

# HP Service Manager

Software Version: 9.40

For the supported Windows® and Linux® operating systems

## Smart Analytics Administrator and User Guide

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# Smart Analytics overview

Built on Service Manager (SM) 9.40 and using an OEM-licensed version of HP IDOL, SM Smart Analytics heralds the debut of the "Big Data" edition of Service Manager. This powerful SM-IDOL integration drives automation further into ITSM processes by mining unstructured data and by extracting information from different types of data. Smart Analytics in the current release focuses on the following:

- Improving the processes of Help Desk management
- Reducing the time and effort expended on interaction submittals by end users and IT professionals
- Accelerating the process of problem management

Smart Analytics enables your Service Manager to become a more intelligent and efficient system by extracting and understanding your content. In this release, Smart Analytics includes the following features:

## **Smart Ticket**

With Smart Ticket, you can quickly submit a Service Desk record by just entering a description or attaching a picture. Smart Analytics intelligently populates other fields, such as category or affected services, by extracting and analyzing the content that you entered in the record.

## **Hot Topic Analytics**

Hot Topic Analytics intelligently displays an interactive diagram indicating the hot topics among recent incidents. This enables you to easily discover incident trends and identify problem candidates.

# Setting up Smart Analytics

To set up Service Manager 9.40 Smart Analytics, complete the following tasks:

- ["Task 1: Install Smart Analytics" below](#)
- ["Task 2: Enable and configure Smart Analytics in Service Manager" on page 20](#)

**Note:** If you are upgrading your SM 9.34 Smart Analytics to SM 9.40 Smart Analytics, see ["Upgrade Smart Analytics from 9.34 to 9.40" on page 20](#).

## Task 1: Install Smart Analytics

To install Smart Analytics, follow the instructions in these sections:

**Note:** Before you install Service Manager 9.40 Smart Analytics, make sure that you have installed or upgraded to Service Manager 9.40 Applications.

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## Installation overview

Smart Analytics is powered by HP IDOL. You need to prepare the Smart Analytics servers to deploy Smart Analytics.

You can deploy the Smart Analytics servers as a standalone or distributed system, depending on the amount of data to index and the number of actions to process.

**Note:** For more information, see the *Service Manager Smart Analytics Deployment Sizing Guide*, which is available on HP Software Support Online (<https://softwaresupport.hp.com>) as a white paper.

### **IDOL Server standalone setup**

The IDOL Server standalone setup installs all the IDOL server components on one host, including the content, community, category, view, and agentstore components.

### **IDOL Server distributed setup**

The IDOL Server distributed setup requires an IDOL Proxy Server and multiple Content Servers:

- The IDOL Server distributed setup installs the IDOL Proxy Server on one host, which includes the community, category, view, Distributed Index Handler (DIH), Distributed Action Handler (DAH), and agentstore components. The IDOL Proxy Server automatically routes tasks to the appropriate Content Servers.
- The IDOL Server distributed setup also requires at least two Content Servers on different hosts. The Content Server indexes, collects, manipulates, and stores data.

### **Image Server**

The IDOL Image Server is required for both the standalone and distributed setups to perform the Optical Character Recognition (OCR) tasks. You can install the Image Server on the same host as the IDOL Server in the standalone setup or the IDOL Proxy Server in the distributed setup. However, we recommend that you install the Image Server on a dedicated host for better performance.

### **Distributed Image Servers**

In large systems where you want to process a very large number of documents, you can use multiple Image Server instances. In this case, you can use an Image Proxy Server that includes a Distributed Action Handler (DAH) to distribute actions to each Image Server, to ensure that each Image Server receives a similar number of requests.

## **System requirements**

This section lists the hardware requirements and the supported operation systems for the Smart Analytics servers.



## Hardware requirements

### Standalone IDOL Server

- A dedicated SCSI disk
- 32 GB RAM (4 GB minimum)

**Note:** If you want to install the Image Server on the same machine as the standalone IDOL Server, at least 8 GB RAM is required.

- 200 GB Disk
- 8 cores CPU (a minimum of 2 dedicated CPU - XEON 3 GHz or above)

### Distributed IDOL Server

For IDOL Proxy Server:

- A dedicated SCSI disk
- 32 GB RAM (4 GB minimum)
- 100 GB Disk
- 8 cores CPU (a minimum of 2 dedicated CPU - XEON 3 GHz or above)

For each Content Server:

- A dedicated SCSI disk
- 4 GB RAM
- 100 GB Disk
- A minimum of 2 dedicated CPU - XEON 3 GHz or above

### Image Server and distributed Image Server

- A dedicated SCSI disk
- 4 GB RAM
- 100 GB Disk
- A minimum of 2 dedicated CPU - XEON 3 GHz or above

### Supported operating systems

- Windows x86 64

The most fully tested operating systems are as follows:

- Windows Server 2012 x86 64
- Windows Server 2008 R2 x86 64

- Linux x86 64

The minimum recommended versions are as follows:

- Red Hat Enterprise Linux (RHEL) 5
- SuSE Linux Enterprise Server (SLES) 10

## Install SM Smart Analytics servers on Windows

**Note:** Before you install the SM Smart Analytics servers, make sure that your servers meet the system requirements as specified in ["System requirements" on page 8](#).

### Standalone

#### Standalone IDOL Server

To install the IDOL Server on Windows in the standalone setup, follow these steps:

**Note:** If you cannot decide the proper hostnames or ports that you need to enter during the installation, or you want to change your settings after installation, you can modify the following configuration file:

<Smart Analytics Installation>/IDOL/AutonomyIDOLServer.cfg

1. Run the Smart Analytics installer for Windows (setupSmartAnalyticsWindowsX64.exe).

**Note:** If you are re-installing the Smart Analytics server on the same host, be sure to clear the target directory before re-installation.

