC technology. Furthermore, setup can be tricky.

If, however, you want to try using a RAC cluster in your environment, keep the following in hardware and infrastructure guidelines in mind:

- Use the same hardware recommendation for a single database also for the cluster nodes.

- When the PCO Server also runs on the same cluster, parameterize the DB client in a way that you can reconnect to the new DB instance after the cluster has been switched.

- For the Cluster Interconnect, you must select a high-performance connection of at least Gbit. According to Oracle, you can operate RAC nodes "problem-free" within a 3km distance. Longer distances pose high demands on the infrastructure and the protocols in use.

3.3.2 Install OraMTS

You must install Oracle Services for Microsoft Transaction Server 11.1 (OraMTS) on computers where *Policy Orchestrator* (PCO) server components run.

Oracle Services for Microsoft Transaction Server (OraMTS) is part of Oracle Database 11g Release 2 Client (11.2.0.1.0) for Microsoft Windows (x64). You can download it from http://www.oracle.com/technetwork/database/enterprise-edition/downloads/112010-win64soft-094461.html.

The only component that you must install is the OraMTS. However, if you choose to install the full Oracle Client, make sure that the database client and server have the same Oracle version.

3.3.3 Install the Database: Steps for PCO/PDA

When installing your Oracle database environment, be sure to also do the following:

1. Set the database block size to 8192 bytes. (This setting should be the default value for Oracle 10g.)
2. When you install the database, specify the character set to be used when running PCO or PDA.

   To be able to use the full text indexing feature in PDA, you need to have **Oracle Text** on the database that is used for PCO/PDA.

   You can specify one of the following NLS character sets:

NLS_LANGUAGE	NLS_TERRITORY	NLS_CHARACTERSET
GERMAN	GERMANY	WE8ISO8859P15
GERMAN	GERMANY	WE8ISO8859P1
AMERICAN	AMERICA	WE8ISO8859P15
AMERICAN	AMERICA	WE8ISO8859P1

3.3.4 Configure Oracle DB Parameter Settings

After ensuring that the requirements are covered as described in "Prepare the Hardware and Infrastructure for Oracle," you need to prepare the parameter settings for your database(s) as described in the following sections:

- Define the Database Parameters for the PCO Server
- Define the Database Parameters for a PCO/PDA Client

Important Prerequisite: Make sure that both the database server and clients have the same Oracle version installed.

Define the Database Parameters for the PCO Server

After you install your Oracle server(s), check and set the following parameters and settings:

1. Verify the character set used.

   This should be one of the NLS character sets that support the fulltext indexing. See the table in the related step in "Install the Database: Steps for PCO/PDA."

   After the installation process, you can use the SQL statement to verify which setting is being used:

   select * from sys.nls_database_parameters;

   Sample output:

PARAMETER	VALUE
NLS_LANGUAGE	**AMERICAN**
NLS_TERRITORY	**AMERICA**
NLS_CURRENCY	$
NLS_ISO_CURRENCY	AMERICA
NLS_NUMERIC_CHARACTERS	.,
NLS_CHARACTERSET	**WE8ISO8859P1**
...	

2. Update the **SQLNET.ORA** file with the following parameter values:

   - TCP.NODELAY = YES (applies to the DB Server and DB client)

     Setting this parameter improves system performance because it ensures that the system does not wait for an acknowledgment of a packet before sending the next.

   - SQLNET.EXPIRE_TIME <= 5 minutes (applies to the DB Server)

     Recommended value: 1

     This parameter applies to the "Dead Connection Detection". This is the amount of time that the database server checks whether existing client sessions have reacted. The Server ends sessions that do not respond.

3. Create tablespaces

   Tablespaces for the PCO/PDA must be created using ASSM (Automatic Segment Space Management). ASSM provides improved performance for data inserts and provides transparency of table reaorganizations.

4. Reorganize with DB tools

   Automic recommends using the Oracle SEGMENT ADVISOR because it generates a list of all tables and indexes that must be reorganized. You could also reorganize your data manually, but this would require extensive manual changes in the PCO databases.

   Example of an online index reorganization:

```
sqlplus> alter index <index_name> rebuild online;
```

5. Configure the statistics update.

    You should regularly update the access statistics of the database tables. A daily job is automatically scheduled when you install the database (GATHER_STATS_JOB) unless you deactivate this option. You can specify the time when the job should run.

    Another way to update your database statistics is to schedule the following SQL statement in AE (line 1):

```
exec dbms_stats.gather_schema_stats
('PCO',options=>'GATHER AUTO', estimate_percent =>
DBMS_STATS.AUTO_SAMPLE_SIZE, method_opt =>
'FOR ALL COLUMNS SIZE AUTO', cascade => TRUE);
```

    Alternatively, you can use the following statement. In some cases it may generate more useful statistical results.

```
exec dbms_stats.gather_schema_stats
('PCO',options=>'GATHER AUTO', estimate_percent =>
DBMS_STATS.AUTO_SAMPLE_SIZE, method_opt =>
'FOR ALL INDEXED COLUMNS SIZE AUTO', cascade => TRUE);
```

    To verify whether and when the statistics have last been updated, you can use the SQL view "USER_TABLES", as you see in the following example:

```
sqlplus>select TABLE_NAME, NUM_ROWS, LAST_ANALYZED from
USER_TABLES;
```

6. Tune the database parameters.

    Buffer Cache Hit Rate

    The buffer cache hit rate should be higher than 99%. The following example script retrieves the current value.

```
-- DB_BLOCK_BUFFERS: 'buffer cache hit rate %' should
be > 99%
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line('>>>>>> DB_BLOCK_BUFFERS:
"buffer cache hit rate %" should be > 99%');
execute dbms_output.put_line(chr(9));
declare dbg number;
cg number;
pr number;
begin
select value into dbg
from v$sysstat
where name = 'db block gets';
select value into cg from v$sysstat
where name = 'consistent gets';
select value into pr from v$sysstat
where name = 'physical reads';
dbms_output.put_line('db block gets
|'||to_char(dbg,'999G999G999G999'));
dbms_output.put_line('consistent gets
|'||to_char(cg,'999G999G999G999'));
```

```
dbms_output.put_line('physical reads
|'||to_char(pr,'999G999G999G999'));
dbms_output.put_line('-------------------------------
-------
');
dbms_output.put_line('buffer cache hit rate in % |'||
to_char (round(100*(1-(pr/(dbg+cg))),2),'999D00'));
end;
/
```

Retrieving the buffer cache hit rate

Memory Hit Rate

The memory hit rate of the sort area should be higher than 99%. The following example script
retrieves the current value.

```
-- SORT_AREA_SIZE: memory hit rate % should be > 99%
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line('>>>>>> SORT_AREA_SIZE:
"memory hit rate %" should be > 99%');
execute dbms_output.put_line(chr(9));
declare sm number;
sd number;
begin
select value into sm
from v$sysstat
where name = 'sorts (memory)';
select value into sd from v$sysstat
where name = 'sorts (disk)';
dbms_output.put_line('sorts (memory)
|'||to_char(sm,'999G999G999'));
dbms_output.put_line('sorts (disk)
|'||to_char(sd,'999G999G999'));

dbms_output.put_line('------------------------------
');

dbms_output.put_line('memory hit Rate % |'|| to_char
(round(100-(100*sd/sm),2),'999D00')); end;
/
```

Retrieving the memory hit rate

Size of the Shared Pool

The percentage of non-successful library cache accesses within the shared pool as
compared to the total number of all accesses should be much lower than 1%. The following
example script retrieves the current value.

```
-- SHARED_POOL_SIZE: 'Misses %' should be << 1%
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line(chr(9));
execute dbms_output.put_line('>>>>>> SHARED_POOL_SIZE:
"Misses
%" should be << 1%');
column 'misses %' format a10
select sum(pins) "Executions",
```

```
sum(reloads) "Cache Misses while Executing",
to_char(sum(reloads)/(sum(pins)+sum(reloads))
*100,'990D0000') "Misses %"
from v$librarycache;
```

Retrieving the library cache misses

> **Note**: Alternatively, you can use the **Memory Advisor** to retrieve the library cache misses. Make sure to use the PGA_AGREGATE_TARGET parameter.

Define the Database Parameters for a PCO/PDA Client

For an Oracle database for the PCO Modelling Studio or Predictive Analytics, you must also do the following.

1. Verify the character set used.

    This should be one of the NLS character sets that support the fulltext indexing. See the table in the related step in "Install the Database: Steps for PCO/PDA."

    After the installation process, you can use the SQL statement to verify which setting is being used:

    select * from sys.nls_database_parameters;

    Sample output:

PARAMETER	VALUE
NLS_LANGUAGE	**AMERICAN**
NLS_TERRITORY	**AMERICA**
NLS_CURRENCY	$
NLS_ISO_CURRENCY	AMERICA
NLS_NUMERIC_CHARACTERS	.,
NLS_CHARACTERSET	**WE8ISO8859P1**
...	

2. Update the **SQLNET.ORA** file with the following parameter values:

    - TCP.NODELAY = YES

    Setting this parameter improves system performance because it ensures that the system does not wait for an acknowledgment of a packet before sending the next.

3. If you connect the Admin database to the source system database over a TNS service, then you need to do the following in the client databases:

    a. In **SQLNET.ORA** check whether the entry **NAMES.DIRECTORY_PATH** exists and make sure it contains the value **TNSNAMES**. A valid line would look something like this:

        NAMES.DIRECTORY_PATH= (TNSNAMES, EZCONNECT)

    b. Update the **TNSNAMES.ORA** file with the following parameter value:

○ ENABLE=BROKEN

This parameter must be the first part of the **TNSNAME** entry, as you see in the following example:

```
PCOP =
  (DESCRIPTION =
    (ENABLE=BROKEN)
    (ADDRESS = (PROTOCOL = TCP)(HOST = dbhost)(PORT =
1521))
    (CONNECT_DATA =
       (SERVER = DEDICATED)
       (SERVICE_NAME = PCOP))
  )
```

Example of tnsnames.ora

c. In Windows, create an environment variable named **TNS_ADMIN** that points to the directory of the file **TNSNAMES.ORA**.

To add an environment variable, open the **Control Panel** and search for "environment variable." Then add a new variable in the Environment Variables dialog box.

3.3.5 Optimize an Applications Manager Source Database

If you use PDA for analyzing and monitoring the *Applications Manager*, you should create an additional index in your Oracle databases with the following SQL statement:

```
CREATE INDEX "SO_JOB_HISTORY_START_DATE" ON "SO_JOB_HISTORY"
(
"SO_START_DATE"
);
```

3.3.6 Create Databases in Oracle

When using Oracle as your database management system, you need define the databases for PCO before you begin the installation process. Specifically, you need to create the following:

- One database for the Admin database
- One database for each EventBase that you want to implement

Two possible scenarios

There are two main scenarios for installing PCO/PDA with Oracle. The difference between the two scenarios is whether you define the database for the EventBases in the same or a separate database as the Admin database. The choice depends on the purpose of the installation.

- **Oracle Scenario 1—One PCO Database**:

  In this scenario you configure the EventBase to be stored in the same database as the Admin database.

○ Use this approach only for test and demonstration environments.
○ **Attention!** You cannot create more than one EventBase with this approach.

- **Oracle Scenario 2—Multiple PCO Databases**:

In this scenario you install one or more EventBases on separate databases as the Admin database.
  ○ This is the most common installation scenario.
  ○ Use this approach in a production environment, especially if your source data is coming from at least one medium- to large-sized OM/AE or AM system
  ○ This scenario allows you to integrate multiple source systems (OM/AE and/or AM systems, which are called "U4 systems" on the Configuration Manager screens).

Considerations for the Admin database

For performance reasons, in a production environment, you should have a separate schema defined just for the Admin database.

Considerations for the EventBase databases

Typically, you define one EventBase for each source system database. You could also define more than one EventBase for a single source system database. In this case, all EventBases are loaded with the relevant data from the source database. What you should NOT do is to have more than one source database write to the same EventBase, because then the data will be mixed and provide irrelevant results.

If you have multiple source systems, give each database that will be used for an EventBase a unique name across your PCO environment. This will prevent unwanted data mix-ups.

3.3.7 Create Oracle Users

Before you begin the full PCO/PDA installation, you need to define several Oracle user schemas to

You need several Oracle user schemas to access the various databases that are required to work with PCO and PDA. Specifically, you need all the following:

- A user to access the source data in your source system (OM/AE or AM database).
- A user for the Admin database.
- A user for each EventBase database.

  If you plan to set up additional EventBases that connect to an additional source systems (OM/AE or AM databases), you need additional users for each combination of EventBase and source system.

SQL Scripts for creating users

SQL scripts for creating the necessary Oracle users are included in the PCO/PDA package, which you extracted in the steps "Download the PCO Package." To find the scripts:

1. Go to the folder where you extracted the *Policy Orchestrator* files.

2. Open the folder **Tools\Oracle**.

Instructions for creating each user using the related scripts are described below.

Prerequisite privilege

To run the scripts, you must have a user with the SYSDBA privilege on the various Oracle systems.

Create a user for accessing an OM/AE database

Use these steps when your the system with the source data is in an OM or AE database and the database is an Oracle database. If your source data is an Oracle database for *Applications Manager*, see the steps "Create a User for Accessing an AM database."

1. Go to the folder where you extracted the *Policy Orchestrator* files.

2. Open the folder **Tools\Oracle**.

3. Run the script `CreateUserAndSynonyms.sql` with the following parameters:

    - **User**: The name of the new user.
    - **Password**: The password of the user.
    - **UC4-schema**: The schema of the database on which the AE system is running.
    - **DB host**: Name of the physical database host

    This will create a user with read-only access to the OM/AE database.

    > *Example*:To create a user called **AEREADER** with the password **mypassword** that can read data from the schema **AE_SCHEMA** on the host **PCOINSTANCE** , you would run sqlplus with this statement:
    >
    > ```
    > sqlplus sys@PCOINSTANCE as sysdba
    > CreateUserAndSynonyms.sql AEREADER mypassword AE_SCHEMA
    > ```

4. In Oracle, assign the user the **CONNECT** role.

Create a User for Accessing an AM database

Use these steps when your the system with the source data is in an *Applications Manager* database and the database is an Oracle database. If your source data is an Oracle database for *Automation Engine*, see the steps "Create a user for accessing an OM/AE database."

1. Go to the folder where you extracted the *Policy Orchestrator* files.

2. Open the folder **Tools\Oracle**.

3. Run the script `CreateUserAndSynonymsForAM.sql` with the following parameters:

    - **User**: The name of the new user.
    - **Password**: The password of the user.
    - **UC4-schema**: The schema of the database on which the AM system is running.
    - **DB host**: Name of the physical database host

    This will create a user with read-only access to the *Applications Manager* database.

    Example:To create a user called **AMREADER** with the password **mypassword** that can read data from the schema **AM_SCHEMA** on the host **PCOINSTANCE** , you would run sqlplus with this statement:

    ```
    sqlplus sys@PCOINSTANCE as sysdba CreateUserAndSynonymsForAM.sql
    AMREADER mypassword AM_SCHEMA
    ```

4. In Oracle, assign the user the **CONNECT** role.

Create a User/Schema for the Admin Database

To create the user to access the Admin database, use the following steps.

1. Go to the folder where you extracted the *Policy Orchestrator* files.

2. Open the folder **Tools\Oracle**.

3. Run the script `CreateOracleUser.sql` with the following parameters:

   - **User**: The name of the new user that will have read and write access to the database.
   - **Password**: The password of the user.
   - **DB host**: Name of the physical database host

   This will create a user with read and write access for the Admin database.

   Example:To create a user called **PCOADMIN** with the password **mypassword** on the host **PCOINSTANCE** , you would run sqlplus to connect the user to the database instance for PCO/PDA with the following statement:

   ```
   sqlplus sys@PCOINSTANCE as sysdba CreateOracle.sql PCOADMIN
   mypassword
   ```

   > **Note**: You use the same script if you want to create a user for the EventBase database, who might need an additional role and privilege if you want to enable full text search. If you want to create the schema with different settings (for example a different tablespace), you can modify the script as you need.

4. In Oracle, assign the user the rights:

   Roles:

   - CONNECT
   - RESOURCE
   - CTXAPP

   Privileges

   - **CREATE** PROCEDURE; **ALTER** PROCEDURE; **DROP** PROCEDURE
   - **CREATE** SEQUENCE; **ALTER** SEQUENCE
   - **CREATE** TABLE; **ALTER** TABLE; **DELETE** TABLE; **DROP** TABLE
   - **CREATE** VIEW; **DROP** VIEW
   - **CREATE** SESSION
   - **UNLIMITED TABLESPACE**

   Object privilege

Object Privilege	Schema	Object
EXECUTE	CTXSYS	CTX_CLS

Create Users/Schemas for an EventBase Database

You need one EventBase for each source system database (OM/AE and/or AM database).

When you install PCO/PDA, you define one EventBase for each source system database (OM/AE and/or AM database). You need an Oracle user to access the EventBase databases. You can use the same user for more than one EventBase or have individual users for each EventBase.

Nevertheless, if you have multiple EventBases, then you have to run the script once for each EventBase.

ⓘ **Note for a standalone installation**: If your are installing the Admin database and the EventBase(s) on the same Oracle database, then you need only one user. So, after running the script for the Admin database in "Create a User/Schema for the Admin Database," you can skip the steps below.

Use the following steps to create the access user for each EventBase.

1. Go to the folder where you extracted the *Policy Orchestrator* files.

2. Open the folder **Tools\Oracle**.

3. Run the script `CreateOracleUser.sql` with the following parameters:

   - **User**: The name of the new user that will have read and write access to the database.
   - **Password**: The password of the user.
   - **DB host**: Name of the physical database host

   This will create a user with read and write access to the related EventBase database.

   Example:To create a user called **PCOEVENTBASE** with the password **mypassword** on the host **PCOINSTANCE** , you would run sqlplus to connect the user to the database instance for PCO/PDA with the following statement:

   ```
   sqlplus sys@PCOINSTANCE as sysdba CreateOracle.sql PCOEVENTBASE
   mypassword
   ```

   ⓘ **Note**: If you want to create the schema with different settings (for example a different tablespace), you can modify the script as you need.

4. In Oracle, assign the user the rights:

   Roles:

   - CONNECT
   - RESOURCE
   - CTXAPP (needed for fulltext indexing in PDA)

   Privileges

   - **CREATE** PROCEDURE; **ALTER** PROCEDURE; **DROP** PROCEDURE
   - **CREATE** SEQUENCE; **ALTER** SEQUENCE
   - **CREATE** TABLE; **ALTER** TABLE; **DELETE** TABLE; **DROP** TABLE
   - **CREATE** VIEW; **DROP** VIEW
   - **CREATE** SESSION
   - **UNLIMITED TABLESPACE**

   Object privilege (needed for fulltext indexing in PDA)

Object Privilege	Schema	Object
EXECUTE	CTXSYS	CTX_CLS

Next steps: You are now ready to install the full PCO and PDA package. Start with Step 1 - Starting the Installation.

3.3.8 Installation with Oracle: Overview

The tables that follow provide an overview of the installation steps for the two main scenarios for installing PCO/PDA with Oracle. The detailed steps are covered in the instructions in the linked sections which are mostly under "Full Installation of Policy Orchestrator & Predictive Analytics".

ⓘ **Terminology Note**: In the tables in this section, as well as throughout this installation guide, the "source system" is the OM/AE or AM system that provides the source data that will be loaded into the Admin and EventBases for analysis. During the installation process, you define source system in the "UC4 System" section of the Configuration Manager.

Oracle Scenario 1: One PCO Database

In this scenario you configure the EventBase to be stored in the same database as the Admin database.

- ○ Use this approach only for test and demonstration environments.
- ○ **Attention!** You cannot create more than one EventBase with this approach.

✓	Steps and Links to Details	Notes
1.	Preparing Oracle Databases	
2.	Step 1 - Starting the Installation. Start the Configuration Manager and select all options to start a full installation.	
3.	Step 2 - Configuring the Settings Connect the Admin database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create a User/Schema for the Admin Database.
4.	Step 3: Configuring the Source Connection (UC4 System)	Here you use the user that you created in the preparation step Create a user for accessing an OM/AE database or Create a User for Accessing an AM database, depending on your source system.
5.	Step 3: Configuring an EventBase for an Oracle Database **Important**: You must enter the *exact same* values as you did for the Admin database! This way you create the EventBase in the same database.	Here you use the same user as the one your created for the Admin database.
6.	Step 3: Define the rest of the settings for the EventBase with the steps in Defining the Data Extraction Settings and Defining the General Settings.	
7.	Step 4 - Applying the Configuration	The PCO/PDA installation is finished and the databases are all configured as needed. You have the Admin database one EventBase database on the same Oracle server.

✓	Steps and Links to Details	Notes
8.	Log into PDA with the steps in Step 5 - Initial Login.	
9.	In PDA import the templates from the folder in your full PCO/PDA installation that corresponds to your source system type: • \Templates\OM • \Templates\AM	For instructions, see the section "The Import Wizard" in the *Predictive Analytics User Manual*.

Oracle Scenario 2: Multiple PCO Databases

In this scenario you install one or more EventBases on separate databases as the Admin database.

- This is the most common installation scenario.
- Use this approach in a production environment, especially if your source data is coming from at least one medium- to large-sized OM/AE or AM system
- This scenario allows you to integrate multiple source systems(OM/AE and/or AM systems, which are called "U4 systems" on the Configuration Manager screens).

✓	Steps and Links to Details	Notes
1.	Preparing Oracle Databases	
2.	Step 1 - Starting the Installation. Start the Configuration Manager and select all options to start a full installation.	
3.	Step 2 - Configuring the Settings Connect the Admin database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create a User/Schema for the Admin Database.
4.	Step 3: Configuring the Source Connection (UC4 System)	Here you use the user that you created in the preparation step Create a user for accessing an OM/AE database or Create a User for Accessing an AM database, depending on your source system.
5.	Step 3: Configuring an EventBase for an Oracle Database Connect the EventBase database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create Users/Schemas for an EventBase Database.
6.	If you have more than one source system, repeat steps 4 and 5 in this table to create a separate EventBase for each system. Again, you connect the EventBase databases that you created during the Oracle preparation	Here you use the users that you created in the preparation step Create Users/Schemas for an EventBase Database for each EventBase. The users can have the same name, but the EventBases must have different names, so you had to run the script once for each EventBase.

✓	**Steps and Links to Details**	**Notes**
7.	If you want to create more than one EventBase for the same source system, repeat step 5 in this table to create the extra EventBases. Again, you connect the EventBase databases that you created during the Oracle preparation, and they must all have different names.	Here you use the users that you created in the preparation step Create Users/Schemas for an EventBase Database for each EventBase. The users can have the same name, but the EventBases must have different names, so you had to run the script once for each EventBase.
8.	Step 3: Define the rest of the settings for the EventBase with the steps in Defining the Data Extraction Settings and Defining the General Settings.	
9.	Step 4 - Applying the Configuration	The PCO/PDA installation is finished and the databases are all configured as needed. You have the Admin database one EventBase database on the same Oracle server.
10.	Log into PDA with the steps in Step 5 - Initial Login.	
11.	In PDA, into only one EventBase, import the templates from the folder in your full PCO/PDA installation that corresponds to your source system type: • \Templates\OM • \Templates\AM	For instructions, see the section "The Import Wizard" in the *Predictive Analytics User Manual*.
12.	If you have additional EventBases, then in PDA, map the imported templates from the first EventBase to the other EventBases.	For instructions, see the section "The Template Mapping Dialog" in the*Predictive Analytics User Manual*.

4 Full Installation of Policy Orchestrator & Predictive Analytics

After doing all the preparation steps described in Installation Preparation, you are ready to install the full PCO and PDA package, which includes the PCO-server components as well as the *PCO Modelling Studio* and PDA.

The instructions for the full installation are described in the following sections.

- Step 1 - Starting the Installation
- Step 2 - Configuring the Settings
- Step 3 - Connecting the Data Sources and Configuring the EventBases
- Step 4 - Applying the Configuration
- Step 5 - Initial Login

To upgrade an existing installation, see the instructions in "Upgrading an Existing Installation".

4.1 Download the PCO Package

1. Download the latest full package for *Policy Orchestrator* (PCO), which also contains *Predictive Analytics* (PDA).

    a. Go to the the Automic Download Center (http://downloads.automic.com/).

    b. Select **Policy Orchestrator**, **10**, and **Full** in the first three fields, leave the rest blank and click **Go**.

    c. Roll down to the bottom of the list of Patch Descriptions and click on the **Downloads** section, and then download the latest version of the file
    `UC4.Policy.Orchestrator_Full_<version number>`.zip.

2. Extract the zipped files to the place that you want to install Policy Orchestrator, for example to `C:\Program Files`.

Next steps:

If you are installing the full package for the first time, the next step depends on the type of database management system you are using:

- For Oracle continue with creating users, as described in "Create Oracle Users."
- For MS SQL continue with "Step 1 - Starting the Installation."

4.2 Step 1 - Starting the Installation

Before you begin here you need to have done all the steps in the following sections:

- Installation Preparation
- Download the PCO Package

Steps:

1. In the folder where the *Policy Orchestrator* files have been extracted, run the `install.bat` file.

   The Insight Configuration Manager opens.

   > **ⓘ Note:** The first time you run the install.bat, it will take a few minutes before the Configuration Manager appears.
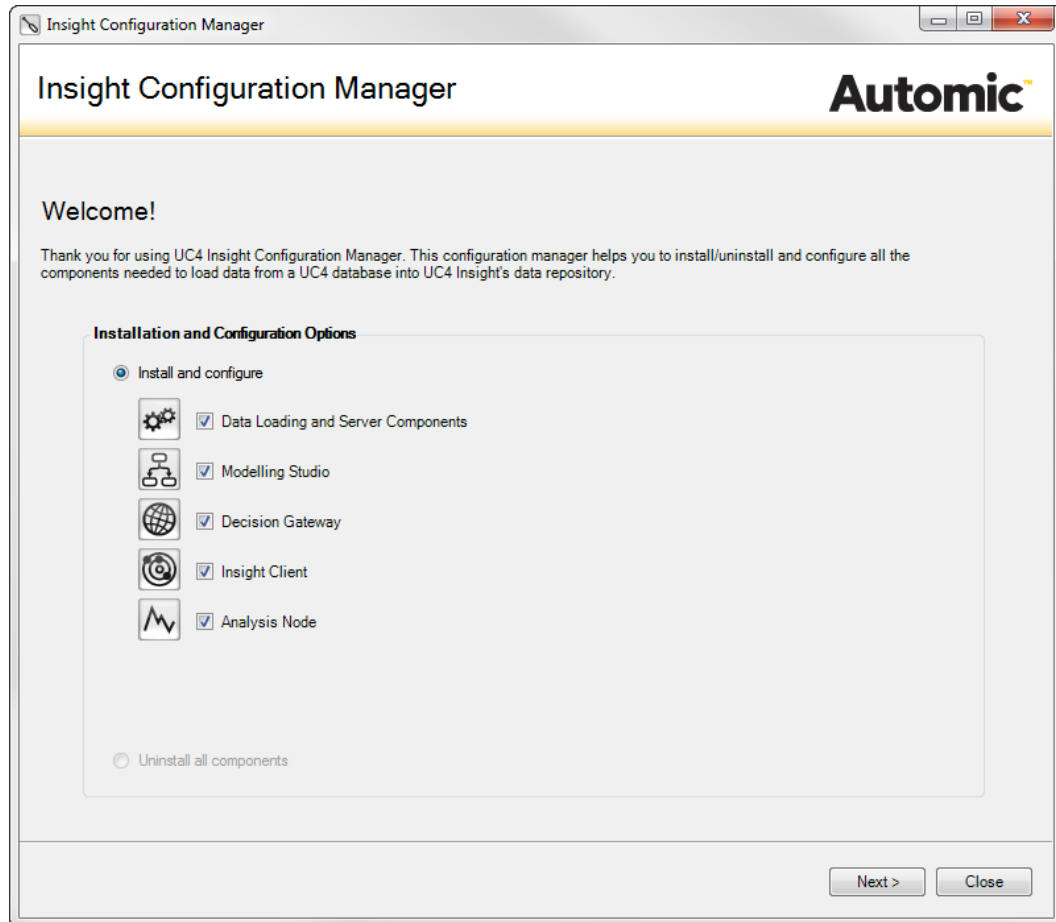
2. If you have already installed and configured Policy Orchestrator somewhere else you can continue in one of two ways:

   - Continue with the following steps here and define each of configuration settings in the Configuration Manager.

   - Click the Close button here, and then carry over the installation configurations from the other system to this one, as described in "Deploying a Configuration via the Command Prompt".

3. To fully install Policy Orchestrator and Predictive Analytics, check all five options.

4. Click the Next button and continue with "Step 2 - Configuring the Settings".

4.3 Step 2 - Configuring the Settings

This section explains what you need to know to define the options in the Settings section of the configuration process. The Settings include configuring the Admin database, the Windows services, and optionally AE Authentication. You do all configuration for Policy Orchestrator and

Predictive Analytics in the Insight Configuration Manager, which opens as soon as you start the installation, as described in "Step 1 - Downloading Files and Starting the Installation".

Instructions for defining the configuration settings are covered in the following sections:

- Defining the Admin Database Settings for an MS SQL Database Server
- Defining the Admin Database Settings for an Oracle Database Server
- Defining Services Settings
- Defining User Management Settings

4.3.1 Defining the Admin Database Settings for an MS SQL Database Server

The steps in this section describe how to define the settings for the Decision Admin database when the source database is an MS SQL database. For an Oracle database, see "Defining Admin Database Settings for an Oracle Database Server".

There are two approaches that you can use for creating databases for PCO/PDA when you are using MS SQL databases. You can already have defined a database in MS SQL and then just connect it during the installation process, or you can create and connect it during the installation process with the steps that follow. (This option is not available for Oracle databases.)

Before you begin

Make sure to have completed the setup tasks described in "Preparing MS SQL Databases." For example, when you define the Admin database, you need to specify a system user for it. This user needs to be defined in your MS SQL Server database and must have at least the following roles assigned to it:

User Role	Purpose
DBOWNER	**Always mandatory**. This user role is needed to complete the installation process.
DBCREATOR	**Only mandatory for creating databases during installation**. This role is needed when you want to be able to create the database from within the installation process.

Steps…

1. In the Settings section, click the Admin DB tab.

2. In the DB Type box under DB Connection Type, select "Microsoft SQL Server".

   The Connection Type is automatically set to "SQL Native Client," which is the only option here.

3. Define the DB Connection Settings

Setting	Description
Server Name	The host name of the server where the Admin database is installed.
DB-Name	The name of the Admin database.
Authentication	The kind of authentication that is used to access the Admin database. Options are: • SQL Server Authentication • Windows Authentication. If you select this option, the remaining fields are disabled.
User Name	The database user name with which Policy Orchestrator can log into the Admin Node database.
Password	The database user password.

As you enter the settings for the DB Connection, the Configuration Manager constructs a connection string statement in the DB Connection String box. This is greyed out because it is locked.

4. Optionally, modify the DB Connection String manually, if you want to add other configuration settings.

    1. Click the padlock icon to unlock the field.

    2. Type your modifications.

DB Connection String

Data Source=MyServerName;Initial Catalog=UC4DecisionAdmin;Integrated Security=False
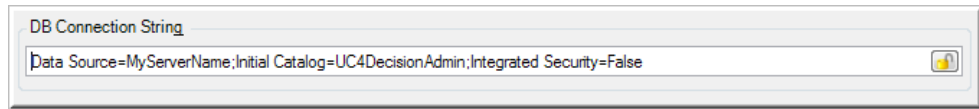
5. Click the Create DB button to automatically create the Admin database.

> **Note:** You can also manually create the database and assign the user to the database. In this case the database user needs to have only the DBOWNER role.

6. Test the connection to make sure that the Configuration Manager can find the database.

   1. Click the Test Connection button.

      A progress bar appears at the bottom of the tab page. If the test process finds errors, a window appears with a description of the errors.

   2. Correct any errors and retest the configuration until the Status at the bottom on the tab page reads "Connection has been tested successfully."
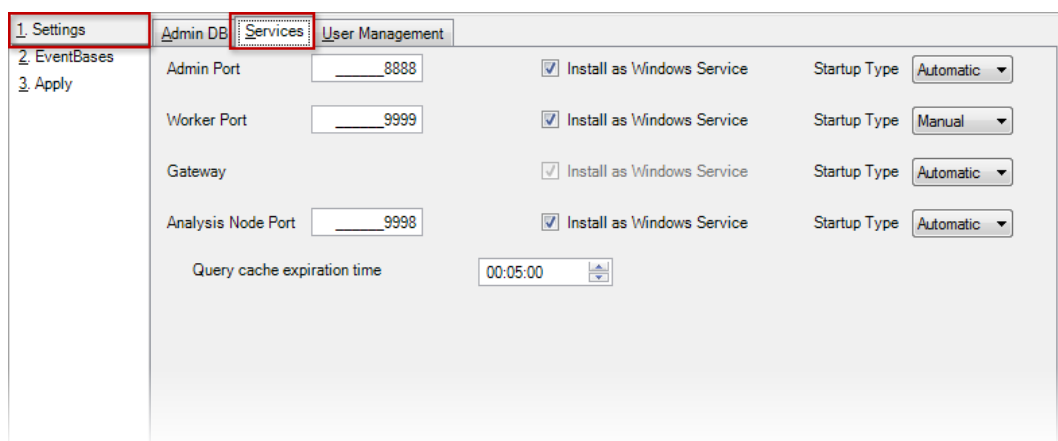
7. Continue with "Defining Services Settings".

4.3.2 Defining the Admin Database Settings for an Oracle Database Server

The steps in this section describe how to define the settings for the Decision Admin database when the source database is an Oracle database. If you plan to use an MS SQL database, follow the instructions in "Defining the Admin Database Settings for an MS SQL Database Server".

Prerequisites

Before you begin, you must have set up the Oracle database as described in Preparing Oracle Databases and defined a user as described in Create a User/Schema for the Admin Database.

Steps…

1. In the Settings section, click the Admin DB tab.

2. In the DB Type box under DB Connection Type, select "Oracle".

   The Connection Type is automatically set to "Oracle Native Client," which is the only option here.

3. Define the DB Connection Settings
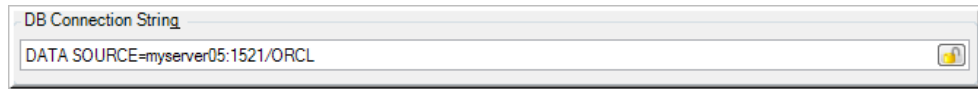
Setting	Description
Connection Method	Choose between "Basic" and "TNS". If you choose TNS, the Network Alias box is enabled instead of the Host and Service boxes.
Host	The hostname where the Admin Node database is located. (Available only when the **Connection Method** is "Basic".)
Service	The Oracle service that the Admin Node database runs on. (Available only when the **Connection Method** is "Basic".)
Network Alias	A TNS alias. (Available only when the Connection Method is "TNS".)
User Name	The database user name with which Policy Orchestrator can log into the Admin Node database.
Password	The database user password.

As you enter the settings for the DB Connection, the Configuration Manager constructs a connection string statement in the DB Connection String box. This is locked and therefore greyed out.

⚠ If you use TNS a your DB connection method, make sure that the Windows environment variable TNS_ADMIN is defined and points to the location of your tnsnames.ora file. If you already have Oracle client installed, depending on whether the Connection Method in your DB Connection Settings is set to "Basic" and/or "TNS", you need to activate the EZCONNECT and/or TNSNAMES options, respectively. By default both of these connection methods are active.

⚠ The Oracle Listener will be configured for the default port 1521. If your Oracle database runs on a different port, you need to manually modify the DB connection string to the correct port number.

4. Optionally, modify the DB Connection String manually, if you want to add other configuration settings.

   a. Click the padlock icon to unlock the field.

   b. Type your modifications.

5. Test the connection to make sure that the Configuration Manager can find the database.

   a. Click the Test Connection button.

      A progress bar appears at the bottom of the tab page. If the test process finds errors, a window appears with a description of the errors.

   b. Correct any errors and retest the configuration until the Status at the bottom on the tab page reads "Connection has been tested successfully."

6. Continue with "Defining Services Settings".

4.3.3 Defining Services Settings

On the Services tab of the Settings section, you can define which PCO services should run as a Windows Service (the default option) and the start-up type for the service.

This is where you define the Port to access the Admin database, the Worker, the Gateway, as well as the Analysis Node.

Steps...

1. In the Settings section, click the Services tab.

2. For each Policy Orchestrator service, provide the following specifications:

Field or Selection Option	Description
The first box to the right of the service name	The port number to access the service
Install as Windows Service check box	Check this if you want the Policy Orchestrator service to run as a Windows service. This is the default.
Startup Type	Select what type of startup you want for the service: Automatic or Manual.

Important

If all of the following is true:

- You use an MS SQL database.

- You want to use Windows Authentication to sign onto the Admin database. You configure this in the Admin Settings, as described in "Defining the Admin Database Settings for an MS SQL Database Server".

- Your MS SQL database is located on a different server from the UC4DecisionAdmin service (which is usually the case in an production environment).

Then the UC4DecisionAdmin service must not run over a local account. This means that you must modify the properties for the UC4DecisionAdmin Windows service, so that it logs on to a different account (not the "Local System account"). The account must be in the same Windows domain as the SQL server.

3. Optionally, change the **Query cache expiration time** of the Analysis Node. The default is 5 minutes.

    The *query cache* is where the results of eventBase queries from PDA dashboards are stored.

4. Continue with "Defining User Management Settings".

4.3.4 Defining User Management Settings

Defining User Management settings is optional. By defining these, you enable AE Authentication. You need this when you want users that log into Policy Orchestrator to be authenticated by the Automation Engine. Furthermore, you need to enable AE Authentication if you want to use the user management functions in the Enterprise Control Center (ECC) Administration to manage users of the Policy Orchestrator or the Service Orchestrator plug-ins of the ECC. This would supplement rather than replace the user management functions in Policy Orchestrator and Predictive Analytics. For more information about this, see "Login and User Management".

To configure Policy Orchestrator for AE Authentication, you need to establish the connection between the Automation Engine and Policy Orchestrator and to define a Automation Engine user that you will use to login to Policy Orchestrator the first time to maintain users. The configuration process will give this user the "super administrator" role in Policy Orchestrator. To do these, use the following steps:

1. In the Settings section, click the User Management tab.

2. Select the Enable AE Authentication check box.

You must select this if you are using any of the ECC components that interface with PCO. These include the PCO plug-in and PDA plug-in for ECC, and the *Service Orchestrator* (SVO). SVO only when you work with EventBase SLAs or the advanced analytics reports.

3. Configure the AE system where you want to maintain users with AE Authentication.

    a. Type the System Name for the AE System that you are going to define for Integrated Authentication.

    b. In the table define the Communication Processes for the Automation Engine. Do this by providing the following information for each communication process:

        - Under Host/IP, the hostname or IP address

        - The Port number

4. Define the Default User by providing the Client number, where the user is defined, and then the user Name, Department, Full Name and Email address for the user.

    This user must already be defined in the Automation Engine. This configuration process will create the same user in Policy Orchestrator with the "Super Administrator" role.

5. Test the configuration.

    a. Under Test Configuration, type the Password for the Default User that you defined in the previous step.

        Note: The password is case sensitive.

    b. Click the Test Configuration button.

A progress bar appears at the bottom of the tab page. If the test process finds errors, a window appears with a description of the errors.

c. Correct any errors and retest the configuration until the Status at the bottom on the tab page reads "Configuration is valid."

6. Continue with "Step 3 - Connecting the Data Sources and Configuring the EventBases".

Later, when you apply the configuration settings in "Step 4 - Applying the Configuration", the configuration process will do the following, based on the settings you defined on the User Management tab page.