2. Check the introduction of the installer, and then click **Next**.
3. Read the License Agreement. If you accept it, select the corresponding option, and then click **Next**.
4. Choose an installation folder, and then click **Next**. The default installation folder is C:\Program Files (x86)\HP\Service Manager 9.40\SmartAnalytics.
5. Select **Standalone**, and then click **Next**.
6. Select **IDOL Server**, and then click **Next**. The IDOL Server includes the content, community, category, view, and agentstore components.
7. Specify the following ports for IDOL Server, and then click **Next**.
  - IDOL Server Port: The action (ACI) port number. Default: 9000
  - IDOL Index Port: The port number for index actions. Default: 9001
  - IDOL Service Port: The port on the host server on which the service listens for service status and control requests. Default: 9002
8. Specify the permitted Service Manager server, and then click **Next**.

You need to specify the IP addresses (or host names) of the Service Manager servers that are permitted to send administrative and query actions to the Smart Analytics servers. Use commas to separate multiple addresses (no space before or after a comma).
9. Check the pre-installation summary, and then click **Install**. If you want to change your configuration, click **Previous**.

10. Wait for the installation to complete, and then click **Done**.
11. Make sure that the IDOL Server service is started on Windows.

Server name	Service name
Standalone IDOL Server	HP SM Smart Analytics Server

## Standalone Image Server

To install the Image Server on Windows in the standalone setup, follow these steps:

**Note:** If you cannot decide the proper hostnames or ports that you need to enter during the installation, or you want to change your settings after installation, you can modify the following configuration file:

`<Smart Analytics Installation>/ImageServer/imageserver.cfg`

1. Run the Smart Analytics installer for Windows (setupSmartAnalyticsWindowsX64.exe).

**Note:** If you are re-installing the Smart Analytics server on the same host, be sure to clear the target directory before re-installation.

2. Check the introduction of the installer, and then click **Next**.
3. Read the License Agreement. If you accept it, select the corresponding option, and then click **Next**.
4. Choose an installation folder, and then click **Next**. The default installation folder is C:\Program Files (x86)\HP\Service Manager 9.40\SmartAnalytics.
5. Select **Standalone**, and then click **Next**.
6. Select **Image Server**, and then click **Next**.
7. Specify the following ports of the Image Server, and then click **Next**.
  - Image Server Port: The port for sending actions to the Image Server. Default: 18000
  - Image Service Port: The port on the host server on which the service listens for service status and control requests. Default: 18001

- Specify the permitted Service Manager server, and then click **Next**.

You need to specify the IP addresses (or host names) of the Service Manager servers that are permitted to send administrative and query actions to the Smart Analytics servers. Use commas to separate multiple addresses (no space before or after a comma).

- Check the pre-installation summary, and then click **Install**. If you want to change your configuration, click **Previous**.
- Wait for the installation to complete, and then click **Done**.
- Make sure that the Image Server service is started on Windows.

Server name	Service name
Image Server	HP SM Smart Analytics Image Server

## Distributed

### Distributed IDOL Servers

To install the IDOL Servers on Windows in the distributed setup, follow these steps:

**Note:**

- For the distributed installation, you must install at least two Content Servers in different destinations to connect to the IDOL Proxy Server.
- If you cannot decide the proper hostnames or ports during the installation, or you want to change your settings after installation, you can modify the following configuration files:

IDOL Proxy Server: *<Smart Analytics Installation>/IDOL/AutonomyIDOLServer.cfg*

Content Server: *<Smart Analytics Installation>/content/content.cfg*

- Install the first Content Server on one host:
  - Run the Smart Analytics installer for Windows (setupSmartAnalyticsWindowsX64.exe).
  - Check the introduction of the installer, and then click **Next**.

- c. Read the License Agreement. If you accept it, select the corresponding option, and then click **Next**.
- d. Choose an installation folder, and then click **Next**.
- e. Select **Distributed**, and then click **Next**.
- f. Select **IDOL Content Server** to install the first Content Server.
- g. Specify the following ports for the Content Server, and then click **Next**.
  - o Content Server Port: The port number for the Content Server. Default: 21000
  - o Content Index Port: The port number for content index. Default: 21001
  - o Content Service Port: The port on the server on which the service listens for service status and control requests. Default: 21002
- h. Specify the IDOL Proxy Server to which the Content Server connects, and then click **Next**.

**Note:** This is the host name or IP address of the IDOL Proxy Server that you need to install after installing two Content Servers for the distributed setup.

- i. Check the pre-installation summary, and then click **Install**.
  - j. Wait for the installation to complete, and then click **Done**.
2. Register the service for the Content Server on Windows:

- a. Open the command-line window.
- b. Type the following command, and then press Enter.

```
cd CONTENT_SERVER_INSTALL_DIR
```

**Note:** CONTENT\_SERVER\_INSTALL\_DIR is the directory that contains the content.exe file.

- c. Type the following command, and then press Enter.

```
content.exe -install
```

The content service is registered successfully without any prompt.

**Tip:** If you want to remove the content service, run the following command:

```
content.exe -uninstall
```

3. Repeat the previous two steps to install the second Content Server on a different host and register the service.

**Tip:** We recommend that you install the second Content Server on a different host for the distributed setup. However, if you want to install the second Content Server on the same host as the first Content Server, follow these step:

- a. Create a directory at the same level of the first Content Server. For example, you can name it as content2.
- b. Copy the following files from installation directory of the first Content Server to the directory that you created in the previous step:
  - o langfiles
  - o modules
  - o content.cfg
  - o content.exe
  - o licensekey.dat
- c. Rename content.exe to a different name such as content2.exe.
- d. Rename content.cfg to the same name as the .exe file in the previous step such as content2.cfg. Make sure that the new file name (without extension) for .cfg matches the new file name for .exe, otherwise the Content Server cannot start.
- e. Edit the .cfg file as needed. For example, at least you need to modify the ports to avoid port conflict.
- f. Register the new content service by following the same instruction in step 2.

4. Install the IDOL Proxy Server:

- a. From the installer, select **Distributed**, and then select **IDOL Proxy Server**. The IDOL Proxy Server includes the community, category, view, DIH, DAH, and agentstore components.
- b. Specify the following ports for the proxy server, and then click **Next**.
  - o IDOL Server Port: The action (ACI) port number. Default: 9000
  - o IDOL Index Port: The port number for index actions. Default: 9001
  - o IDOL Service Port: The port on the host server on which the service listens for service status and control requests. Default: 9002
- c. Specify the IP addresses and the ports of the two Content Servers that you installed in the previous steps, and then click **Next**.
- d. Specify the Service Manager server, and then click **Next**.