- Configure the connection between the Automated Engine and Policy Orchestrator. This involves copying the correct version of a DLL file to the right location in your installation. This is described in "Manually configuring the communication with the Automation Engine".

- Activate AE Authentication in Policy Orchestrator.

- Create the default System User, which is already defined in the Automation Engine, in Policy Orchestrator. This user has the "super administrator" role.

ⓘ **Note:** If you did not use the Configuration Manager to set up AE Authentication, you can do it manually by doing the previous steps yourself. Do items 2 and 3, you would do in the Decision Modelling Studio.

4.4 Step 3 - Connecting the Data Sources and Configuring the EventBases

In the "EventBases" section of the Configuration Manager you configure the connection to the source database, then you define the EventBases to which PCO writes the relevant source data, and then you define the data extraction settings and the general settings for how the data is loaded and managed.

Instructions for defining these tasks are covered in the following sections:

- Configuring the Source Connection (UC4 System)
- Configuring an EventBase for an MS SQL Database
- Configuring an EventBase for an Oracle Database
- Defining the Data Extraction Settings
- Defining the General Settings

4.4.1 Configuring the Source Connection (UC4 System)

The following steps describe how to configure connections to the databases of one or more source systems. A source system database is the database that PCO will check for relevant events that it sends to the EventBases, where the data is ready for analysis.

Both in the Configuration Manager and in the installed PCO/PDA products and documentation, the source system and its database are referred to as the "UC4 System". The UC4 System database can be either an OM/AE database or an *Applications Manager* (AM) database.

Relationship of source system database and Eventbase databases

Typically, you define one EventBase for each source system database. You could also define more than one EventBase for a single source system database. In this case, all EventBases are loaded with the relevant data from the source database. What you should NOT do is to have more than one source database write to the same EventBase, because then the data will be mixed and provide irrelevant results.

Prerequisite considerations

Your source database could use one of three database management systems: MS SQL, Oracle, or IBM DB2. Depending on the technology that you want to use to establish the connection from PCO to the source database, and the type of database management system, you might have additional requirements to fulfill before you can establish the connection. The following table covers these situations.

Consideration/Situation	Additional Requirement
To establish a connection to the source system via OLE DB	An appropriate OLE DB Provider is required for the database (Oracle Provider for OLE DB, IBM OLE DB Provider for DB2 Servers, Microsoft OLE DB Provider for SQL Server).
To use ODBC for the connection to the source system,	An appropriate ODBC Driver for the relevant database is required (Oracle ODBC Driver, IBM OLE DB Provider for DB2 Servers, Microsoft OLE DB Provider for SQL Server).
The source system uses an IBM DB2 database management system and the connection is established via an IBM DB2 Native Client	The IBM DB2 .Net Framework Data Provider must be installed.

Steps:

You configure the connections to source databases in the section "UC4 System".

1. In the "EventBases" section, click the "UC4 System" tab.

2. Click the **Add** button to attach a new UC4 System (OM/AE or AM database).

   A dialog appears for entering a name for the EventBase that the source system data will be sent to. Enter a **Name** for the EventBase system and select the source system application **Type**.
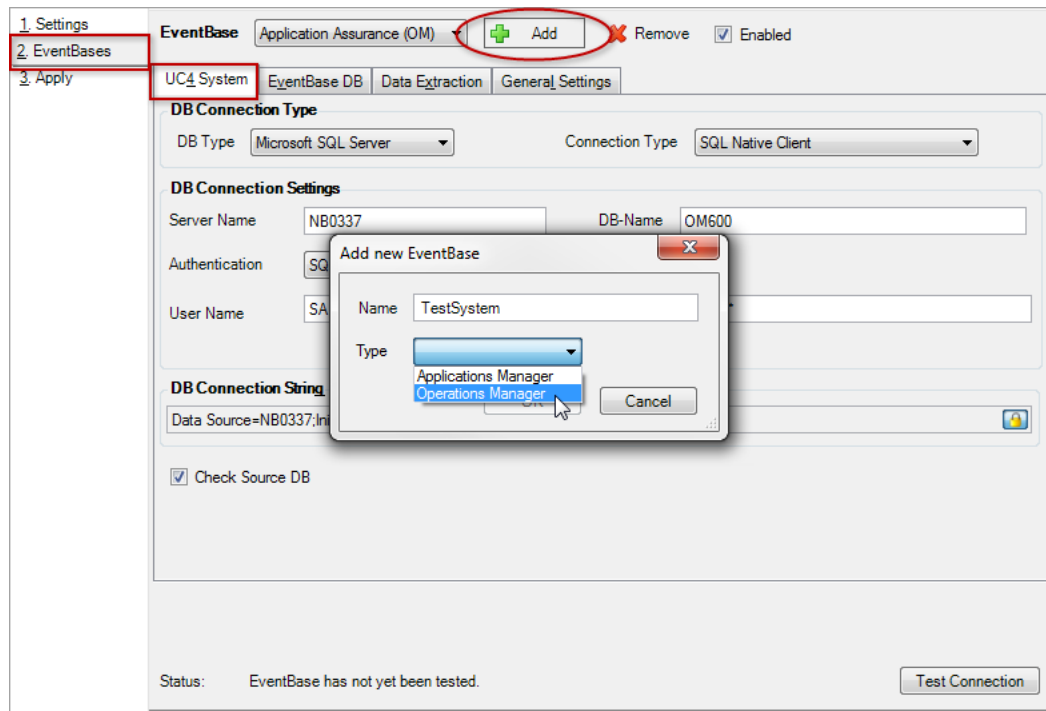
Configuration: Connection to the Source Database

3. Select the database type and connection type, for instance `Native client` or `ODBC`.

    (i) For access to the source system database, the specified data base user needs at least the following permissions:

    - MS SQL Server: DB_DATAREADER
    - Oracle: CONNECT
    - IBM DB2: CONNECT

4. Enter the connection parameters (Server Name, User, Password, etc.).

    For IMB DB2: If the port for your database server is not default port 50000, specify the port number in the field 'Host Name' by entering a colon after the host name and then the port number (host name:port number).

    (i) **For Oracle RAC installations**: Automic does not recommend installing PCO on a RAC cluster, but if you do (at your own risk), then enter the SCAN name (Single Client Access Name) instead of a host name in the **Host** field.

Configuration of the Source Database Connection

5. To test the connection settings now, click the **Test Connection** button.

4.4.2 Configuring an EventBase for an MS SQL Database

The data is extracted from the source database (OM/AE or AM, which is defined on the "UC4 System" tab) and loaded into an EventBase database for analysis. By doing this, the analytical queries do not create additional load on the operative systems. The EventBase database can be an Microsoft SQL Server or Oracle database. The steps in this section describe how to create and connect an MS SQL EventBase. For an Oracle database, see Configuring an EventBase for an Oracle Database.

There are two approaches that you can use for creating databases for PCO/PDA when you are using MS SQL databases. You can already have defined a database in MS SQL and then just connect it during the installation process, or you can create and connect it during the installation process with the steps that follow. (This option is not available for Oracle databases.)

Before you begin

Make sure to have completed the setup tasks described in "Preparing MS SQL Databases." For example, when you define an EventBase database, you need to specify an MS SQL system user for the EventBase. This user needs to be defined in your MS SQL Server database. You can use the same user for more than one EventBase, but each MS SQL system user must have at least the following roles assigned to it:

User Role	Purpose
DBOWNER	**Always mandatory**. This user role is needed to complete the installation process.

User Role	Purpose
DBCREATOR	**Only mandatory for creating databases during installation**. This role is needed when you want to be able to create the database from within the installation process.

⚠ **Important for Predictive Analytics**: If you are using an SQL Server with a case sensitive (CS) default collation and also want to install PDA in this installation run, you cannot create the databases manually. The installation will fail. To avoid this, before you install PDA, *manually* create all the databases (for the Admin database and all EventBase databases). Then change the collation settings for each database to "Latin_1_General_CI_AS". This is case insensitive and will provide a trouble-free database environment for PDA.

Steps...

1. In the 'EventBases' section, select the tab 'EventBase DB'.

2. Select the database type 'Microsoft SQL Server' and then a **Connection Type**.

3. In the **DB-Name** field enter a name for the EventBase database. Typically the database name corresponds to the name of the attached source system, for example, 'TestSystem.'

   ⚠ **Warnung**: If you have multiple source systems (that is, more than one OM/AE or AM database that you define as a "UC4 System" for PCO), you have to be sure that you have separate EventBase databases for the source systems (otherwise the data will be mixed and produce irrelevant results). Therefore, use different names in the DB Name field for each EventBase throughout your PCO environment.

4. Enter the rest of the **DB Connection Settings**.

MS SQL Server - EventBase Configuration

5. To automatically create the database when the database does not already exist, click the

'**Create DB**' button.

⚠ **Important for Predictive Analytics**: See the note above in <u>Before you begin</u>.

6. To test the connection settings now, click the **Test Connection** button.

7. Optionally, deselect the checkbox "Enabled" at the top of the screen to disable the EventBase.

    By default, every EventBase is enabled. This means that after you finish the installation, users can start to work with the EventBase. If however, you want to just define the EventBase now but not allow users to see or work with the EventBase in the *Modelling Studio* or PDA, then you can disable it here. To enable it again later, you will have to restart the Configuration Manager and check Enabled, then apply the settings as described in Step 4 - Applying the Configuration.

8. Continue with "Defining the Data Extraction Settings".

4.4.3 Configuring an EventBase for an Oracle Database

The data is extracted from the source database (OM/AE or AM, which is defined on the "UC4 System" tab) and loaded into an EventBase database for analysis. By doing this, the analytical queries do not create additional load on the operative systems. The EventBase database can be an Microsoft SQL Server or Oracle database. The steps in this section describe how to create and connect an Oracle EventBase. For an MS SQL database, see Configuring an EventBase for an MS SQL Database.

Prerequisites

Before you begin, you must have set up the Oracle database as described in Preparing Oracle Databases and defined a user as described in Create Users/Schemas for an EventBase Database.

Steps...

1. In the 'EventBases' section, select the tab 'EventBase DB'.

2. If you have not already done this, above the tab page, select the EventBase that you want to configure.

3. Select the database type 'Oracle'.

4. Enter the connection parameters.

Oracle - EventBase Configuration

5. To test the connection now, click the **Test Connection** button.

6. Optionally, deselect the checkbox "Enabled" at the top of the screen to disable the EventBase.

    By default, every EventBase is enabled. This means that after you finish the installation, users can start to work with the EventBase. If however, you want to just define the EventBase now but not allow users to see or work with the EventBase in the *Modelling Studio* or PDA, then you can disable it here. To enable it again later, you will have to restart the Configuration Manager and check Enabled, then apply the settings as described in Step 4 - Applying the Configuration.

    By default, every EventBase is enabled. This means that after you finish the installation, users can start to work with the EventBase. If however, you want to just define the EventBase now but not allow users to see or work with the EventBase in the *Modelling Studio* or PDA, then you can disable it here. To enable it again later, you will have to restart the Configuration Manager and check Enabled, then apply the settings as described in Step 4 - Applying the Configuration.

7. Continue with "Defining the Data Extraction Settings".

4.4.4 Defining the Data Extraction Settings
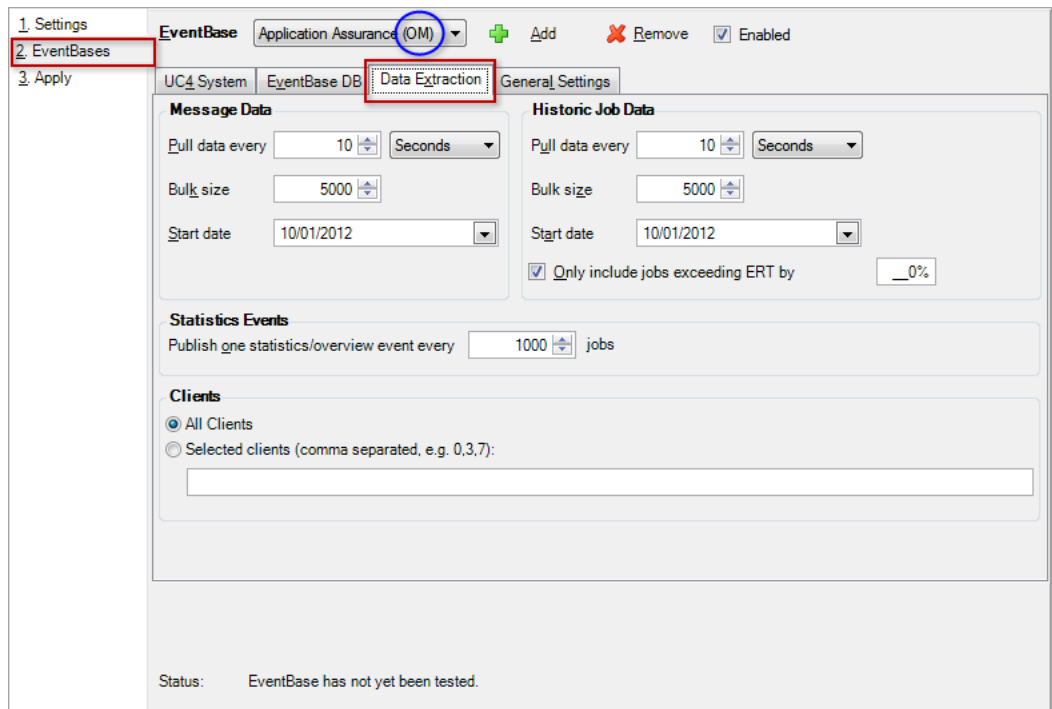
The next step is to define the data extraction parameters. The steps are a bit different, depending on the type of source database that you will extract data from:

- Operations Manager (OM)/Automation Engine (AE)
- Applications Manager (AM)

Operations Manager (OM)/Automation Engine (AE):

1. Select an time interval for periodically loading new data from the source system.

    For example, enter 10 seconds if you want to load data in near real-time, or enter several minutes if you want to run queries less often in the source system.

2. The parameter `'Bulk size'` defines the number of records to load for an interval.

3. Select the start dates for loading historical data. Choose a start date for error messages from the MELD table (Message Data) as well as for the historical job data from the AH table `(Historic Job Data)`.

4. When the option `'Filter out successful jobs not exceeding ERT by'` is selected, only jobs are stored which either did not successfully complete or which exceeded the estimated runtime (ERT) by a specified percentage. This option is recommended for large data volumes. The percentage defines how much the estimated runtime may be exceeded until the event won't be filtered out anymore (e.g. 10% means that the estimated runtime has to be exceeded by more than 10%, i.e., the runtime must be greater than 110% of the estimated runtime).

5. For capturing statistical information you may define the number of jobs for generating a statistics event.

6. You can define one or more clients which should be used for the data extraction. Please use a comma for separating the client numbers.

    (i) Note: For the analysis of agent messages in Predictive Analytics you need to always extract the data of client 0.

Loading-Process Configuration with OM Source Database being Used

7. Continue with "Defining the General Settings".

Applications Manager (AM):

1. Select an appropriate interval for periodically loading new data from the source system.

   For example, enter 10 seconds if you want to load data in near real-time, or enter several minutes if you want to run queries less often in the source system.

2. The parameter `'Bulk size'` defines the number of records to load for an interval.

3. Select the start date for loading historical data from the SO_Job_History table (`Historic Job Data`).

4. For choosing which jobs are stored in the EventBase, select the options `'Store completed jobs'`, `'Store failed jobs'`, `'Store killed jobs'`, `'Store skipped jobs'` and `'Store other jobs'`. For large data volumes we recommend the default setting.

5. For capturing statistical information you can define the number of jobs for generating a statistics event.

Loading-Process Configuration with AM Source Database being Used

6. Continue with "Defining the General Settings".

4.4.5 Defining the General Settings

In the last step, you may select a time zone into which the dates will be converted during the loading process. *Predictive Analytics* will always show this data in the specified time zone. Furthermore,you can define the fulltext update settings for this EventBase

Steps...

1. In the "EventBases" section, click the "General Settings" tab.

2. Select an EventBase Time Zone for the EventBase data.

General Settings (Automation Engine EventBase)

3. Select a Fulltext Update Method.

The Fulltext Update Method...	Means that the fulltext will updated...
Real-Time	In real-time, the latest event are immediately retrievable via the keyword search in PDA.
Interval	Periodically as defined by a given interval.
Daily	Daily at a given time of day.
Manual	Manually in the database.
Off	Never. It will not be used.

4. Continue with "Defining User Management Settings".

4.5 Step 4 - Applying the Configuration

1. Click 'Apply' for applying the configuration settings.

   The output window shows the installation log. If the installation is successful, you get the Info log entry 'Changed configuration was successfully applied'.
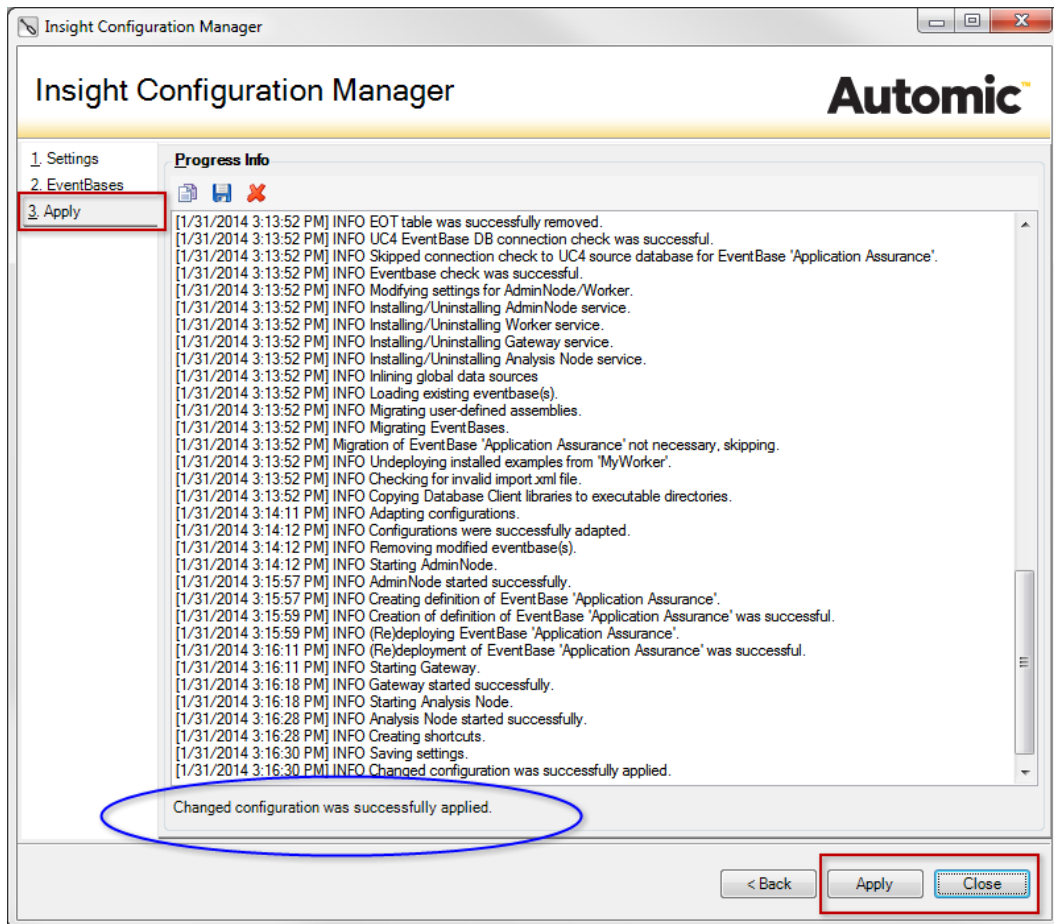
2. Click 'Close' to complete the installation. The configuration settings are stored in the configuration file 'UC4ICM.ini'. They will be reloaded when the Configuration Manager is started again for changing the configuration.

4.6 Step 5 - Initial Login

After applying the configuration settings, you can login to the *Policy Orchestrator* (PCO) *Modelling Studio*, which is the PCO frontend, or *Predictive Analytics* (PDA) .