You need to specify the IP addresses (or host names) of the Service Manager servers that are permitted to send administrative and query actions to the Smart Analytics servers. Use commas to separate multiple addresses (no space before or after a comma).

- e. Check the pre-installation summary, and then click **Install**.
- f. Wait for the installation to complete, and then click **Done**.

5. Make sure that the services for the corresponding servers are started on Windows.

Server name	Service name on Windows
IDOL Proxy Server	HP SM Smart Analytics Proxy Server
Content Servers	content  <b>Note:</b> The service name is the same as the file name of "content.exe" without the .exe extension. If you change content.exe to content1.exe, the service name will be content1.

### Distributed Image Servers

To install the Image Servers on Windows in the distributed setup, follow these steps:



**Note:**

- For the distributed installation, you must install at least two Image Servers in different destinations to connect to the Image Proxy Server.
- If you cannot decide the proper hostnames or ports during the installation, or you want to change your settings after installation, you can modify the following configuration files:

Image Proxy Server: <Smart Analytics Installation>/ImageDAH/dah.cfg

Image Server: <Smart Analytics Installation>/ImageServer/imageserver.cfg

1. Install the first Image Server on one host:
  - a. Run the Smart Analytics installer for Windows (setupSmartAnalyticsWindowsX64.exe).
  - b. Check the introduction of the installer, and then click **Next**.
  - c. Read the License Agreement. If you accept it, select the corresponding option, and then click **Next**.
  - d. Choose an installation folder, and then click **Next**.
  - e. Select **Distributed**, and then click **Next**.
  - f. Select **Image Server** to install the first Image server.
  - g. Specify the following ports for the Image Server, and then click **Next**.
    - Image Server Port: The port for sending actions to the Image Server. Default: 18000
    - Image Service Port: The port on the host server on which the service listens for service status and control requests. Default: 18001
  - h. Specify the Image Proxy Server to which the Image Server connects, and then click **Next**.

**Note:** This is the host name or IP address of the Image Proxy Server that you need to install after installing two Image Servers for the distributed setup.

- i. Check the pre-installation summary, and then click **Install**.
- j. Wait for the installation to complete, and then click **Done**.

2. Repeat the previous step to install the second Image Server on a different host.
3. Install the Image Proxy Server:
  - a. From the installer, select **Distributed**, and then select **Image Proxy Server**. The Image Proxy Server includes a DAH component that handles multiple Image Servers.
  - b. Specify the following ports for the Image Proxy Server, and then click **Next**.
    - Image DAH Server Port: The port on which the Image DAH listens. Default: 40000
    - Image DAH Service Port: The port on the host server on which the service listens for service status and control requests. Default: 40002
  - c. Specify the IP addresses and the ports of the two Image Servers that you created for Image Proxy Server to connect to in the distributed mode, and then click **Next**.
  - d. Specify the Service Manager server, and then click **Next**.

You need to specify the IP addresses (or host names) of the Service Manager servers that are permitted to send administrative and query actions to the Smart Analytics servers. Use commas to separate multiple addresses (no space before or after a comma).
  - e. Check the pre-installation summary, and then click **Install**.
  - f. Wait for the installation to complete, and then click **Done**.
4. Make sure that the services for the corresponding servers are started on Windows according to your installation.

Server name	Service name on Windows
Image Proxy Server	HP SM Smart Analytics Image Proxy Server
Image Server	HP SM Smart Analytics Image Server

**Tip:** If you want to uninstall SM Smart Analytics, see ["Uninstall Smart Analytics" on page 41](#).

## Install SM Smart Analytics on Linux

**Note:** Before you install the SM Smart Analytics servers, make sure that your servers meet the

system requirements as specified in ["System requirements" on page 8](#).

To install the SM Smart Analytics servers on Linux, follow these steps:

1. Obtain the SM Smart Analytics installer (setupSmartAnalyticsLinuxX64.bin) for Linux from the SM Smart Analytics installation media.
2. Run the installer from the command line or by using the GUI interface on the Linux server, and then follow the on-screen instructions to install SM Smart Analytics.

**Tip:** For more information on the configuration items during installation, refer to the installation section for Windows.

3. Run the corresponding commands to start the SM Smart Analytics servers that you installed:

- IDOL Server for the standalone setup or IDOL Proxy Server for the distributed setup

```
[INSTALL_DIR]/scripts/StartIDOL.sh
```

**Tip:** If you want to stop the IDOL Server or the IDOL Proxy Server, run the following command:

```
[INSTALL_DIR]/scripts/StopIDOL.sh
```

- Content Server in the distributed setup

```
[INSTALL_DIR]/content/startContent.sh
```

**Tip:** If you want to stop the Content Server, run the following command:

```
[INSTALL_DIR]/content/stopContent.sh
```

- Image Server

```
[INSTALL_DIR]/scripts/StartImageserver.sh
```

**Tip:** If you want to stop the Image Server, run the following command:

```
[INSTALL_DIR]/scripts/StopImageserver.sh
```

- Image Proxy Server

```
[INSTALL_DIR]/scripts/StartImageDAH.sh
```

**Tip:** If you want to stop the Image Proxy Server, run the following command:

```
[INSTALL_DIR]/scripts/StopImageDAH.sh
```

**Tip:** If you want to uninstall SM Smart Analytics, see ["Uninstall Smart Analytics" on page 41](#).

## Task 2: Enable and configure Smart Analytics in Service Manager

To enable and configure Smart Analytics, follow these steps:

1. In Service Manager, set up the connection to the Smart Analytics servers and enable Smart Analytics. See ["Enable Smart Analytics in Service Manager" on page 22](#).

**Note:** If you want to set up an SSL connection, see ["Configure SSL between Service Manager and Smart Analytics" on page 33](#).

2. Set up data cleansing configuration. See ["Configure data cleansing" on page 23](#).
3. Configure Smart Ticket. See ["Configure Smart Ticket" on page 26](#).
4. Configure Hot Topic Analytics. See ["Configure Hot Topic Analytics" on page 31](#).
5. Add the "idol.assistant" capability word to the operator records. See ["Add Smart Analytics capability word for power users" on page 32](#).

## Upgrade Smart Analytics from 9.34 to 9.40

**Note:** If you did not install SM 9.34 Smart Analytics, you can skip this section. Otherwise, follow the instructions in this section to upgrade your SM 9.34 Smart Analytics to SM 9.40 Smart Analytics.

To upgrade SM 9.34 Smart Analytics to SM 9.40 Smart Analytics, follow these steps:

1. Upgrade Service Manager Applications from 9.34 to 9.40 by using the SM upgrade tool, which will copy your customized Smart Analytics related data to 9.40.
2. Back up the following Smart Analytics configuration files.
  - *<Smart Analytics Installation>/IDOL/AutonomyIDOLServer.cfg*
  - *<Smart Analytics Installation>/ImageServer/imageserver.cfg*
  - *<Smart Analytics Installation>/IDOL/langfiles/english.dat*, and other .dat files that you want to move to Smart Analytics 9.40.
  - *<Smart Analytics Installation>/IDOL/content/main/qssp*
3. Back up index and category data in the Smart Analytics server of SM 9.34. For instructions, see step 2 in ["Transfer Smart Analytics intelligence between systems" on page 38](#).
4. Install SM 9.40 Smart Analytics. For instructions, see ["Task 1: Install Smart Analytics" on page 7](#).
5. Restore the backup files (in steps 2 and 3) into the SM 9.40 Smart Analytics server. For instructions, see step 7 in ["Transfer Smart Analytics intelligence between systems" on page 38](#).

# Administrator tasks

This section includes the following topics to help you configure or troubleshoot Smart Analytics as administrators:

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## Enable Smart Analytics in Service Manager

**User Role:** Administrator

To enable Smart Analytics in Service Manager and set up connections, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Configuration**.
2. Make sure that the **Smart Analytics Server Enabled** check box is selected to enable Smart Analytics.

**Tip:** You can clear the selection if you want to disable the Smart Analytics feature or if you need to disconnect Service Manager from the Smart Analytics IDOL Server.

3. Enter the address and port for the IDOL Server (standalone setup) or the IDOL Proxy Server (distributed setup), and then click **Test Connection**.
4. Make sure that **Image Server Enabled** check box is selected to enable the Optical Character Recognition (OCR) feature for the Smart Ticket.

**Note:** This OCR feature for Smart Ticket only functions when the **Smart Analytics Server Enabled** option is selected in step 2.

5. Enter the address and port for the Image Server (standalone setup) or the Image Proxy Server (distributed setup), and then click **Test Connection**.
6. Click **Save**.

## Configure data cleansing

**User Role:** Administrator

The purpose of data cleansing is to remove unwanted contents from the data set that is used to train and index into Smart Analytics as well as in runtime processing.

**Note:** The data cleansing configurations will be applied to all the fields that are defined as "Content" or "Category based on following fields" in the configuration GUI.

To add a data cleansing configuration, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Data Cleansing**.
2. Select a module. For example, Interaction.
3. Select one of the following actions:

- **Remove:** Remove the matched texts and index the rest to SM Smart Analytics.
  - **Include:** Extract and index the texts between the start pattern and the end pattern exclusively.
  - **Exclude:** Exclude the texts that match the pattern (including start, end, and all the words between them) and index the rest to SM Smart Analytics.
4. Enter the text or pattern for the action that you selected. For the **Remove** action, you only need to type the text string to be removed. For the **Include** and **Exclude** actions, the start pattern is the text string that you need to specify while the end pattern can be one of these options: a text string that you specify, end of line, or end of document.

To learn how the text or pattern takes effect, see the following examples.

- Example of the **Remove** action:

Original content	[telephone communication history with customer]: Microsoft Office keeps asking for installation of additional components / language packs.
Specified text to be removed	[telephone communication history with customer]:
After cleansing	Microsoft Office keeps asking for installation of additional components / language packs

- Examples of the **Include** action:

Original content	Description of the issue: Sent items are not being sent by Outlook. Actions suggested by help desk agent: asked customer to check network connection status, shows connection is OK
Start pattern	description of the issue:
End pattern	actions suggested by help desk agent:
After cleansing	Sent items are not being sent by Outlook.



<b>Original content</b>	Description of the issue: Items are not sent by Outlook. Actions suggested by help desk agent: asked customer to check network connection status, shows connection is OK
<b>Start pattern</b>	description of the issue:
<b>End pattern</b>	<b>End of line</b>
<b>After cleansing</b>	Items are not sent by Outlook.

<b>Original content</b>	Description of the issue: Sent items are not being sent by Outlook. Actions suggested by help desk agent: asked customer to check network connection status, shows connection is OK
<b>Start pattern</b>	description of the issue:
<b>End pattern</b>	<b>End of document</b>
<b>After cleansing</b>	Sent items are not being sent by Outlook. Actions suggested by help desk agent: asked customer to check network connection status, shows connection is OK

■ Examples of the **Exclude** action:

<b>Original content</b>	SQL Server is down and cannot be restarted. [appendix: error log] Details: XXXXXXXXXXXXXXXXXX [end of appendix]
<b>Start pattern</b>	[appendix: error log]
<b>End pattern</b>	[end of appendix]
<b>After cleansing</b>	SQL Server is down and cannot be restarted.

<b>Original content</b>	SQL Server is down and cannot be restarted. [appendix: error log] Details: XXXXXXXXXXXXXXXXXX [end of appendix]
<b>Start pattern</b>	[appendix: error log]
<b>End pattern</b>	<b>End of line</b>
<b>After cleansing</b>	SQL Server is down and cannot be restarted. XXXXXXXXXXXXXXXXXX [end of appendix]

<b>Original content</b>	SQL Server is down and cannot be restarted. [appendix: error log] Details: XXXXXXXXXXXXXXXXXX [end of appendix]
<b>Start pattern</b>	[appendix: error log]
<b>End pattern</b>	<b>End of document</b>
<b>After cleansing</b>	SQL Server is down and cannot be restarted.