Prerequisites

You have a license file for the product and it is downloaded on the same machine where the product is installed. The file has the extension LIC (for example, **licenseFileName.lic**). If you do not have a license file, contact your sales representative or the Automic Support Team over Automic Support Site (https://automationpassion.com/).
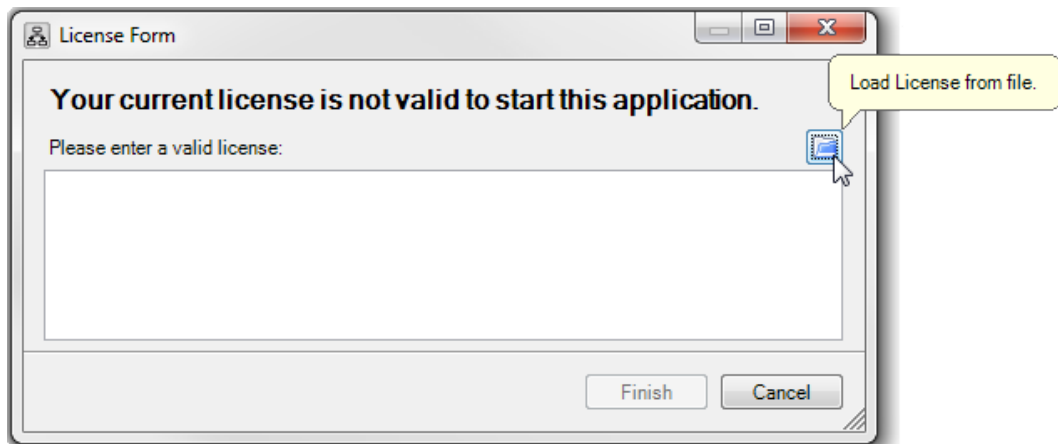
Steps...

Use these steps for your initial login either to the PCO Modelling Studio or to PDA.

1. Start the installed product.
    - To open the PCO Modelling Studio, start the file
      <

PCOInstallation>\Frontends\ModellingStudio**UC4.Decision.ModellingStudio.exe**

- To open PDA, start the file *<PCO/PDAInstallation>*\Insight**UC4.Insight.exe**

The **License Form** dialog appears, prompting you for a license.

2. Click the folder icon to browse to the license file, with the extension LIC (for example, **licenseFileName.lic**).
3. Click the **Finish** button. The Login window opens. The fields that appear depend on whether your installation is configured for UC4 Integrated Authentication, as described in the Defining User Management Settingssteps.
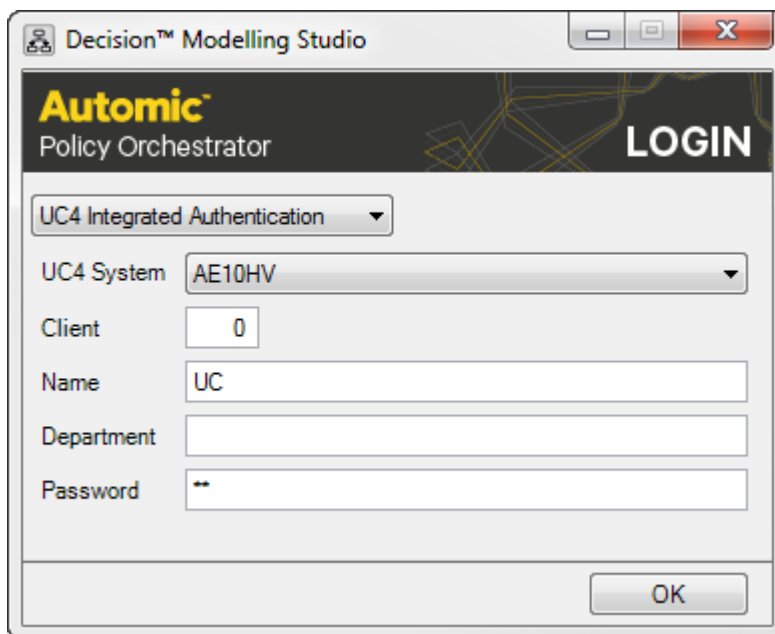
Login window with Integrated Authentication
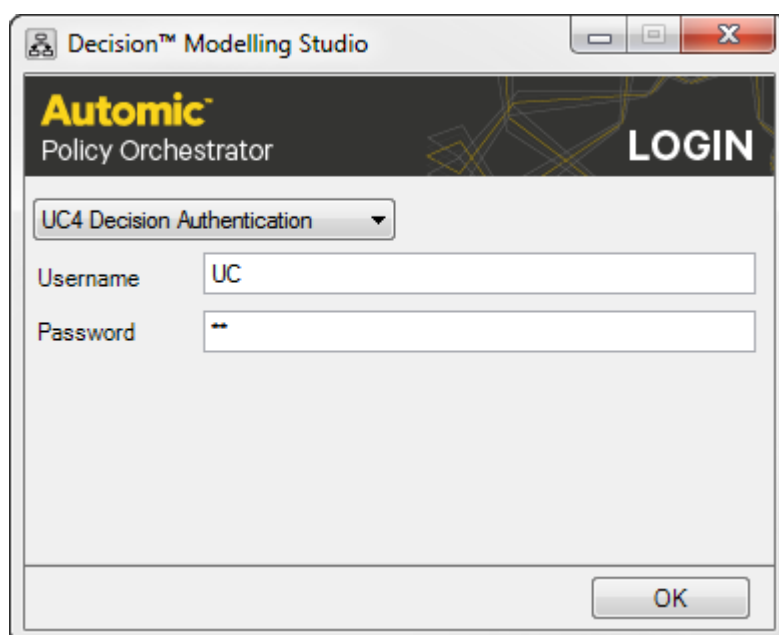
Login window without UC4 integrated authentication

4. The first time that you log in, you must log in as the predefined "Super Administrator" user with the following user specifications:

Login with UC4 Integrated Authentication		Login with Decision Authentication	
UC4 System:	*select one*	User Name:	**UC**
Client:	*enter client number or "0" for all clients*	Password:	**UC** (*uppercase!*)
User Name:	**UC**		
Department:	*blank*		
Password:	**UC** (*uppercase!*)		

⚠ You should change this password after you first log in.

Changing the UC user password for the Super Administrator

To change the password of the super administrator user, "UC", update the user definition in one of the following places, depending on the authentication method that is configured for your installation.

FOR...	THEN update the user definition in...
Decision Authentication	The User Management function of the *PCO Modelling Studio*
UC4 Integrated Authentication	In one of the following places: • In the "UC" user object (USER) in the *Automation Engine* • The "UC" user definition in the User Management function of the *Enterprise Control Center*

For more information about the different authentication options for *Policy Orchestrator* and user management approaches, see Login and User Management in this guide.

5 Installation with Oracle: Overview

The tables that follow provide an overview of the installation steps for the two main scenarios for installing PCO/PDA with Oracle. The detailed steps are covered in the instructions in the linked sections which are mostly under "Full Installation of Policy Orchestrator & Predictive Analytics".

Terminology Note: In the tables in this section, as well as throughout this installation guide, the "source system" is the OM/AE or AM system that provides the source data that will be loaded into the Admin and EventBases for analysis. During the installation process, you define source system in the "UC4 System" section of the Configuration Manager.

5.1 Oracle Scenario 1: One PCO Database

In this scenario you configure the EventBase to be stored in the same database as the Admin database.

- ○ Use this approach only for test and demonstration environments.
- ○ **Attention!** You cannot create more than one EventBase with this approach.

✓	Steps and Links to Details	Notes
	1. Preparing Oracle Databases	
	2. Step 1 - Starting the Installation. Start the Configuration Manager and select all options to start a full installation.	
	3. Step 2 - Configuring the Settings Connect the Admin database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create a User/Schema for the Admin Database.
	4. Step 3: Configuring the Source Connection (UC4 System)	Here you use the user that you created in the preparation step Create a user for accessing an OM/AE database or Create a User for Accessing an AM database, depending on your source system.
	5. Step 3: Configuring an EventBase for an Oracle Database **Important**: You must enter the *exact same* values as you did for the Admin database! This way you create the EventBase in the same database.	Here you use the same user as the one your created for the Admin database.
	6. Step 3: Define the rest of the settings for the EventBase with the steps in Defining the Data Extraction Settings and Defining the General Settings.	

✓	Steps and Links to Details	Notes
7.	Step 4 - Applying the Configuration	The PCO/PDA installation is finished and the databases are all configured as needed. You have the Admin database one EventBase database on the same Oracle server.
8.	Log into PDA with the steps in Step 5 - Initial Login.	
9.	In PDA import the templates from the folder in your full PCO/PDA installation that corresponds to your source system type: • \Templates\OM • \Templates\AM	For instructions, see the section "The Import Wizard" in the *Predictive Analytics User Manual*.

5.2 Oracle Scenario 2: Multiple PCO Databases

In this scenario you install one or more EventBases on separate databases as the Admin database.

- This is the most common installation scenario.
- Use this approach in a production environment, especially if your source data is coming from at least one medium- to large-sized OM/AE or AM system
- This scenario allows you to integrate multiple source systems(OM/AE and/or AM systems, which are called "U4 systems" on the Configuration Manager screens).

✓	Steps and Links to Details	Notes
1.	Preparing Oracle Databases	
2.	Step 1 - Starting the Installation. Start the Configuration Manager and select all options to start a full installation.	
3.	Step 2 - Configuring the Settings Connect the Admin database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create a User/Schema for the Admin Database.
4.	Step 3: Configuring the Source Connection (UC4 System)	Here you use the user that you created in the preparation step Create a user for accessing an OM/AE database or Create a User for Accessing an AM database, depending on your source system.

✓	Steps and Links to Details	Notes
5.	Step 3: Configuring an EventBase for an Oracle Database Connect the EventBase database that you created during the Oracle preparation.	Here you use the user that you created in the preparation step Create Users/Schemas for an EventBase Database.
6.	If you have more than one source system, repeat steps 4 and 5 in this table to create a separate EventBase for each system. Again, you connect the EventBase databases that you created during the Oracle preparation	Here you use the users that you created in the preparation step Create Users/Schemas for an EventBase Database for each EventBase. The users can have the same name, but the EventBases must have different names, so you had to run the script once for each EventBase.
7.	If you want to create more than one EventBase for the same source system, repeat step 5 in this table to create the extra EventBases. Again, you connect the EventBase databases that you created during the Oracle preparation, and they must all have different names.	Here you use the users that you created in the preparation step Create Users/Schemas for an EventBase Database for each EventBase. The users can have the same name, but the EventBases must have different names, so you had to run the script once for each EventBase.
8.	Step 3: Define the rest of the settings for the EventBase with the steps in Defining the Data Extraction Settings and Defining the General Settings.	
9.	Step 4 - Applying the Configuration	The PCO/PDA installation is finished and the databases are all configured as needed. You have the Admin database one EventBase database on the same Oracle server.
10.	Log into PDA with the steps in Step 5 - Initial Login.	
11.	In PDA, into only one EventBase, import the templates from the folder in your full PCO/PDA installation that corresponds to your source system type: • \Templates\OM • \Templates\AM	For instructions, see the section "The Import Wizard" in the *Predictive Analytics User Manual*.
12.	If you have additional EventBases, then in PDA, map the imported templates from the first EventBase to the other EventBases.	For instructions, see the section "The Template Mapping Dialog" in the*Predictive Analytics User Manual*.

6 Managing Configurations via the Command Prompt

The standard way to install and configure or uninstall Policy Orchestrator and its components is using the Configuration Manager, as described in the other installation-related chapters of this guide. This chapter describes an alternative approach to these tasks, in which you work from the command prompt. For a complete description and instructions see:

- "Deploying a Configuration via the Command Prompt"

- "Uninstalling a Configuration via the Command Prompt"

By building the steps described here into a batch file, you can create a headless installation process to rollout to users in your organization.

6.1 Deploying a Configuration via the Command Prompt

This section describes an alternative approach to installing and configuring a Policy Orchestrator installation. You can use it when you have already configured one installation using the Configuration Manager and you want to deploy the configuration to other installations, for example from the main server installation to the client installations. This approach makes deploying a configuration quicker and more consistent than manually entering all the configuration options at each client.

How this works

After you configure Policy Orchestrator with the Configuration Manager, the configuration process creates the file `UC4ICM.ini` where it stores the configuration options that you selected. To configure an additional Policy Orchestrator installation, you can use a utitlity that deploys the same configuration settings in the new installation.

Prerequisite

You have installed Policy Orchestrator on at least one server and fully configured it using the Configuration Manager as described in the previous sections in this chapter. This is your "source installation." The configuration steps are described in the following sections:

- Step 1 - Downloading Files and Starting the Installation

- Step 2 - Configuring the Settings

- Step 3 - Connecting the Data Sources and Configuring the EventBases
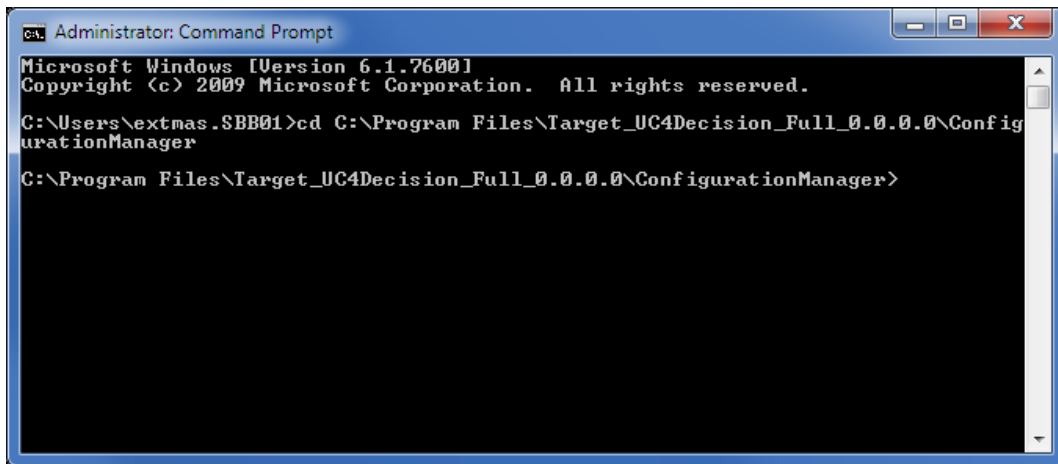
- Step 4 - Applying the Configuration

Steps:

1. Download Policy Orchestrator to the target server for the second installation.

    a. Go to the Automic Download Center (http://downloads.automic.com/) and download the file `UC4.Policy.Orchestrator_Full_<version number>.zip`.

b. Extract the zipped files to the place that you want to have your secondary installation of Policy Orchestrator, for example to `C:\Program Files`.

2. From the primary installation, which has already been configured, copy the file *<Source_ Server>... \<Source_PCO_Installation_ Folder>*`\ConfigurationManager\UC4ICM.ini` and paste it to the equivalent folder in your secondary installation:
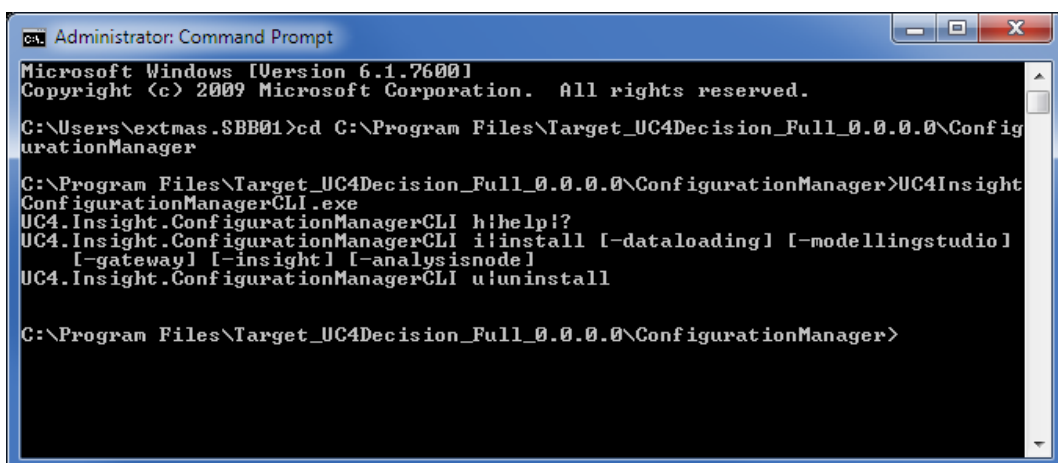
    <Target_Server>`:\... \`*<Target_PCO_Installation_ Folder>*`\ConfigurationManager\`

3. Open a command prompt window and go to the following folder in the target installation:

    `...\`*<Target_PCO_Installation_Folder>*`\ConfigurationManager`

```
Administrator: Command Prompt

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\extmas.SBB01>cd C:\Program Files\Target_UC4Decision_Full_0.0.0.0\Config
urationManager

C:\Program Files\Target_UC4Decision_Full_0.0.0.0\ConfigurationManager>
```

4. Enter **UC4InsightConfigurationManagerCLI.exe** to start the configuration utility with no parameters.

    The command returns help information with the parameters for the the command options for the parts of the Policy Orchestrator configuration that you can install.
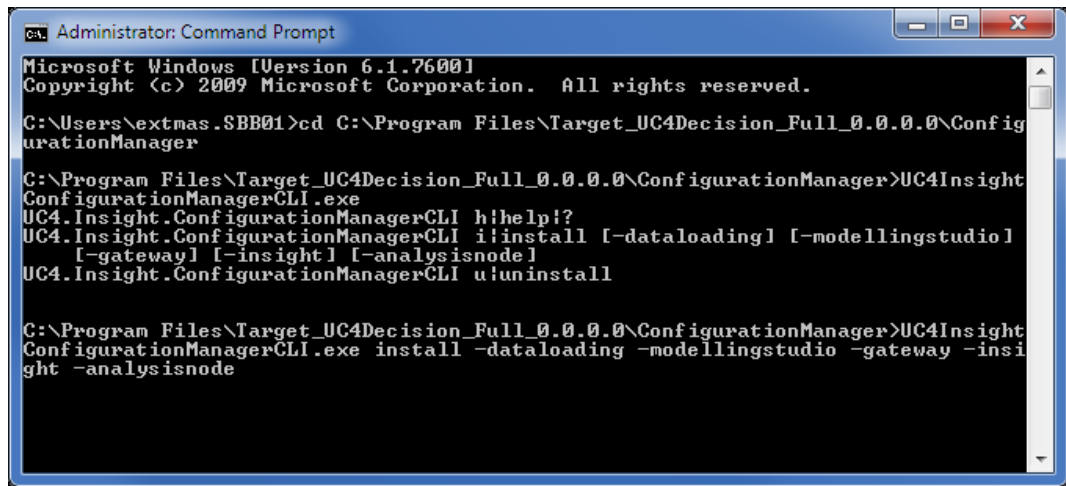
```
Administrator: Command Prompt

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\extmas.SBB01>cd C:\Program Files\Target_UC4Decision_Full_0.0.0.0\Config
urationManager

C:\Program Files\Target_UC4Decision_Full_0.0.0.0\ConfigurationManager>UC4Insight
ConfigurationManagerCLI.exe
UC4.Insight.ConfigurationManagerCLI h|help|?
UC4.Insight.ConfigurationManagerCLI i|install [-dataloading] [-modellingstudio]
    [-gateway] [-insight] [-analysisnode]
UC4.Insight.ConfigurationManagerCLI u|uninstall

C:\Program Files\Target_UC4Decision_Full_0.0.0.0\ConfigurationManager>
```

Notice that the parameters correspond to the options on the first page of the Configuration Manager, which you see in Step 1 - Downloading Files and Starting the Installation.

5. Type "**UC4InsightConfigurationManagerCLI.exe install**" followed by each of the options for the areas of the Policy Orchestrator configuration that you want to install and putting a space before each option, and then press Enter. The options are:

- **-dataloading**

- **-modellingstudio**

- **-gateway**

- **-insight**

- **-analysisnode**

For example to install all the areas of the Policy Orchestrator configuration, enter:

UC4InsightConfigurationManagerCLI.exe install -dataloading -modellingstudio -gateway -insight -analysisnode

The configuration options for those areas are applied to the target installation. This takes a few minutes to complete and for the command prompt to reappear.

6.2 Uninstalling a Configuration via the Command Prompt

There are two ways to uninstall a Policy Orchestrator configuration:

- Using the Configuration Manager, as described in "Uninstall".

- From the command prompt as described in this section.

In both cases the uninstallation process removes all Policy Orchestrator and Predictive Analytics components except for the databases for the EventBases.
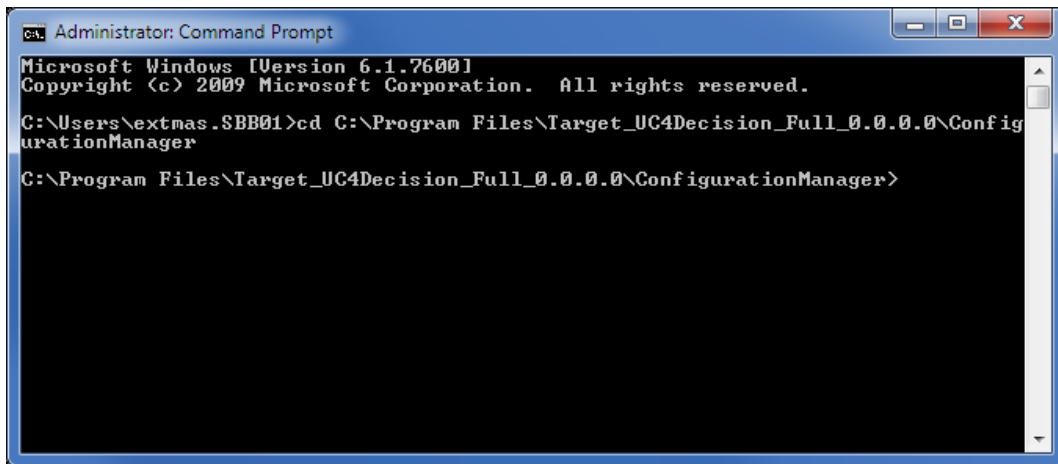
After uninstalling, you can safely reconfigure some or all parts of Policy Orchestrator.

Note: For the reconfiguration, you can use this utility again if you have a ready configuration to copy, or configure the installation one step at a time with the Configuration Manager.

Steps:

1. Open a command prompt window and go to the following folder in the target installation:

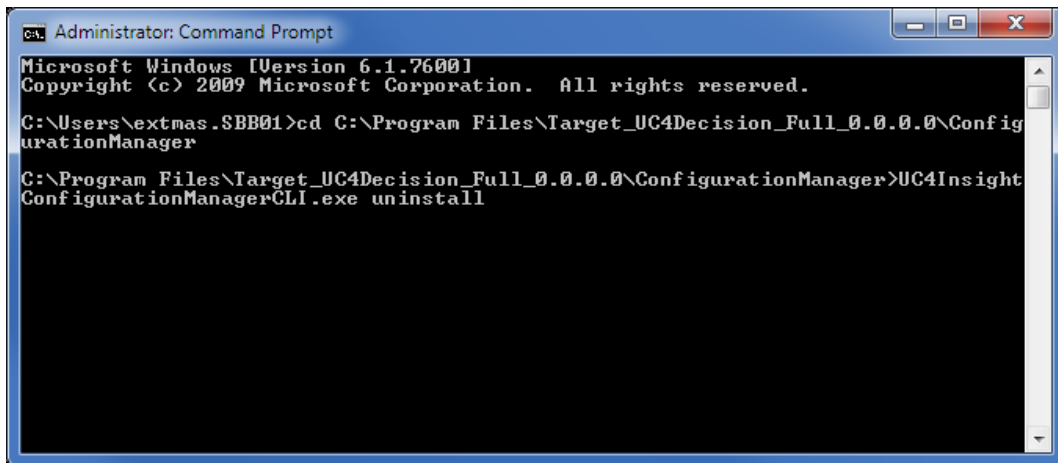   `...\<Target_PCO_Installation_Folder>\ConfigurationManager`

2. Type "**UC4InsightConfigurationManagerCLI.exe unínstall**" and then press Enter.

After a few minutes, the command prompt reappears and the uninstallation of the configuration is complete. Your installation is clear of all configurations. You can now reconfigure it in one of two ways:

- One option at a time for in the Configuration Manager, as described in "Full Installation of Policy Orchestrator & Predictive Analytics".

- By installing a configuration based on another completed installation of Policy Orchestrator, as described in "Deploying a Configuration via the Command Prompt".

With either method, you can configure all of Policy Orchestrator or only the parts that you plan to use.

7 Configuring the Online Help

Documentation for the *Policy Orchestrator* (PCO) and *Predictive Analytics* (PDA) is available from the Automic Download Center (http://downloads.automic.com/) in both PDF and webhelp (html5) formats.You can configure PCO and PDA to call the online help directly from the Help menu in the Modelling Studio or PDA.

For instructions see the related steps below:

- Configuring the PCO Online Help
- Configuring the PDA Online Help

Note: Starting with Version 10.0, the help text for PCO and PDA is in HTML5 format. This replaces the CHM help format, but the content is identical and includes V10 feature updates. This change is part of the ongoing work to integrate and standardize the documentation for Automic products.

Configuring the PCO Online Help

1. Unpack the Help files.
    a. Download and unpack the files for the documentation. Do this by downloading and unpacking the following file from the Automic Download Center (http://downloads.automic.com/):

       "Policy.Orchestrator_Documentation_Guides_*<version number>*.zip"

    b. In the unpacked files, go to the folder "Documentation\Guides\webhelp".
    c. Unpack "Policy.Orchestrator_USER_GUIDE_en.zip".

       At this point, you can start the help manually by clicking the "help.htm" file.

    d. Move the folder "Policy.Orchestrator_USER_GUIDE_en" to the place you want to store the help documentation so that it is accessible to PCO users.
2. Configure PCO to make the help accessible from the Help menu in the Modelling Studio.
    a. Go to where you have PCO installed, and open the folder

       <PCO-Installation>\Frontends\ModellingStudio

    b. Open the file "UC4.Decision.ModellingStudio.Modules.xml" and search for the element "<**component id**="HelpModule">".
    c. In the **HelpFile** parameter, set the path and file name for the start file for the help, "help.htm", for example:

       <HelpFile>..\..\Policy.Orchestrator_USER_GUIDE_en\help.htm</HelpFile>

Configuring the PDA Online Help

1. Unpack the Help files.
    a. Download and unpack the files for the documentation. Do this by downloading and unpacking the following file from the Automic Download Center (http://downloads.automic.com/):

       "UC4.Predictive.Analytics_Documentation_Guides_*<version number>*.zip"

    b. In the unpacked files, go to the folder "Documentation\Guides\webhelp".

      c.   Unpack "UC4.Predictive.Analytics_USER_GUIDE_en.zip".

            At this point, you can start the help manually by clicking the "help.htm" file.

      d.   Move the folder "Predictive.Analytics_USER_GUIDE_en" to the place you want to store the help documentation so that it is accessible to PDA users.

2. Configure PDA to make the help accessible from the PDA Help menu.

      a.   Go to where you have PDA installed, and open the folder

         <PDA-Installation>\Insight

      b.   Open the file "UC4.Insight.Modules.xml" and search for the element "**<component id**="HelpModule">".

      c.   In the **HelpFile** parameter, set the path and file name for the start file for the help, "help.htm", for example:

         <HelpFile>..\..\Predictive.Analytics_USER_GUIDE_en\help.htm</HelpFile>

8 Upgrading an Existing Installation

This section describes the steps for upgrading an existing *Policy Orchestrator* installation to the current version.

✔️ **Important:** You must be using version 4.0 of the Microsoft .NET Framework.

1. Copy the contents of the following two directories into the new installation path. This will overwrite any existing files with the same name:

   - Copy FROM `<old install path>\Runtime\AdminNode\adminNodeCache`

     TO `<new install path>\Runtime\AdminNode\adminNodeCache`

   - Copy FROM `<old install path>\Runtime\AdminNode\adminNodeResources`

     TO `<new install path>\Runtime\AdminNode\adminNodeResources`

2. Do all steps that are described in "Full Installation of Policy Orchestrator & Predictive Analytics".

   ⚠️ When you configure the Admin DB, make sure to select the Admin database that is specified in your configuration. See "Step 2 - Configuring the Settings".

3. If you want to reuse existing perspective configurations, snapshots and templates, then copy the contents of the previous user settings directories to the new user settings directories:

   - Copy FROM `<user home directory>\AppData\Local\UC4 Senactive Software GmbH\Insight\<previous version number>`

     TO `<user home directory>\AppData\Local\UC4 Senactive Software GmbH\Insight\<version number>`

   - Copy FROM `<user home directory>\AppData\Local\UC4 Senactive Software GmbH\Decision\<previous version number>`

     TO `<user home directory>\AppData\Local\UC4 Senactive Software GmbH\Decision\<version number>`

   ℹ️ **Note:** Perspectives from versions older than 9.3 cannot be migrated.

8.1 For Remote Adapters When Upgrading from Version 9.0 to 9.5

When you upgrade from Version 9.0 to Version 9.5, follow all the instructions in the previous sections and then also update the configurations and policy files for remote adapters. You can do this in either one of these ways:

- Copy the policy files from the Remote Adapter of Version 9.0 to the Remote Adapter of Version 9.5.

– OR –

- Configure the Remote Adapter from Version 9.5 to use an existing configuration.

For detailed information, see the section "Configuration" in the chapter "Policy Orchestrator Remote Components" in the *Policy Orchestrator User Guide*.

8.2 Configuring the Online Help

Documentation for the *Policy Orchestrator* (PCO) and *Predictive Analytics* (PDA) is available from the Automic Download Center (http://downloads.automic.com/) in both PDF and webhelp (html5) formats.You can configure PCO and PDA to call the online help directly from the Help menu in the Modelling Studio or PDA.

For instructions see the related steps below:

- Configuring the PCO Online Help
- Configuring the PDA Online Help

Note: Starting with Version 10.0, the help text for PCO and PDA is in HTML5 format. This replaces the CHM help format, but the content is identical and includes V10 feature updates. This change is part of the ongoing work to integrate and standardize the documentation for Automic products.

Configuring the PCO Online Help

1. Unpack the Help files.
   a. Download and unpack the files for the documentation. Do this by downloading and unpacking the following file from the Automic Download Center (http://downloads.automic.com/):

      "Policy.Orchestrator_Documentation_Guides_<*version number*>.zip"

   b. In the unpacked files, go to the folder "Documentation\Guides\webhelp".
   c. Unpack "Policy.Orchestrator_USER_GUIDE_en.zip".

      At this point, you can start the help manually by clicking the "help.htm" file.

   d. Move the folder "Policy.Orchestrator_USER_GUIDE_en" to the place you want to store the help documentation so that it is accessible to PCO users.
2. Configure PCO to make the help accessible from the Help menu in the Modelling Studio.
   a. Go to where you have PCO installed, and open the folder

      <*PCO-Installation*>\Frontends\ModellingStudio

   b. Open the file "UC4.Decision.ModellingStudio.Modules.xml" and search for the element "<**component id**="HelpModule">".
   c. In the **HelpFile** parameter, set the path and file name for the start file for the help, "help.htm", for example:

      <HelpFile>..\..\Policy.Orchestrator_USER_GUIDE_en\help.htm</HelpFile>

Configuring the PDA Online Help

1. Unpack the Help files.
   a. Download and unpack the files for the documentation. Do this by downloading and unpacking the following file from the Automic Download Center (http://downloads.automic.com/):

      "UC4.Predictive.Analytics_Documentation_Guides_<*version number*>.zip"

   b. In the unpacked files, go to the folder "Documentation\Guides\webhelp".
   c. Unpack "UC4.Predictive.Analytics_USER_GUIDE_en.zip".

      ⓘ At this point, you can start the help manually by clicking the "help.htm" file.

   d. Move the folder "Predictive.Analytics_USER_GUIDE_en" to the place you want to store the help documentation so that it is accessible to PDA users.
2. Configure PDA to make the help accessible from the PDA Help menu.
   a. Go to where you have PDA installed, and open the folder

      <*PDA-Installation*>\Insight

   b. Open the file "UC4.Insight.Modules.xml" and search for the element "<**component id**="HelpModule">".
   c. In the **HelpFile** parameter, set the path and file name for the start file for the help, "help.htm", for example:

      <HelpFile>..\..\Predictive.Analytics_USER_GUIDE_en\help.htm</HelpFile>

9 Migrating Previous Versions

If an *Predictive Analytics* or *Policy Orchestrator* system was installed with version 3.7 or higher, the Configuration Manager will upgrade the existing system.

Before starting the migration, you should create a backup copy of the following:

- The existing *Predictive Analytics* or *Policy Orchestrator* installation

- The Decision Admin database

- All your EventBase databases

For the new installation, copy the installation files into a *new* directory. Do NOT use the same installation directory that you used for the old installation.

To migrate he migrating process is made up of the following steps:

1. Start the *Predictive Analytics* Configuration Manager.

2. When configuring the AdminNode, use the database configuration that you used for the previous installation.

    The Predictive Analytics Configuration Manager will automatically show all EventBases which have been available in the old system.

3. Click the Apply button.

    The following message appears:
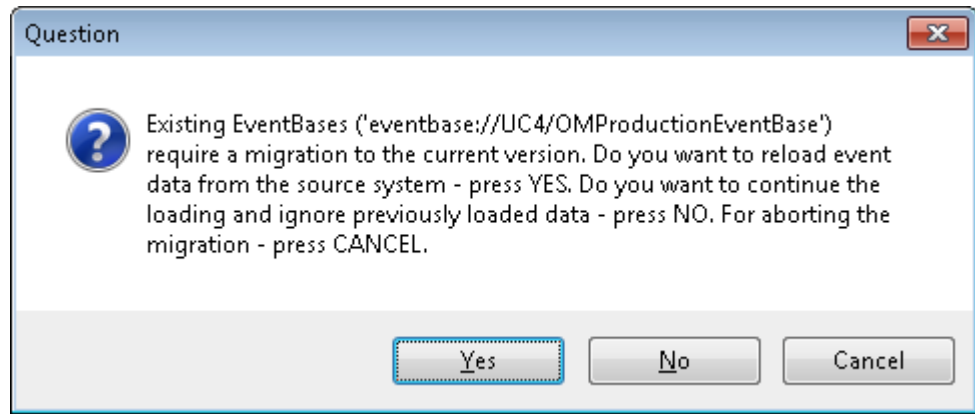
    Select 'Yes' if the EventBase data should be reloaded from the source system. This is the default option. Press 'No' if you want to ignore previously loaded data. Selecting 'Cancel' aborts the migration process.

After selecting the migration option the *Predictive Analytics* Configuration Manager starts migrating the existing installation and continues with the normal installation process.

⚠ **Important:**

Additional Steps:

- When installing Predictive Analytics, the templates for migrated EventBases need to be re-imported. The templates can be found in the directories Templates\OM (for Operations Manager) and Templates\AM (for Applications Manager).

- Installed sample EventBases are not migrated and must be re-installed.

9.1 Migrating User-Defined Assemblies

User-defined assemblies which are not shipped with the *Predictive Analytics* or *Policy Orchestrator* product need to be manually migrated to the new system. For migrating user-defined assemblies, the following steps are required:

1. Stop the AdminNode and the Worker service.

2. Copy the user-defined assemblies from the Runtime\AdminNode\adminNodeCache directory of the old installation into the Runtime\AdminNode\adminNodeCache directory of the new installation.

3. Start the AdminNode and the Worker service.

After restarting the AdminNode and Worker service, the user-defined assemblies are available for the new *Predictive Analytics* or *Policy Orchestrator* installation.

10 Attaching Additional Databases

After a successful installation you can attach further AE source databases to the system at a later point in time.

1. In the folder where the *Policy Orchestrator* files have been extracted, run the `install.bat` file.

   The Insight Configuration Manager opens.

2. Click 'Next' to begin with the configuration.

3. Do not change the configuration of "Step 1 - Downloading Files and Starting the Installation."

4. In step 2 - EventBases, click **Add** for attaching additional AE databases. For changing a database configuration, select the EventBase and the existing configuration will be displayed (see also "Step 3 - Connecting the Data Sources and Configuring the EventBases").

5. Click 'Next' and afterwards 'Apply' for applying the configuration.

11 Predictive Analytics Standalone Client Installation

In a typical installation of *Predictive Analytics*, the *Policy Orchestrator* server components run on a central host that is accessed by one or more PDA clients, which are locally installed at each user's machine. Nevertheless, you can install PDA on the same machine as the PCO server and its frontend, the Modelling Studio. You would do this, for example, in a test environment. For a production environment, this generally does not make sense, because the resource demands would reduce performance.

Prerequisite: PCO

Before you can install and use a PDA client, you must have installed and implemented the PCO and defined and implemented your EventBases in the PCO Modelling Studio. Before you start, also see the Requirements for the Frontend Tools.

PDA scope in this guide

In this guide, you find instructions for installing the PDA client. Installation of the PCO server components, which provide the data that you analyze in PDA, are not included in this guide. For information about that, see the instructions and details for installing the PCO full package that are in the *Policy Orchestrator and Predictive Analytics Installation Guide*.

The information about related to a PDA client installation is covered in the following sections:

- Installing the PDA Client
- Upgrading a PDA Client
- Configuring the PDA Online Help

11.1 Installing the PDA Client

In a typical installation for Predictive Analytics users the server components are executed on a central host and users are accessing the central host with a local installation of the *Predictive Analytics* Client.

To install only the *Predictive Analytics* Client perform the following steps:

1. Go to the Automic Download Center (http://downloads.automic.com/) and download the file `Predictive.Analytics_Full_<version number>.zip`.

2. Extract the zipped files to the place that you want to install Predictive Analytics, for example to `C:\Program Files`.

3. In the folder where the Predictive Analyticsfiles have been extracted, run the `install.bat` file.

   The Insight Configuration Manager opens.

4. Select only "Insight Client" and click the **Next** button.
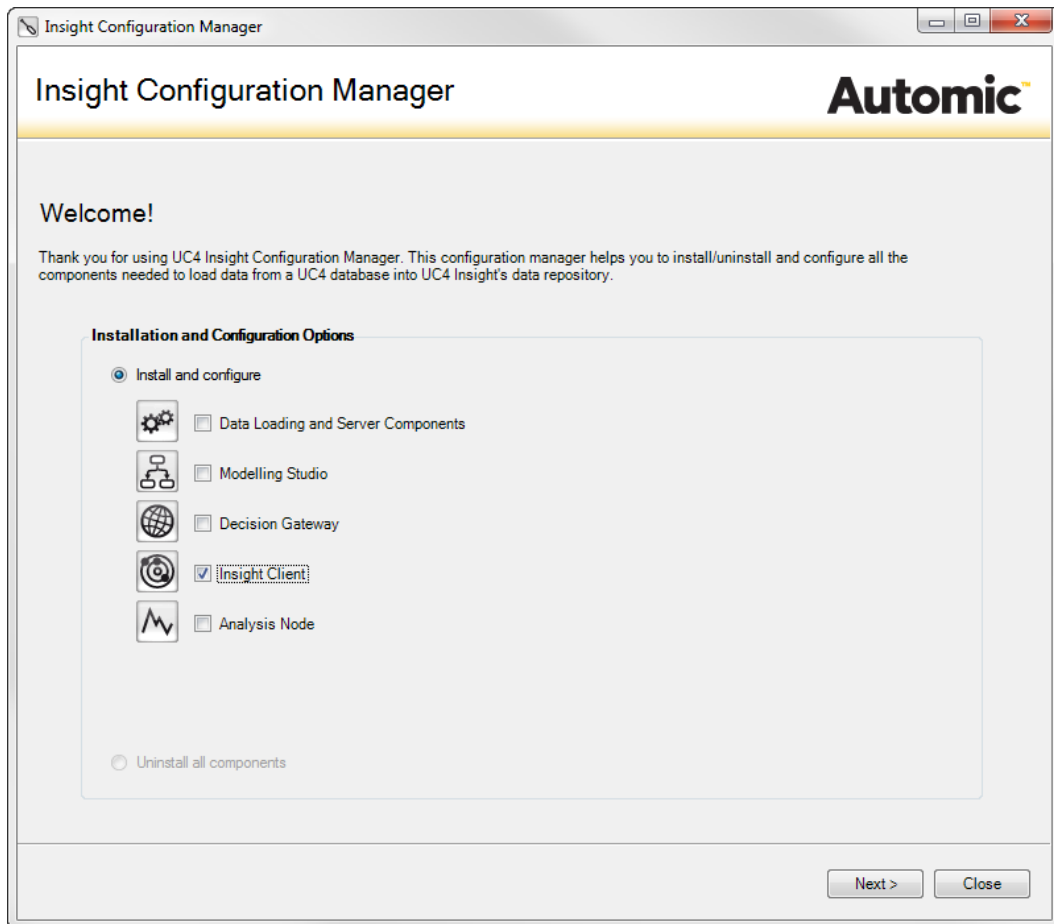
Predictive Analytics client Installation (Insight Client)

5. In the Admin Node Discovery section, specify where the Admin Node Service is installed by entering the host name or IP address in the **Host** field and the port number in the **Port** field.