**Note:** Regular expressions are not supported.

5. Select the **Match Case** check box if you only want to find the texts that match the case of the text or pattern that you entered.
6. Select the **Active** check box to activate this configuration.
7. Click **Add**. The new data cleansing configuration is now added.

## Configure Smart Ticket

**User Role:** Administrator

Smart Ticket provides the following two out-of-box auto-classification configurations:

- Category
- Affected Service

These out-of-box configurations are best practices based on the out-of-box data. You can use or modify these configurations, or you can add new configurations that best reflect your business needs.

## Add a new Smart Ticket task

To add a new Smart Ticket task (auto-classification), follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Smart Ticket**.
2. Select **Blank** from the drop-down list, and then click **Add**.

**Note:** Alternatively, you can choose an out-of-box template, and then modify it.

3. Type the task name for the new Smart Ticket configuration.
4. Go to the **Configurations** tab.
5. Select a module for auto-classification. For example, Interaction.
6. In the **Training Sample Query** field, define a query to refine the sample data. The default value is `category~="service catalog"`, which means the data that is not in the "service catalog" category can be selected as the training samples.
7. Select the target fields to be automatically filled by SM Smart Analytics. You can select up to three levels. For example, Category, Subcategory, and Area.
8. Select the source fields that the auto-classification is based on. For example, title and description.
9. In the **Training Optimization** tab, modify the settings for training optimization.

**Note:** We recommend that you keep the default settings. For more information on improving accuracy for Smart Ticket, see ["Improving accuracy for Smart Ticket" on page 48](#).

Setting	Description
Training Samples Per Category	The maximum records to be used as the training samples for each category. Default: 200

Setting	Description
Test Data Coverage	The percentage of records out of the total source data that are used to test the trained system.  Default: 5
Source Data Coverage	The percentage of records out of the total source data that are used to train the system.  Default: 90
Training Method	<ul style="list-style-type: none"> <li>■ Choose "use best terms" for a faster training process if you have huge data volume.</li> <li>■ Choose "use training documents" for a higher accuracy with a slower training process.</li> </ul> Default: use training documents
Adjust Term Weight From Test Result	Select this option to automatically adjust the term weight for some terms in some categories based on testing result.  Default: Disabled
Remove Low Weight Document	After the training is finished by using the "training documents" method, check the weight of every training document, and then remove the low-weight training documents from the training sample pool.  Default: Disabled  <b>Weight Threshold</b>  The threshold to remove the low weight training documents, after finish training by using the "training documents" training method.  <b>Min Number of Training Samples</b>  The minimum number of the training documents in a category. Use this parameter to ensure that a certain number of training samples will not be remove when the system removes the low weight training documents.

10. Click **Add**. The new auto-classification task is now added to the **Current Configuration List**.

## Perform training and testing

To perform a training for a Smart Ticket task, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Smart Ticket**.
2. Click the task name of a Smart Ticket configuration. The **Smart Ticket Task** screen appears.
3. Click the **Training** button to start training this auto-classification.

**Tip:** You can click **Refresh Status** to view the latest training status.

4. When the training is done, click **Testing**. When the testing is finished, you can view an estimated result of the accuracy for this auto-classification in the **Testing Result** field.

**Tip:** The quality of the sample data is critical to the accuracy of the auto-classification. To refine your sample data, you can define a query in **Training Sample Query** field under the **Configurations** tab. For more best practices to improve accuracy, see ["Improving accuracy for Smart Ticket" on page 48](#).

**Tip:** If you disable or enable the Multi-Company mode for Service Manager, you need to delete the existing Smart Ticket configuration tasks and re-create them before you perform training.

## Apply a rule-based training

You can append the rule-based analysis on top of the meaning based analysis. The typical scenario is that if one particular record has the same relevancy within several categories, you can append a rule to one specific category to improve the categorization accuracy.

"Rule Field Name" is where you can specify the field based on which you define the rule.

"Apply Rule" lists all the categories, where you can choose the target category and set the value for the rule you want to append.

For example, suppose there are two affected services, "printer\_San Diego" and "printer\_Shanghai". You can define the rule field as "Primary Contact Location City". Then, set value "San Diego" to the "printer\_San Diego", and set value "Shanghai" to the "printer\_Shanghai". With this rule, if the contact person for the new coming record is from the San Diego office, the record will be automatically filled with "printer\_San Diego" as the affected service.

To apply a rule-based training for an auto-classification, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Smart Ticket**.
2. Click a task name of a Smart Ticket configuration. The **Smart Ticket Task** screen appears.
3. Go to the **Rule Base** tab.
4. In the **Rule Field Name** field, specify the field name based on which you define the rule.
5. Click **Apply Rule**, and then click **Search**. A list containing all the categories appears, where you can choose the target category and set the value for the rule that you want to apply.
6. Click a category.
7. In the **Rule Field Value** field, set the value for the rule that you want to apply.
8. Click the **Apply Rule** button.

## Perform tuning in the Smart Ticket definition

Another way to improve the accuracy of Smart Ticket is to perform tuning continually for the Smart Ticket definition.

To perform tuning in the Smart Ticket definition, follow these steps:

1. Service Desk agents select tuning candidates during their daily work:
  - a. In an interaction record, update the fields suggested by Smart Ticket if the suggested values are incorrect, such as category or affected service.
  - b. After the interaction is closed, from the interaction record, click **More > Add to Tuning Records** to add this record as a tuning candidate for Smart Ticket.

**Note:** The **Add to Tuning Records** option is only available when an interaction is in the "Closed" status.

2. A system administrator tunes Smart Ticket after a period of time to increase the accuracy:
  - a. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Smart Ticket**.
  - b. Click a task name of a Smart Ticket configuration. The **Smart Ticket Task** screen appears.

- c. Go to the **Tuning** tab.
- d. Click **Manage Tuning Records** to open **Tuning Records** where you can find all the tuning candidates.
- e. Delete the meaningless or inappropriate records. The rest of records will be used in tuning Smart Ticket.
- f. Click the **Tuning** button to start the tuning process.

## Configure Smart Ticket for multi-company

SM Smart Analytics supports multi-tenancy. When multi-company mode is enabled in Service Manager, you can configure specific Smart Ticket task to apply to multiple companies when applicable. The Smart Ticket configuration takes effect on these companies individually by segregating their data in Smart Analytics database.