Predictive Analytics Client Installation

6. Click the **Apply** button to apply the configuration settings to your installation.

11.2 Upgrading a PDA Client

To upgrade an existing *Predictive Analytics* client installation follow these steps:

1. Execute *Predictive Analytics* Client Installation as described in Installing the PDA Client.

2. To reuse the existing perspective configuration, snapshots and templates, copy the contents of the following to user settings directory:

    ```
    <userHomeDirectory>\AppData\Local\UC4 Senactive Software
    GmbH\Insight\<previousVersionNumber>
    ```

    To
    ```
    <userHomeDirectory>\AppData\Local\UC4 Senactive Software
    GmbH\Insight\<newVersionNumber>
    ```

3. (*Optional*) Update the help text. See Configuring the PDA Online Help.

11.3 Configuring the PDA Online Help

Documentation for Predictive Analytics(PDA) is available from the Automic Download Center (http://downloads.automic.com/) in both PDF and webhelp (html5) formats. If you want to be able to call the online help directly from the Help menu in PDA, you need to configure PDA as described below.

Note: Starting with Version 10.0, the help text for PCO and PDA is in HTML5 format. This replaces the CHM help format, but the content is identical and includes V10 feature updates. This change is part of the ongoing work to integrate and standardize the documentation for Automic products.

Steps...

1. Unpack the Help files.
    a. Download and unpack the files for the documentation. Do this by downloading and unpacking the following file from the Automic Download Center (http://downloads.automic.com/):

        "UC4.Predictive.Analytics_Documentation_Guides_<*version number*>.zip"

    b. In the unpacked files, go to the folder "Documentation\Guides\webhelp".
    c. Unpack "UC4.Predictive.Analytics_USER_GUIDE_en.zip".

        At this point, you can start the help manually by clicking the "help.htm" file.

    d. Move the folder "Predictive.Analytics_USER_GUIDE_en" to the place you want to store the help documentation so that it is accessible to PDA users.
2. Configure PDA to make the help accessible from the PDA Help menu.
    a. Go to where you have PDA installed, and open the folder

        <*PDA-Installation*>\Insight

    b. Open the file "UC4.Insight.Modules.xml" and search for the element "<**component id**="HelpModule">".
    c. In the **HelpFile** parameter, set the path and file name for the start file for the help, "help.htm", for example:

        <HelpFile>..\..\Predictive.Analytics_USER_GUIDE_en\help.htm</HelpFile>

12 Gateway Standalone Installation

You can also install the Decision Gateway for the Policy Orchestrator by itself. Typically, the Gateway is installed on the same server, and at the same time, as the data loading components. Some organizations, however, prefer to have the Gateway on a separate server with additional firewalls between the servers for additional security.

1. In the folder where the *Policy Orchestrator* files have been extracted, run the `install.bat` file.

   (i) If you haven't already installed PCO, do that now and then run the `install.bat` file.

   a. Go to the Automic Download Center (http://downloads.automic.com/) and download the file `UC4.Policy.Orchestrator_Full_<version number>.zip`.
   b. Extract the zipped files to the place that you want to install Policy Orchestrator, for example to `C:\Program Files`.
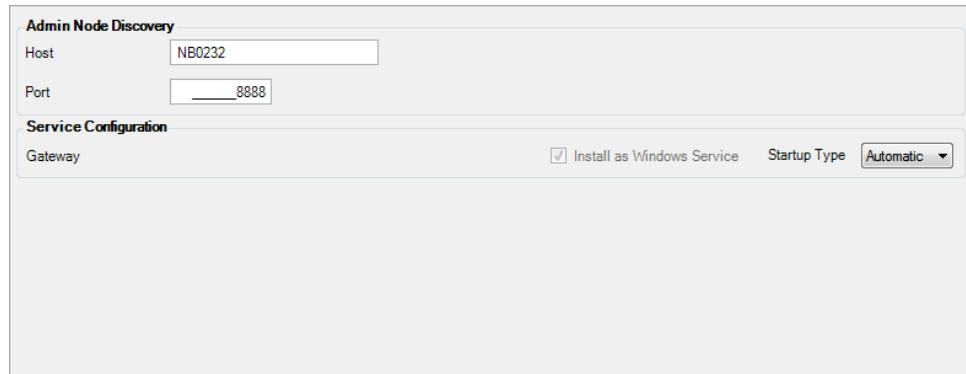
   The Insight Configuration Manager opens.

2. Select only "Decision Gateway" and click the **Next** button.
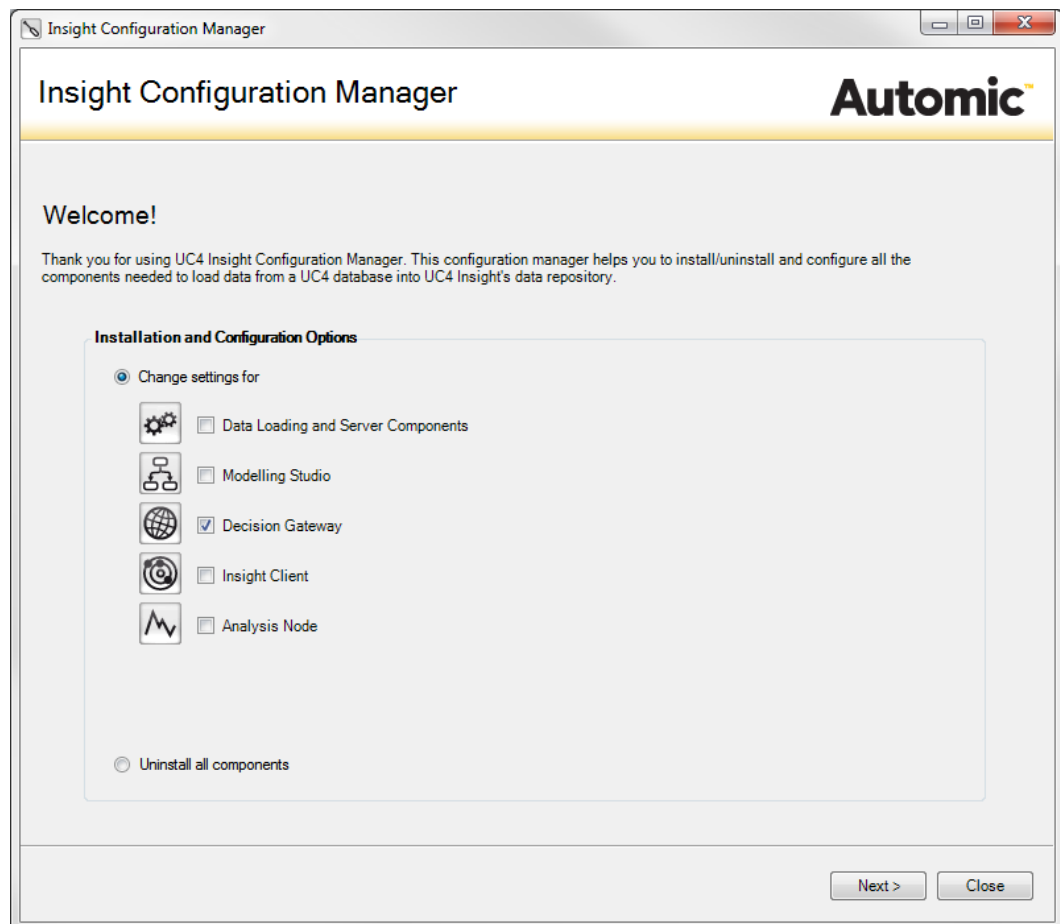
3. Configure the Gateway.

   a. Under Admin Node Discovery specify the location of the Admin Node by typing the Host name or IP address and the Port number of the host where the Admin Node Service is installed.

   b. Under Service Configuration indicate whether the Gateway should run as a Windows Service and select a Startup Type option.

Admin Node Discovery		
Host	NB0232	
Port	8888	
Service Configuration		
Gateway	☑ Install as Windows Service	Startup Type Automatic ▼

4. Click the **Apply** button to apply the settings, and then click the **Close** button.

13 Analysis Node Standalone Installation

The Policy Orchestrator Analysis Node is the part of PCO that aggregates data from EventBases. The main purpose of the Analysis Node is to process data queries from PDA dashboards.

Because the Analysis Node needs to handle large amounts of EventBase data, we recommend that you install it on a separate machine.

To install the Analysis Node as a standalone installation, select only the "Analysis Node" option in the Configuration Manager.

1. In the folder where the *Policy Orchestrator* files have been extracted, run the `install.bat` file.

    If you haven't already installed PCO, do that now and then run the `install.bat` file.

    a. Go to the Automic Download Center (http://downloads.automic.com/) and download the file `UC4.Policy.Orchestrator_Full_<version number>.zip`.
    b. Extract the zipped files to the place that you want to install Policy Orchestrator, for example to `C:\Program Files`.

    The Insight Configuration Manager opens.

2. Select only "Analysis Node" and then click the **Next** button.
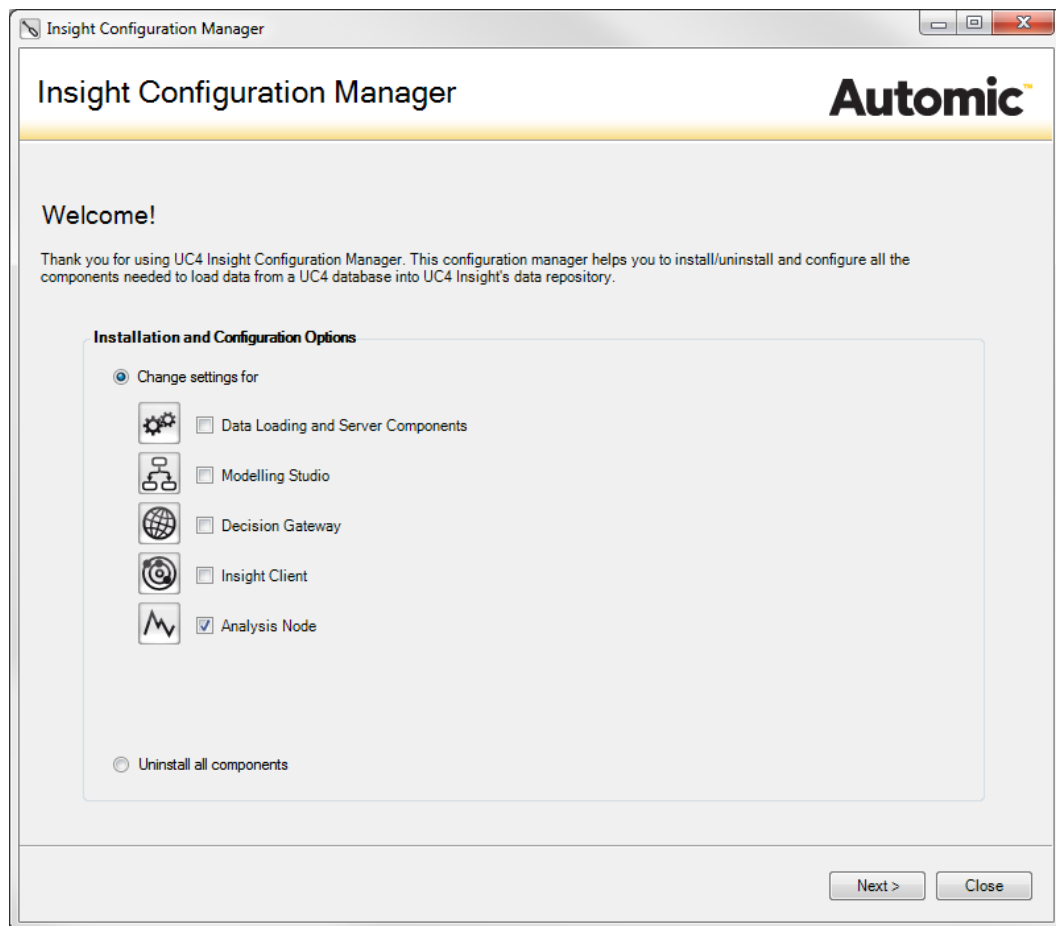
3. Configure the Analysis Node.

    a. Under **Admin Node Discovery** specify the location of the Admin Node by typing the
        Host name or **IP** address and the **Port** number of the host where the Admin Node
        Service is installed.

    b. Under **Service Configuration** provide the **Port** number of the host where the Analyis
        Node should be installed, and indicate whether the node should run as a **Windows
        Service** and select a **Startup Type** option.

    c. Optionally, change the **Query cache expiration time** of the Analysis Node. The
        default is 5 minutes.

        The *query cache* is where the results of eventBase queries from PDA dashboards are

stored.

4. Click the **Apply** button to apply the settings, and then click the **Close** button.

14 Login and User Management

Access to *Predictive Analytics* and Decision Modeling Studio is controlled by the User Management functionality. When a user starts one of these programs, the user must enter a user name and a password in a login window. At that time the user can also select the authentification method from one of the methods that are available.

14.1 User Authentication Methods

When logging into PCO or PDA, a user can select from one of the three authentication methods, depending on which have been activated:

- Method 1: Decision authentication

  With this method, you define users and their login data in the Predictive Analytics or Decision Modelling Studio. This is the default user authentication method in Policy Orchestrator and Predictive Analytics.

- Method 2: Windows authentication

  With this method, Microsoft Windows users that are defined on an Active Directory can login to Predictive Analytics or Policy Orchestrator with their Windows user name and password. To use this authentication method, you must also define the users in User Management either in the Decision Modelling Studio or in the Enterprise Control Center (ECC), if you have also enabled AE Authentication.

- Method 3: AE Authentication:

  With this method you can login to Policy Orchestrator or Predictive Analytics with AE users that are defined in the Automation Engine. Furthermore, you need to activate AE Authentication if you want to use the user management functions in the ECC to manage users of the Policy Orchestrator or the Service Level Manager plug-ins of the ECC. This means that from ECC you could assign users Policy Orchestrator roles and give them authority to EventBases, just as you would in the Decision Modelling Studio.

The following table describes where each method is activated and where you can define users when using the various authentication methods.

THIS authentication method...	Is ACTIVATED...	And then you define the users in...
Decision Authentication	Always and automatically when Policy Orchestrator is installed.	The Decision Modelling Studio
Windows Authentication	In the Decision Modelling Studio.	The Decision Modelling Studio

THIS authentication method...	Is ACTIVATED...	And then you define the users in...
AE Authentication	When you enable it and define User Management settings. You can do this when you configure Policy Orchestrator as described in "Defining User Management Settings", or in the Decision Modelling Studio.	The Decision Modelling Studio for users of Policy Orchestrator or Predictive Analytics. -OR In the ECC for users of Policy Orchestrator or the Service Orchestrator.

Authentication methods, how they are activated and where users are defined

14.2 Manually Enabling Integrated Authentication

You can enable and configure Integrated Authentication when you configure Policy Orchestrator in the Configuration Manager. You do this by defining the User Management settings there. For instructions see"Defining User Management Settings". However, you can manually enable and configure Integrated Authentication instead. To do this, user the following steps:

1. Configure the connection between the Automated Engine and Policy Orchestrator. For instructions see "Manually configuring the communication with the Automation Engine".

2. Activate and configure Integrated Authentication in the Decision Modelling Studio.

3. Define the Automic System User, which is already defined in the Automation Engine, in the Decision Modelling Studio.

14.3 Manually Configuring the Communication with the Automation Engine

Policy Orchestrator and the Automation Engine might need to interact for a number of processes, one of which is for user management with AE Authentication. For this to work, data must be mapped during the communication process. This is controlled by the uc4.dll file. If you enable AE Authentication in the Configuration Manager as described in "Defining User Management Settings", then the configuration process selects the correct version of the uc4.dll file to match the version of the Automation Engine that you have installed.

If you want to enable a different version, or if you want to manually enable AE Authentication, then use the following steps to make sure that you have the correct version of the uc4.dll file:

1. Go to the folder where you have Policy Orchestrator and/or Predictive Analytics installed.

2. Copy the `uc4.dll` file

> FROM: the \ConfigurationManager\uc4api\<*v#*> folder for the version that you want (refer to the table that follows)
>
> TO: the \Runtime\AdminNode folder.

IF you want to use user authentication that is defined in…	THEN use the uc4.dll file from the folder…
Operations Manager v6	v6
Operations Manager v8	v8
Automation Platform v9	v9 *NOTE*: If you want to maintain users in the ECC User Management function, then you must use at least this version. You would want to do this if you use web components that interact with Policy Orchestrator, such as Policy Orchestrator or the Service Orchestrator. For more information see User Management topics in the ECC user help.
Automation Platform v10	v10

Note: The Automation Engine replaced the Operations Manager with version 9.

14.4 Defining users in Policy Orchestrator

Typically, when you first login to Policy Orchestrator or Predictive Analytics to setup users, you must login with the user name: "UC" and password: "UC", and select "UC4 Decision Authentication" as the authentication method. This way you log in as a "Super Administrator" and have authority to all functions and EventBases. To protect access to advanced functions, immediately after you login the first time, you should do one of the following:

- Change the password for the uc user.

- Create a new user with the "Super Administrator" role and then lock the uc user.
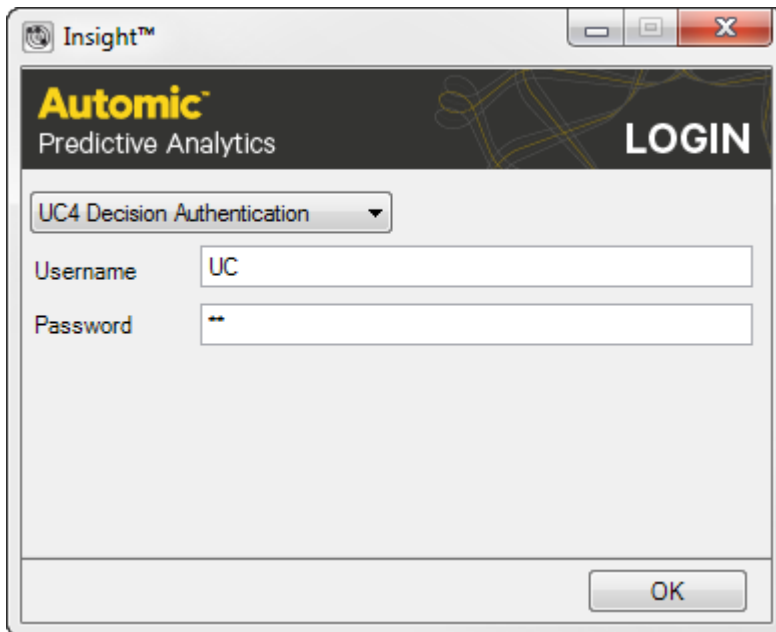
Predictive Analytics Login Dialog

If you have enabled AE Authentication method when you configured Policy Orchestrator, however, you can also sign on with that method and with the AE System User that you defined at configuration.

You can manage users in the User Management Panels in Predictive Analytics or Decision Modelling Studio. User administration and the corresponding settings always apply to both Predictive Analytics and Policy Orchestrator.

In the User Management Panel, you can create, delete and edit users. The "Super Administrator" user with the login user name "uc" cannot be deleted, and the user name "uc" cannot be changed. However, you can change the password for this user or lock it.
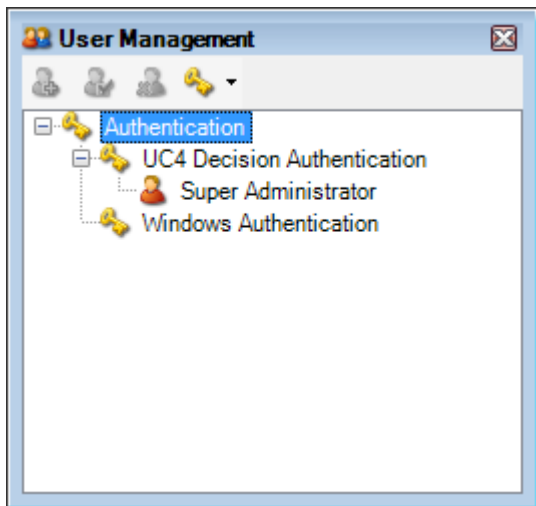
User Management Panel

For further information about "User Management" refer to the related sections in the *Policy Orchestrator User Guide* and the *Predictive Analytics User Guide*.

15 Uninstall

There are two ways to uninstall a Policy Orchestrator configuration:

- From the command prompt, as described in "Uninstalling a Configuration via the Command Prompt".

- With the Configuration Manager as described in this section.

ⓘ **Note:** Data in EventBase databases will remain after the uninstall of AE products and components.

1. Open the folder where the Policy Orchestrator is installed, and run the `install.bat` file.

    The Insight Configuration Manager opens.

2. Select 'Uninstall all components' and click the **Next** button.
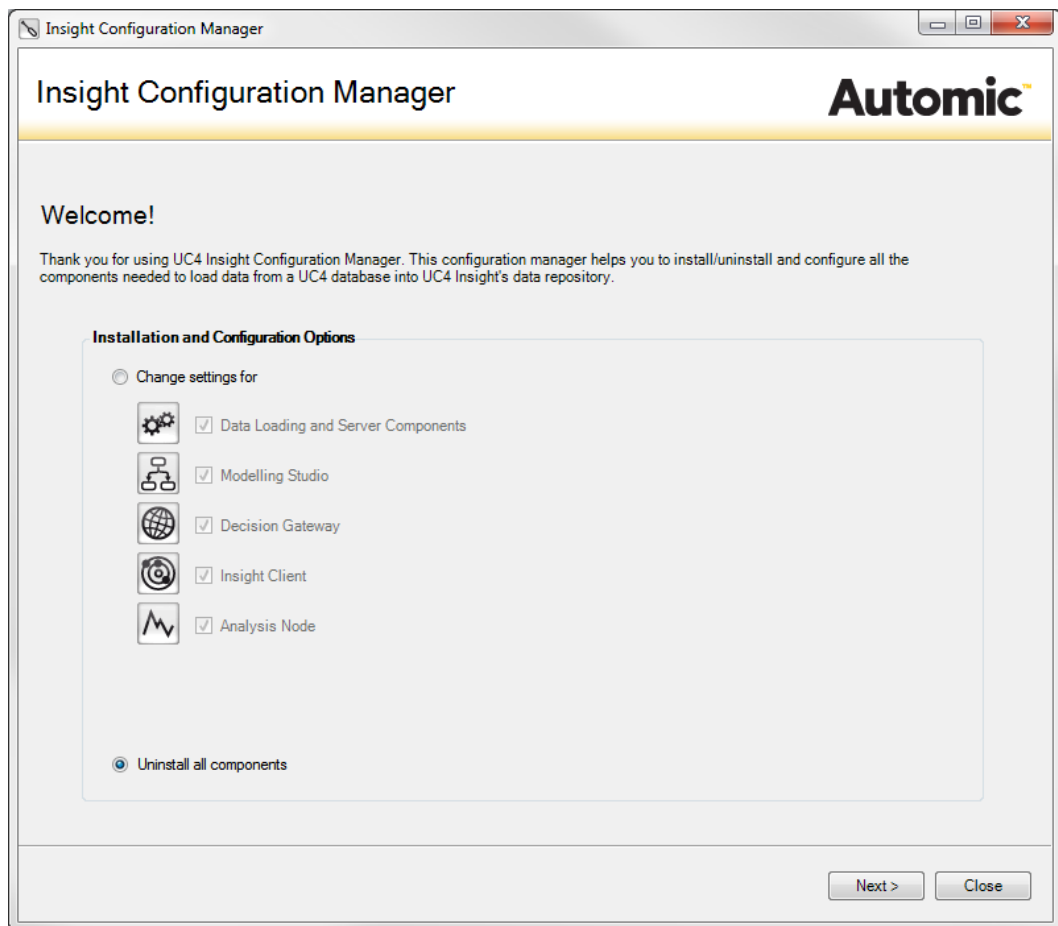
Insight Configuration Manager: Uninstall

3. Click 'Yes' to confirm the unistall process.
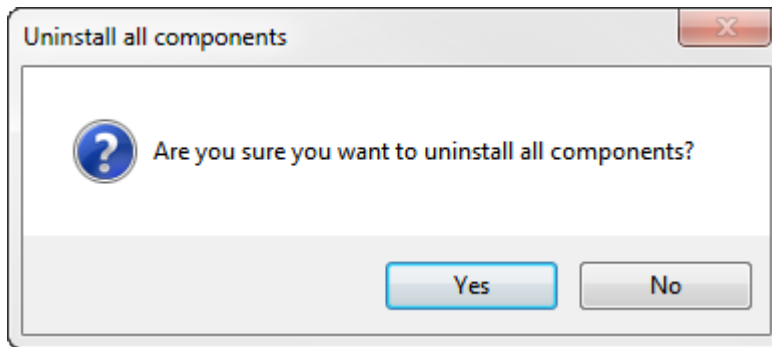
Insight Configuration Manager: Confirmation of the uninstall

4. You can follow the uninstall progress and read the information messages.

Insight Configuration Manager: Log

5. Except for the databases, Predictive Analytics, Policy Orchestrator and all of its components are removed from your system.

16 Installing and Setting Up ECC Web Components for Policy Orchestrator

The Automic product suite includes the Enterprise Control Center (ECC) which is a Web server application. The ECC gives users access to 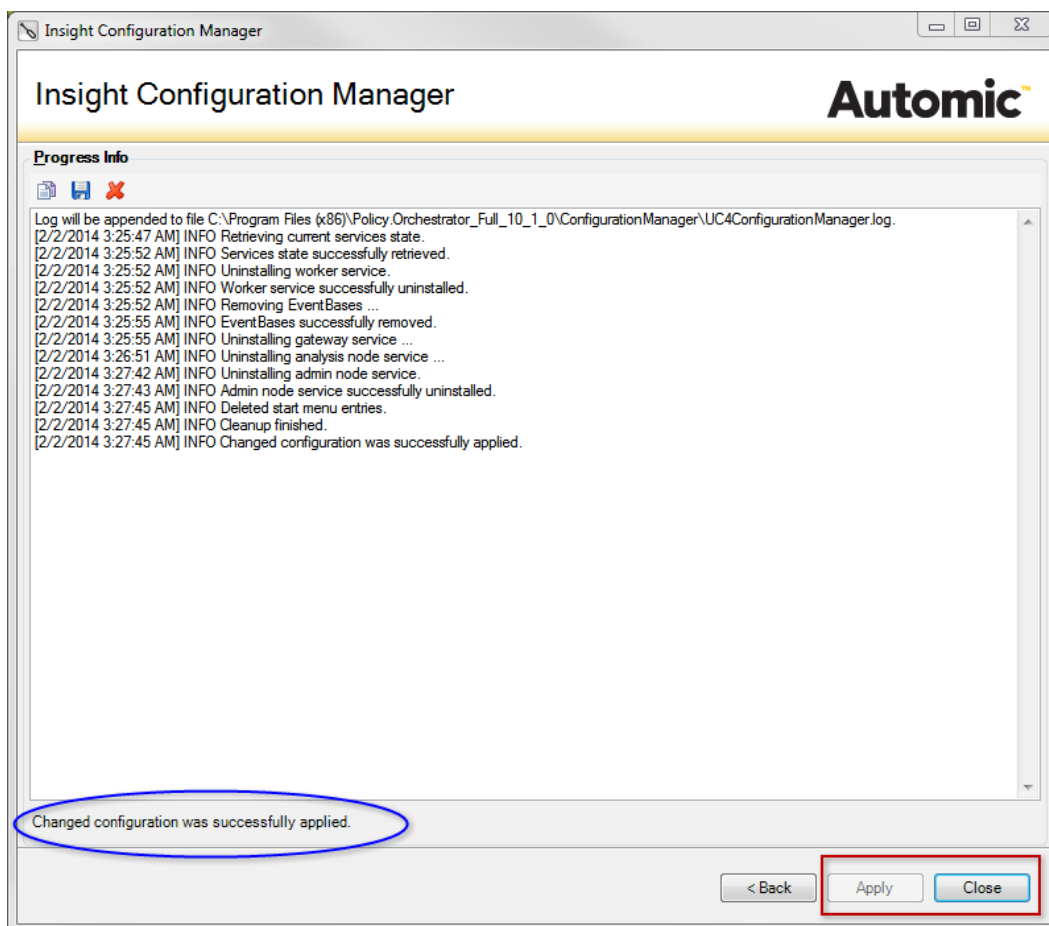a number of Web frontend components, known in the ECC as plug-ins or perspectives, that provide functionality which interfaces with Automic backend products, including *Policy Orchestrator* (PCO).

The following are the ECC components that interact with PCO and its EventBases:

- The Policy Orchestrator Plug-in (PCO Plug-in)
- The Predictive Analytics Plug-in (PDA Plug-in)
- The Service Orchestrator Plug-in (SVO)

  The SVO needs to interact with Policy Orchestrator *only* if you want to create EventBase SLAs or use its the advanced analytics capabilities. For more information refer to the topic "Integration with Other Automic Products" in the *Service Orchestrator* user guide or help.

When you install the ECC, the plug-ins are automatically installed with it. However, to use the plug-ins, you have to do a few extra setup tasks that ensure the correct connection to PCO and its EventBases. For complete information about the implementation of each plug-in, see the *Enterprise Control Center Installation Guide*. Furthermore, to use the SVO, you must also install the SVO Server component. For instructions, see the *Service Orchestrator Installation Guide*.

16.1 The Relationship between ECC Components and Policy Orchestrator

This section describes how the ECC components and the Policy Orchestrator (PCO) interact to allow ECC users to work with EventBase data and other PCO components.

The following figure shows you the structure of the communication lines between ECC Components and PCO.

The communication with the Service Orchestrator is also described, but only the connections for the PCO Plug-in (1) are relevant for this guide.
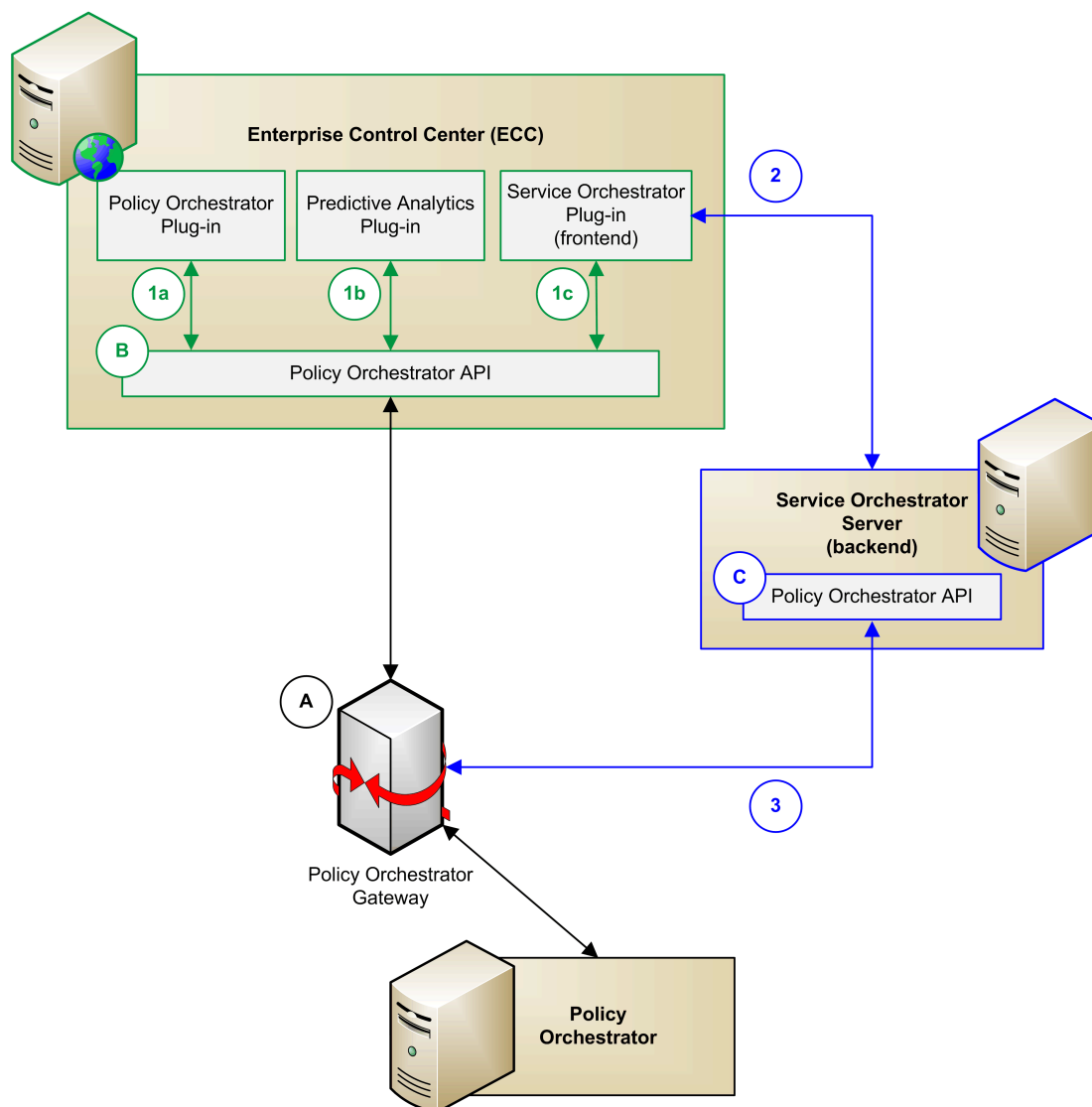
Overview of the Relationship between the ECC and Policy Orchestrator

Key concepts about the communication between the ECC components and Policy Orchestrator

- All communication between any of the ECC components and Policy Orchestrator goes through the PCO Gateway (**A**).
- All communication in and out of an ECC plug-in goes through a Policy Orchestrator API (PCO API). There are two places that this API can be present in your installations:
    - One instance of the PCO API is in the ECC (**B**).
      This handles the communication between the ECC perspectives (the PCO Plug-in, the PDA Plug-in, and the Service Orchestrator Plug-in) and the PCO Gateway.
    - If you install the Service Orchestrator, a second instance of the PCO API (**C**) is included in the backend server component to handle the communication between it and the PCO Gateway.

The communication channels

Depending on what you install, different connections for the communication channels between the ECC component and Policy Orchestrator (actually the PCO Gateway) are established.

THIS connection...	Is established WHEN you install and configure...
(1)	The Policy Orchestrator Plug-in of the ECC.
(2), (3), (4)	The Service Orchestrator (SVO), which has three communication channels: • (2) is the channel between the SVO frontend component in the ECC and Policy Orchestrator. This runs over the PCO API in the ECC and the PCO Gateway. • (3) is the channel between the SVO frontend and backend components. • (4) is the channel between the SVO backend component and Policy Orchestrator. This runs over the PCO API in the SVO backend component and the PCO Gateway.

16.2 Installing the PCO Plug-In for ECC

The Policy Orchestrator Plug-in component of the Enterprise Command Center (ECC) platform that is a tool for business rule management. With it users have a simple interface for building business rules based on rule templates and patterns that are either already delivered from or created in the Modelling Studio.

For an understanding of how ECC components interact with Policy Orchestrator (PCO), see The Relationship between ECC Components and Policy Orchestrator.

Prerequisites

Before you can begin the steps in this guide, you have to have at least installed and implemented the Policy Orchestrator and the ECC. For the versions of these that you need to install, see the section System Requirements for the PCO Plug-In Version 10.0.

Overview of the installation and configuration steps

To prepare the ECC and then install the Policy Orchestrator Plug-in, use the instructions in the following sections:

- Configuring the ECC for the Policy Orchestrator Plug-in
- Installing the Policy Orchestrator Plug-in

- Optionally, if you want to secure the communication between the PCO Plug-in and Policy Orchestrator with an SSL connection, see Setting Up SSL for Communication with ECC Components.

16.2.1 System Requirements for the PCO Plug-In

This topic describes the system requirements for installing and running version 10.0 of the Policy Orchestrator (PCO) Plug-In of the ECC.

Required Automic Products

To install and run the PCO plug-in, you need to have installed and implemented the following Automic products:

Automic Product	Required Version
Enterprise Control Center	2.0
Policy Orchestrator (including the Decision Gateway)	10.0
Automation Engine This is optional but is required if you want to use ECC integrated authentication when a user logs into the ECC. For more information see Login and User Management for ECC Components for Policy Orchestrator.	10.0

You can find these products and/or their installation guides from the Automic Download Center (http://downloads.automic.com/).

16.2.2 Configuring the ECC for the Policy Orchestrator Plug-In

If you want to implement the *Policy Orchestrator Plug-in* component in the *Enterprise Control Center* (ECC), then you need to configure the ECC to communicate with *Policy Orchestrator*. This section describes how you do that.

Prerequisite

You must have installed and setup the ECC as described in the *Enterprise Control Center Installation Guide*, which you can find on the Automic Download Center (http://downloads.automic.com/).

The Policy Orchestrator Gateway Gateway manages all communication

The ECC communicates with Policy Orchestrator via its Gateway, so you need to configure the ECC so that it can locate the gateway. You do this in the decision.properties file, as described in the following steps:

1. In your Tomcat web server go to the folder …\webapps\<ECC>\config, and rename the decision.properties.sample file to "decision.properties".

2. Open the renamed file and update the configurations to describe the gateway that is to be used for the Policy Orchestrator Plug-in in the ECC.

Parameter	Description
host	The host where the PCO Gateway Gateway is running. *Default*: hostname (i) *Note for SSL*: This must match the hostname with the certificate CN and gateway hostname that is defined in the UC4.Decision.Gateway.exe.config for the PCO Gateway.
port	The port for the PCO Gateway *Default*: 9898 (i) *Note for SSL*: If the enableSSL parameter in this file is set to "true" then change this to "9900". For more information, see Setting Up SSL for Communication with ECC Components..
path	The base path of your PCO Gateway installation, which is essentially the root path in the PCO Gateway URL. Most installations use the default value.
enableSSL	Indicates whether SSL is used to access PCO *Valid values*: "true" or "false" For complete information about using SSL to secure the connection between the ECC and PCO, see Setting Up SSL for Communication with ECC Components.

3. Restart the Apache Tomcat service so that the configuration changes go into effect.

Next step: Installing the Policy Orchestrator Plug-in

16.2.3 Installing the Policy Orchestrator Plug-In

This section contains instructions for installing the Policy Orchestrator Plug-In.

The Policy Orchestrator Plug-in for the ECC (also referred to as a "perspective" in the ECC) is delivered in a ZIP file. To install it you have to unpack the contents and move them to your ECC installation.