To specify the companies in a Smart Ticket configuration, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Smart Ticket**.
2. Click a task name of a Smart Ticket configuration. The **Smart Ticket Task** screen appears.
3. Click the **Multiple Company** tab, and then do one of the following:
  - Click **Add Company** to add companies to this configuration.

**Note:** A training is needed if you add a new company.

- Click **Remove Company** to remove companies from this configuration.

**Tip:** If you are unable to see the **Multiple Company** tab, see the related topic in "[Troubleshooting: Smart Analytics setup](#)" on page 67.

## Configure Hot Topic Analytics

**User Role:** Administrator

To configure Hot Topic Analytics, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Hot Topic Analytics**.
2. From the **Analytic Corpus** tab, modify the following settings as needed:
  - **Index Condition:** Define a query to specify the records that you want to include in Hot Topic Analytics.
  - **Title Field:** Select a field to define the title when viewing individual incident in Hot Topic Analytics. The title field is also an important data source for hot topic hunting.
  - **Contents Fields:** Select the data source for Hot Topic Analytics. Be sure to only use text fields such as description and solution.
3. From the **Filter Fields** tab, modify the following settings as needed:
  - **Timestamp Field:** Select a field to indicate the time stamp for filtering.
  - **Properties Fields:** Select fields that can be used for advanced filtering in Hot Topic Analytics. For example, you can define Category or Priority as filter.
4. From the **Advanced** tab, modify the following settings as needed:
  - **Expiry Day:** Hot Topic Analytics removes the data that was indexed longer than the setting in this field from its analysis.
  - **Max Return Results:** The maximum number of records returned from Hot Topic Analytics.
5. Click **Save** to save your modification.
6. Click the **Start Index** button to start indexing.

**Tip:** You can click the **Refresh Status** button to refresh the index status.

## Add Smart Analytics capability word for power users

**User Role:** Administrator

To enable power users such as Service Desk Agent or Problem Coordinator to use the Smart Analytics features, you need to add the "idol.assistant" capability word to their operator records. The operators with this capability word can see the **Service Desk > Create Smart Interaction** and **Problem Management > Hot Topic Analytics** menus and use these features.



**Note:** ESS self-service users are able to submit Smart Request records after you enable SM Smart Analytics. No additional capability word is needed.

To add the "idol.assistant" capability word to an operator record, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Operators**.
2. Enter or select your search criteria, and then click **Search**.
3. Select an operator from the record list to view the operator record.
4. Click the **Startup** tab.
5. Add `idol.assistant` in the **Execute Capabilities** section.

## Configure SSL between Service Manager and Smart Analytics

**User Role:** Administrator

If you want to set up an SSL connection between Service Manager and Smart Analytics, follow these steps as an example:

**Note:** The following steps are to create the self-signed certificate, which is used for your internal use and testing only.

1. Use OpenSSL to generate the SSL certificate files for the Smart Analytics server:

- a. Generate a private key:

```
openssl genrsa -out idolserver.key 2048
```

- b. Generate a Certificate Signing Request (CSR):

```
openssl req -new -key idolserver.key -out idolserver.csr
```

- c. Generate a self-signed certificate:

```
openssl x509 -req -days 365 -in idolserver.csr -signkey  
idolserver.key -out idolserver.crt
```

2. Configure the certificate in the Smart Analytics server:

a. Update the `AutonomyIDOLServer.cfg` file as follows:

```
[server]
SSLConfig=SSLOption1
SSLIDOLComponents=TRUE

[SSLOption1]
SSLMethod=SSLV23
SSLCertificate=<absolute path to the idolserver.crt file>
SSLPrivateKey=<absolute path to the idolserver.key file>

[IndexServer]
SSLConfig=SSLOption1

[DataDRE]
SSLConfig=SSLOption1

[CatDRE]
SSLConfig=SSLOption1

[AgentDRE]
SSLConfig=SSLOption1

[Agent]
SSLConfig=SSLOption1
```

b. Update the `AgentStore.cfg` file as follows:

```
[server]
SSLConfig=SSLOption1
SSLIDOLComponents=TRUE

[IndexServer]
SSLConfig=SSLOption1

[SSLOption1]
SSLMethod=SSLV23
SSLCertificate=<absolute path to the idolserver.crt file>
SSLPrivateKey=<absolute path to the idolserver.key file>
```

3. Restart the Smart Analytics server, and then verify that SSL is in use:

- Check the log file (`<Smart Analytics Installation>\IDOL\logs\application.log`). The following example confirms that SSL is in use.

```
17/07/2014 18:27:23 [0] 00-Always: Engine [content] state : RUNNING
17/07/2014 18:27:23 [0] 00-Always: Engine [community] state : RUNNING
17/07/2014 18:27:23 [0] 00-Always: Engine [category] state : RUNNING
```

```

17/07/2014 18:27:23 [0] 00-Always: Engine [agentstore] state : RUNNING
17/07/2014 18:27:23 [0] 00-Always: Engine [view] state : RUNNING
17/07/2014 18:27:23 [0] 00-Always: All 5 components started successfully.
17/07/2014 18:27:23 [0] 30-Normal: ACI Server validated operations key.
17/07/2014 18:27:23 [0] 30-Normal: ACI Server has no QPS limit.
17/07/2014 18:27:23 [0] 30-Normal: ACI Server is licensed for SSL encryption.
17/07/2014 18:27:23 [0] 30-Normal: This ACI Server will not accept
unencrypted communications from ACI clients.
17/07/2014 18:27:23 [0] 30-Normal: Running with FIPS mode inactive
17/07/2014 18:27:23 [0] 30-Normal: ACI Servers runs in SSL mode.

```

- If you test from a web browser by entering a command (such as `https://<SmartAnalyticsServer>:9000/`), a warning message is displayed. If you continue, the response in the browser indicates that unencrypted communications are disallowed, which confirms that SSL is working.