Steps...

1. Go to the Automic Download Center (http://downloads.automic.com/) and download the following :

    UC4.Policy.Orchestrator_UI.Plug-in_API_<*version_number*>.zip

2. Unpack (unzip) the file.

3. Move the file UC4.Policy.Orchestrator_UI.Plug-in_API.jar to the folder

    \webapps\<ECC>\WEB-INF\autoinstall directory of your ECC Tomcat directory.

    (<ECC> stands for the folder of your ECC installation.)

You do not have to do anything else. When the ECC autoinstall programs register a new JAR file in their folder, they execute the installation of the related plug-in automatically.

Next step: Optionally enable SSL secure connection between the PCO Plug-in and Policy Orchestrator. For information see Setting Up SSL for Communication with ECC Components.

16.3 PDA Plug-In Installation for ECC

The *Predictive Analytics* Plug-in component of the *Enterprise Command Center* (ECC) platform adds the "Predictive Analytics" category to the ECC widget catalog and allows you to add and view published PDA charts in ECC dashboards.

ⓘ For an understanding of how ECC components interact with Policy Orchestrator (PCO), see "The Relationship between ECC Components and Policy Orchestrator".

Prerequisites

Before you can begin the steps in this guide, you have to have at least installed and implemented the Predictive Analytics and the Enterprise Command Center (ECC). For the versions of these that you need to install, see the section System Requirements for the PDA Plug-In Version 10.0.

Overview of the installation and configuration steps

To prepare the ECC and then install the Predictive Analytics Plug-in, use the instructions in the following sections:

- Configuring the ECC for the Predictive Analytics Plug-in
- Installing the Predictive Analytics Plug-in

16.3.1 System Requirements for the PDA Plug-In

This topic describes the system requirements for installing and running version 10.0 of the *Predictive Analytics* (PDA) Plug-In of the ECC.

Required Automic Products

To install and run the PDA plug-in, you need to have installed and implemented the following Automic products:

Automic Product	Required Version
Enterprise Control Center	2.0
Policy Orchestrator (including the Decision Gateway)	10.0

You can find these products and/or their installation guides from the Automic Download Center (http://downloads.automic.com/).

16.3.2 Configuring ECC for the PDA Plug-In

If you want to implement the PDA Plug-in component in the *Enterprise Control Center* (ECC), then you need to configure the ECC to communicate with *Policy Orchestrator*. This section describes where you do that.

Prerequisite

You must have installed and setup the ECC as described in the Enterprise Control Center Installation Guide, which you can find on the Automic Download Center (http://downloads.automic.com/).

The Decision Gateway manages all communication

The ECC communicates with Policy Orchestrator via the Decision Gateway, so you need to configure the ECC so that it can locate the gateway. You do this in the decision.properties file, as described in the following steps:

1. In your Tomcat web server go to the folder …\webapps\<ECC>\config, and rename the decision.properties.sample file to "decision.properties".
2. Open the renamed file and update the configurations to describe the gateway that is to be used for the Predictive Analytics Plug-in in the ECC.

Parameter	Description
host	The host where the Decision Gateway is running. *Default*: hostname ⓘ *Note for SSL*: This must match the hostname with the certificate CN and gateway hostname that is defined in the UC4.Decision.Gateway.exe.config for the Decision Gateway.
port	The port for the Decision Gateway *Default*: 9898 ⓘ *Note for SSL*: If the enableSSL parameter in this file is set to "true" then change this to "9900". For more information, see "Setting Up SSL for Communication with ECC Components".
path	The base path of your Decision Gateway installation, which is essentially the root path in the Decision Gateway URL. Most installations use the default value.
enableSSL	Indicates whether SSL is used to access Policy Orchestrator. *Valid values*: "true" or "false" For complete information about using SSL to secure the connection between the ECC and Policy Orchestrator, see "Setting Up SSL for Communication with ECC Components".

3. Restart the Apache Tomcat service so that the configuration changes go into effect.

Next step: Installing the Predictive Analytics Plug-in

16.3.3 Installing the PDA Plug-in

This section contains instructions for installing the Predictive Analytics Plug-In.

The Predictive Analytics Plug-in for the ECC (also referred to as a "perspective" in the ECC) is delivered in a ZIP file. To install it you have to unpack the contents and move them to your ECC installation.

Steps...

1. Go to the Automic Download Center (http://downloads.automic.com/) and download the following :

    `UC4.Predictive.Analytics_UI.Plug-in_<version number>.zip.`

2. Unpack (unzip) the file.
3. Move the file `uc4.predictive.analytics_ui.plug-in.jar` to the folder

    \webapps\`<ECC>`\WEB-INF\autoinstall directory of your ECC Tomcat directory.

    (`<ECC>` stands for the folder of your ECC installation.)

    You do not have to do anything else. When the ECC autoinstall programs register a new JAR file in their folder, they execute the installation of the related plug-in automatically.

16.4 Setting Up SSL for Communication with ECC Components

You can secure any of the communication channels between the ECC-related components and Policy Orchestrator by running them over an SSL connection. You setup for SSL connections in various configuration files. This topic describes the connections that you can secure with SSL and which configuration files ensure the SSL connection at each of these junctions.

The following figure shows you all the places that you can secure with an SSL connection and the configuration files that control the SSL connections.
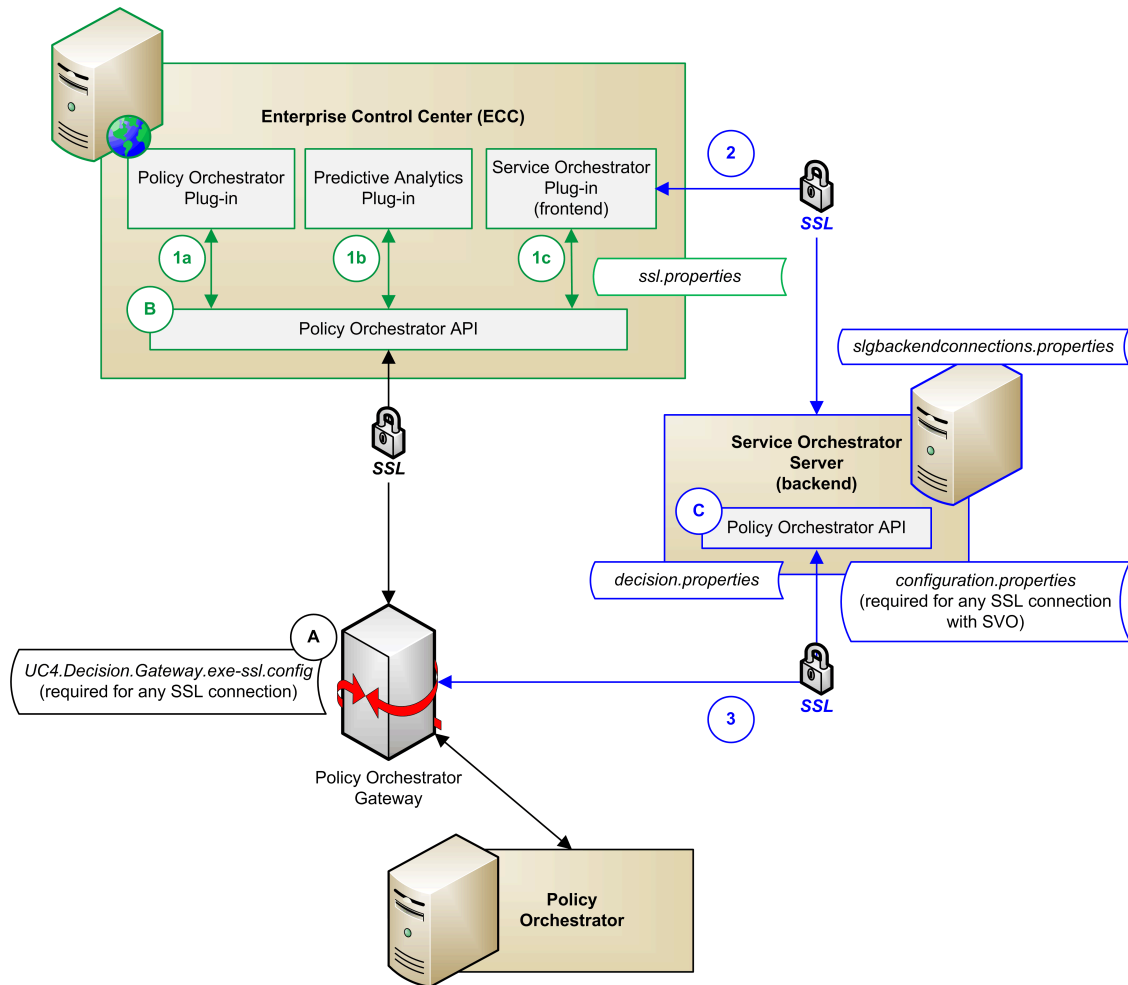
Overview of SSL connection options between the ECC and Policy Orchestrator

16.4.1 Overview of the SSL Setup Steps

This topic gives you an overview of the steps you need to take to secure the connection between ECC and PCO with an SSL connection, and provides links to the instructions for each step.

To set up any SSL connection for ECC-related components, you have to do the following:

1. Configure the Policy Orchestrator Gateway Gateway for SSL
2. Add Truststore Certificates for SSL
3. Configure the connection points that you want to secure with SSL
   - Enable SSL for the Policy Orchestrator Plug-in
   - Enable SSL for the Service Orchestrator

For instructions for each of these steps, see the related sections that follow.

16.4.2 Configuring the Policy Orchestrator Gateway for SSL

If you want to use SSL to secure any communication connection between an ECC-related component and the Policy Orchestrator, then you need to configure the PCO Gateway for SSL using the steps here.

Prerequisite:

Before you set up the PCO Gateway for SSL, make sure that your target machine already has a certificate and password that are available to use for SSL. For more information, consult your system administrator.

Steps...

1. Get the signature of your certificate by opening its properties and copying its thumbprint.

   In the following screen you see certificate details including the Thumbprint value.
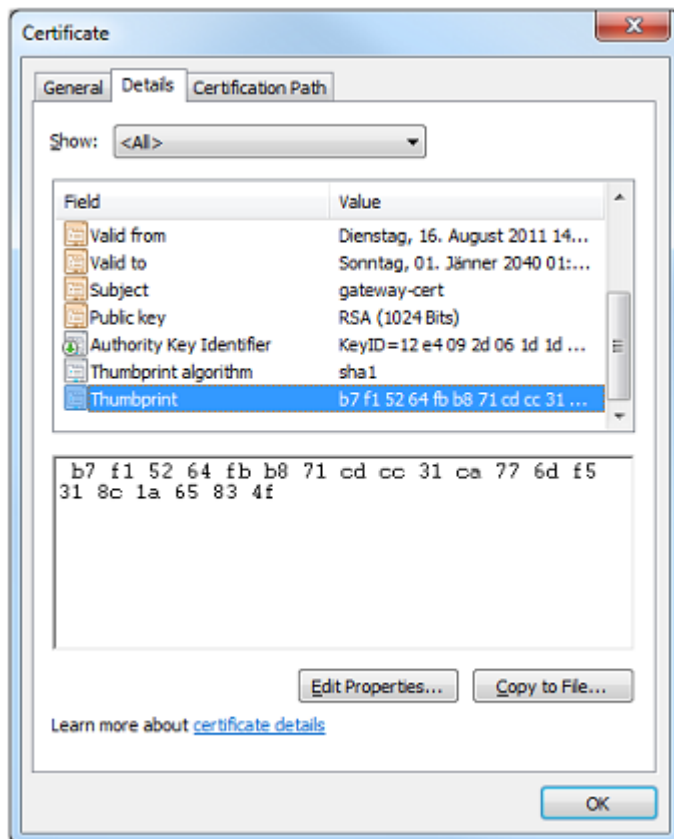
Certificate properties dialog

2. Configure a port with an SSL certificate.

   For more information and instructions see
   http://msdn.microsoft.com/en-us/library/ms733791.aspx

3. Overwrite the existing UC4.Decision.Gateway.exe.config in the PCO Gateway directory

with UC4.Decision.Gateway.exe-ssl.config in the same directory.

4. Restart the PCO Gateway.

Next step: Adding Truststore Certificates for SSL.

16.4.3 Adding Truststore Certificates for SSL

An SSL connection between any ECC components and/the Decision Gateway need truststore certificates. The steps here describe how to add the truststore certificates that you need for the connections that you want to secure.

1. Go to the command line (CMD).
2. Enter the following command to add a certificate to the truststore that is specified in the ECC *configuration.properties* file (in the folder ...\<*ECC*>\config...):

```
keytool -import -v -trustcacerts -alias <alias> -file
<certificate> -keystore <ECC>\config\truststore.jks –password
<bundle>
```

In this string:

- <*alias*> should be the hostname of your PC.
- <*certificate*> is the exported certificate file that you should already have.
- <*ECC*> is the path to your ECC installation.
- <*password*> is the truststorePassword that is specified in your ECC configuration.properties file.

Next step: Enabling SSL for the Policy Orchestrator Plug-in

16.4.4 Enabling SSL for the Policy Orchestrator Plug-in

Use these steps to configure ECC for an SSL secured connection between the PCO Plug-in component in the ECC and Policy Orchestrator.

Steps...

1. Modify the configuration of the decision.properties file for SSL.
   a. In your Tomcat web server, go to the folder …\webapps\<ECC>\config, where <ECC> stands for your ECC installation folder.
   b. Rename the **decision.properties.sample** file to **decision.properties**.
   c. Open the **decision.properties** file and update the following parameters:

Parameter	Description
port	The port for the PCO Gateway. The default port for the PCO Gateway when SSL is enabled is "9900". If yours is different, change it here.
enableSSL	Change this to "true" This indicates that SSL is used to control the access to Policy Orchestrator.

2. Restart the Apache Tomcat service so that the configuration changes go into effect.

This is communication path that begins with (1) in the illustration in Setting Up SSL for Communication with ECC Components.

16.4.5 Enabling SSL for the Service Orchestrator

There are three connection points that you can choose to secure for the *Service Orchestrator* (SVO) with SSL. The table in this section explains in which configuration file you enable SSL for each connection point.

In the table, the connection number refers to the illustration in "Setting Up SSL for Policy Orchestrator and Its Web Client Components."

For information about the specific configuration file settings, see the related information in the *Service Orchestrator Installation Guide*.

IF you want to use SSL between...	THEN enable SSL in this file…	This is connection…
SVO plug-in component in the ECC framework *and* the Decision Gateway.*	configuration.properties for the plug-in side	(2)
SVO server *and* the Decision Gateway.*	decision.properties	(4)
SVO server *and* the SVO plug-in component in the ECC framework.**	slgbackendconnection.properties	(3)

* First you must add a truststore certificate as described in Step 3 of "Adding Truststore Certificates for SSL."

** First you must add a truststore certificate as described in Step 4 of "Adding Truststore Certificates for SSL."

16.5 Login and User Management for ECC Components for Policy Orchestrator

For access to Policy Orchestrator from one of the related ECC frontend components (the Policy Orchestrator Plug-in, Predictive Analytics Plug-In or the Service Orchestrator), you must ensure that users who log into the ECC can access the parts they need in Policy Orchestrator. This means they need to be authenticated at login and then have rights to the Policy Orchestrator eventbases and components.

User Authentication at Login

There are two ways that a user can login to the ECC:

- With Policy Orchestrator authentication
  The user logs in with a user name and password that are defined in Policy Orchestrator.

- With Automation Engine authentication
  The user logs in with a user name and password that are defined in the Automation Engine.
  To see and work with PCO eventbases and components, you have to have PCO configured
  for integrated authentication.

Requirements and considerations for integrated authentication

If you want to use integrated authentication to verify users at login, then you have to do the
following:

- Configure PCO for integrated authentication.

  You do this in the Configuration Manager, as described in "Defining User Management
  Settings" in the *Policy Orchestrator and Predictive Analytics Installation Guide*.

  ⚠ *Important*: When you configure the integrated authentication, make sure to configure the
  Automation Engine system name for the system that the users will log into the ECC. The
  ECC system is defined in the uc4config.xml file in the "config" folder of your
  ECC installation.

- Use the following steps to prepare PCO for mapping of data with the Automation Engine:
    1. Go to the folder where you have PCO installed.
    2. From the \ConfigurationManager\uc4api\v10 folder, copy the **uc4.dll** file.
    3. Paste it into the Runtime\AdminNode folder.

  For more details about integrated authentication, see the chapter "Login and User
  Management" in the *Policy Orchestrator and Predictive Analytics Installation Guide*.

User Access Rights to Eventbases and Rules

The user definition of each user who is going to work with business rules in the PCO plug-in of the
ECC must have the following:

- **Roles**
  One or both of the following roles:
    ○ *Rule Administrator* (for users who will create and maintain business rules)
    ○ *Rule Operator* (for users who will view rules and will need to activate/deactivate rules)
- **Authorizations**
  Rights to all eventbases that store rule management specifications.

Administrators define users in the Decision Modelling Studio or, if you have integrated
authentication set up, in the ECC User Management functions. For more about creating and
maintaining user definitions, see the user management information in the *Policy Orchestrator User
Guide* or the *Enterprise Control Center User Guide* (or ECC online help).

17 FAQ

Q: When Oracle is used as source database ("EventBase Configuration - AE System"), why do we obtain the error message "Table or view does not exist" although the Oracle user had read access to the database?

A: Make sure when using a separate database user (e.g., with read access), that this user may access the schema of the AE's database user. If access is denied, the Configuration Manager will display the message "table or view does not exist". Where appropriate, you may solve this problem using synonyms. The following example assumes that "AE01" is the name of the AE's database user. If this user logs in as a separate user for *Predictive Analytics* or *Policy Orchestrator*, the following required synonyms may be created :

> create synonym ah for AE01.ah;
>
> create synonym oh for AE01.oh;
>
> create synonym meld for AE01.meld;
>
> create synonym a_versi for AE01.a_versi;

Q: When using an MS SQL database, why can't we create a database using the Insight Configuration Manager?

A: To be able to create a new database, the specified MS SQL database user requires the role "DBCREATOR".

The specified MS SQL Server only allows Windows authentication mode. The Configuration Manager tries to use SQL Server authentication by default.

Q: Are there any limitations when using MS SQL Server Express?

A: The Express version is limited regarding database size and usable main memory. Regarding functions, there are no limitations for *Predictive Analytics* and *Policy Orchestrator*. All product functions may be used. Make sure to use the version "SQL Express with advanced services" as it includes the service full-text indexing.

Q: The connection test to a database server within another domain fails. How can we avoid this?

A: Try to change the MSDTC connection timeout to a higher value (for example to 60 seconds), as described in http://support.microsoft.com/kb/922430.

Q: Installation fails because the AdminNode is not starting up fast enough. How can the Installation still succeed?

A: If the AdminNode is to be installed as a console application as opposed to a windows service, it may happen on very slow machines that the AdminNode is still not completely available after a given interval (1 minute) during the installation procedure which results in a failed installation. In this case, the AdminNode needs to be installed as a service since it is possible even on very slow machines to wait until a windows service started completely.

Q: If I use Oracle as database connection type, I get the error message 'ORA-12154' when testing the settings. Why?

A: This can be caused by several reasons. If you use TNS a your DB connection method, make sure that the Windows environment variable TNS_ADMIN is defined and points to the location of your tnsnames.ora file. If you already have Oracle client installed, depending on whether the Connection Method in your DB Connection Settings is set to "Basic" and/or "TNS", you need to activate the EZCONNECT and/or TNSNAMES options, respectively. By default both of these connection methods are active.

Q: I use Glassfish as web server for the Policy Orchestrator Web-Application and get an 'Access Denied' after the log in. Which configuration is incorrect?

A: Access rights have to be configured for Glassfish. Make sure to have the following entry in the Glassfish server policy file:

grant codeBase "file:${com.sun.aas.installRoot}/domains/<YOUR_DOMAIN>/ applications/decision-web/-" { permission java.lang.reflect.ReflectPer mission "suppressAccessChecks"; };