4. In the Service Manager server, run the following commands to add the certificate (`idolserver.crt`) to keystore:

```
keytool -import -v -alias sm -keystore smtrust -storepass password -
file idolserver.crt
```

5. Update the `sm.ini` file by adding the following lines:

```
truststoreFile:smtrust
truststorePass:password
```

6. Restart the Service Manager server.

## Use Smart Analytics Assistant

**User Role:** Administrator

Smart Analytics Assistant is a build-in tool for you to perform some administrative actions in Smart Analytics. For example, you can use this tool for troubleshooting.

To use Smart Analytics Assistant, follow these steps:

1. In the command line, type `saa`, and then press Enter.
2. Select one of the actions for Smart Analytics from the drop-down list.

**Note:** Replace *<SmartAnalyticsServer>*, *<port>*, *<variable\_value>* in the query examples with the corresponding values.

#### ■ Backup Category

Exports a category including its descendants, training documents and terms and weights to the XML format. The file is stored in the path that you specified (For example: c:\backup\_category). The category is backed up in a .zip file.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=BackupServer&path=c:\ba  
ckup_category
```

**Note:** By default, the Smart Analytics server port is 9000.

#### ■ Backup Index

Exports all the index documents of a database from the Smart Analytics server to a series of compressed files in the following working directory of the Smart Analytics server: *<Smart Analytics Installation>\IDOL\content*. If no DatabaseMatch is specified, all documents are exported.

Query example:

```
http://<SmartAnalyticsServer>:<indexPort>/DREEXPORTIDX?DatabaseMatc  
h=<variable_value>
```

**Note:** By default, the index port is 9001.

#### ■ Restore Category step 1 – Restore

Imports the category information contained in the backup file.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=RestoreServer&filename=  
c:\backup_category\***.zip
```

- **Restore Category step 2 - Synchronize**

Synchronizes the category information.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=CategorySyncCatDRE
```

- **Restore Index**

Restores the index IDX or XML files located on a machine that Smart Analytics can access directly into Smart Analytics. If no DREdbName is specified, the dbname of the indexed file is used.

Query example:

```
http://<SmartAnalyticsServer>:<indexPort>/DREADD?c:\\path\to\  
<xxx.idx>&DREdbName=<variable_value>& CreateDatabase=True
```

- **View Index Status**

Checks the status of index actions in the Smart Analytics index queue.

Query:

```
http://<SmartAnalyticsServer>:<port>/action=indexerGetStatus
```

- **View Action History**

Displays a log of requests, including the date and time that a request was made, the client IP address that made the request, and the internal thread that handled the action.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=GRL&format=xml
```

- **View Root Category Detail**

Displays the root categories after training.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=CategoryGetHierDetails
```

- **View Status**

Requests details about all components. Check whether all components are up and running; check how many documents are in each database.

Query example:

```
http://<SmartAnalyticsServer>:<port>/action=GetStatus
```

3. Click **Run**. The result of the action is displayed.

## Transfer Smart Analytics intelligence between systems

**User Role:** Administrator

As an administrator, you may want to transfer the intelligence in Smart Analytics from one system to another system. For example, when you finish testing Smart Analytics in your testing environment, you may want to migrate the configured Smart Analytics to your production environment.

To transfer Smart Analytics from one environment (source) to another environment (target), follow these steps:

1. Prepare an unload file from your source SM.

File name	Query
Idolcategorytest	true
Idolserverinfo	true
Number	name="cate2idolid" or name="cate2idoltestid" or name#"idol"
cate2idol2	true
counters	table.name#"idol"
idolDataFilter	true
idoladapter	true
idolindex	true
idolpbmhunter	true
idolsecgroup	true
idoltestresult	true
idoltestsample	true
idoltuning	true

2. Back up index and category data of the original Smart Analytics server. To do this, run the following commands in the SM Smart Analytics Assistant (SAA) utility:

```
http://<idolhost>:<indexport>/DREEXPORTIDX?FileName=c:/backup_index
```

```
http://<idolhost>:<categoryport>/action=BackupServer&path=c:\backup_category
```

**Tip:** <idolhost> is the address of the Smart Analytics server. By default, the index port is 9001 and the category port is 9020.

**Note:** For how to use the SM SAA utility, see ["Use Smart Analytics Assistant" on page 35](#).

3. Copy the generated index and category backup files to the file system of the target Smart Analytics server.

4. Import the unload file that you generated in step 1 into the target SM server.
5. In the target SM server, configure the Smart Analytics server to connect to the address of the new Smart Analytics server.
6. (Optional) Clean the target Smart Analytics server if it is not clean:

- Clean index

To do this, run the following command from the web browser on the Smart Analytics server:

```
http://localhost:<indexport>/DREINITIAL
```

**Note:** You must run this command locally on the Smart Analytics server instead of using SM SAA utility due to security restrictions.

- Clean category

To do this, run the following command by using the SM SAA utility:

```
http://<idolhost>:<aciport>/action=CategoryDelete&Category=0
```

**Tip:** By default, the ACI port is 9000. You can find all the port numbers by performing the following action in SM SAA:

```
http://<idolhost>:<aciport>/action=GetStatus
```

7. Restore the index and category data into the new Smart Analytics server by running the following commands from the SM SAA utility on the target SM server:

- `http://<idolhost>:<indexport>/DREADD?c:\path\to\<xxx>.idx&CreateDatabase=True`
- `http://<idolhost>:<categoryport>/action=RestoreServer&filename=c:\backup_category\<xxx>.zip`
- `http://<idolhost>:<categoryport>/action=CategorySyncCatDRE`

Now, the target Service Manager server works for both Smart Ticket and Hot Topic Analytics as the source Service Manager server does.



## Back up indexed data

**User Role:** Administrator

To ensure that you always have current copies of the data that IDOL Server stores, we recommend that you back up IDOL Server in regular intervals. By default, scheduled data backup is not configured. If you want to enable it, you need to insert the following lines in the [schedule] section of the default configuration file for content store, modify it accordingly, and then restart the IDOL Server.

```
[Schedule]
Backup=true
BackupCheckIndexUpdates=TRUE
BackupCompression=true
BackupTime=00:00
BackupInterval=24
BackupMaintainStructure=true
BackupRetryAttempts=3
BackupRetryPause=5
NumberOfBackups=3
BackupDir0=E:\DataIndex_Backup0
BackupDir1=E:\DataIndex_Backup1
BackupDir2=E:\DataIndex_Backup2
```

For agent and category, you can manually run the backup action in SAA after each training.

## Uninstall Smart Analytics

**User Role:** Administrator

If you want to uninstall Smart Analytics, follow the instructions in this section.

**Note:** Before you uninstall Smart Analytics, we recommend that you back up your index and category data if you want to restore it in the future. For backup and restore instructions, see *step 2* and *step 7* respectively in "[Transfer Smart Analytics intelligence between systems](#)" on page 38.

### Windows

To uninstall Service Manager Smart Analytics from Windows, follow these steps:

1. Go to **Control Panel > Programs > Uninstall a program**.
2. Select **HP SM 9.40 Smart Analytics**, and then click **Uninstall/Change**. The Uninstall HP SM 9.40 Smart Analytics wizard is displayed.
3. Click **Next**.
4. If you want to completely remove Smart Analytics, select **Complete Uninstall**. If you want to uninstall specific Smart Analytics features, select **Uninstall Specific Features**.
5. Click **Next**, and then follow the on-screen instructions to uninstall Smart Analytics.

## Linux

To uninstall Service Manager Smart Analytics from Linux, follow these steps:

1. Go to the `_uninstall` folder under the Smart Analytics installation directory.
2. Type `./uninstaller -?` from the command line interface to view the uninstallation options and instructions.

**Note:** As the Maintenance Mode is not enabled in the SM Smart Analytics uninstaller, the parameters under the Maintenance Mode are not applicable.

3. Use the available commands, and then follow the on-screen instructions to uninstall Smart Analytics.

For example, you can use `uninstaller -i console` to launch a command line based interactive uninstall process. If you log on to the system through X-Window, you can launch the graphical uninstaller by using the `uninstaller -i swing` command.

You can specify the features that you want to uninstall, or you can uninstall Service Manager Smart Analytics completely.

# User tasks

This section includes some typical user tasks after implementing the Smart Analytics:

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## Create a Smart Ticket in ESS

**User Role:** Self-service Users

If you have installed and enabled Smart Analytics, a new menu, **Submit a Smart Request**, is automatically added to leverage the power of the Smart Ticket feature. Clicking it opens a new, simplified request form that only requires "attachment" or "comments" to submit a request, which simplifies the process of submitting the ESS support requests.

To submit a self-service request using Smart Ticket in self-service user view (ess.do), follow these steps:

1. Log on to Service Manager.
2. Click **Submit a Smart Request**.
3. Click **Add File** to attach an image file. For example, a screenshot of the error message.
4. Type comments for your request.
5. Click **Submit**.

An interaction is now created. The fields defined in Smart Ticket configuration are automatically filled by SM Smart Analytics.

## Create a Smart Ticket in SRC

**User Role:** Self-service Users

To submit a support request in SRC, follow these steps:

1. Log on to Service Manager from the SRC portal.
2. Click **Support**, and then click **Create**.
3. Type a description for your request.
4. Add an attachment. For example, a screenshot of the error message.
5. Fill in other required information.
6. Click **Submit**.

An interaction is now created. The fields defined in Smart Ticket configuration are automatically filled by SM Smart Analytics.

## Create a Smart Ticket in Mobility client

**User Role:** Self-service Users

To submit a self-service request in the Mobility client, follow these steps:

1. Log on to Service Manager on your mobile device.
2. Click **Submit a Smart Request** on the main menu.
3. Add an attachment. For example, a screenshot of the error message.
4. Type comments for your request.
5. Click **Submit**.

An interaction is now created. The fields defined in Smart Ticket configuration are automatically filled by SM Smart Analytics.

## Create a Smart Ticket in power user view

**User Role:** Service Desk Agent

To submit a request on behalf of a user in the power user view (index.do), follow these steps:

1. Log on to Service Manager.
2. Click **Service Desk > Create Smart Interaction**.
3. Fill in the name of the contact.
4. Type a description of the issue.
5. Click **Smart Classification**.

The **Category**, **Area**, **Subarea**, and **Affected Service** fields are intelligently populated with the most likely values based on the analysis by SM Smart Analytics. Meanwhile, SM Smart Analytics also suggests some other possible values for you to choose from.

**Note:** If you are not satisfied with the values suggested by SM Smart Analytics, you can click the **Fill Field** icon to manually choose a value for each field.

6. Click **Continue**. The full interaction form is displayed, and the corresponding fields are populated with the values that you specified in the previous step.
7. Complete the interaction with additional information if needed, and then proceed with your record accordingly.

## Create a problem by using Hot Topic Analytics

**User Role:** Problem Manager

You can easily identify problem candidates based on the hot areas automatically suggested by Hot Topic Analytics.

**Note:** You must use the web client instead of the Windows client to view the dynamic topic map in Hot Topic Analytics.

To find problem candidates by using Hot Topic Analytics, follow these steps:

1. Log on to Service Manager from the web client.
2. Click **Problem Management > Hot Topic Analytics**.
3. View the hot topics suggested by Hot Topic Analytics.
  - The size of a topic indicates the heat of the topic. The background color of a topic is just to identify the topic.
  - You can click a hot topic to drill down to the sub-topics.
  - The incidents that belong to a topic are displayed in the list on the right. You can click the incident ID to view the incident record.
4. If you want to run a custom analysis, enter your keywords, and then click **Find Hot Topics**.
5. To further refine the result, click **Advanced Filters**, specify your filters, and then click **Find Hot Topics** again. The graphic is refreshed with the filtered results.
6. After you identify the problem candidates, select the check boxes before the incident IDs, and then click **Create problem** to create a problem based on the selected incidents.

When you create the new problem, the selected incidents are listed in the **Related Records** section of the new problem record.

## Access Hot Topic Analytics from incident reports

**User Role:** Incident Analyst, Incident Manager

When viewing incident reports, you can drill down to the detailed record list and then access Hot Topic Analytics for further analysis. Your selected filter condition in the report is automatically used in Hot Topic Analytics if it is supported.

**Note:** The fields and queries that are used to generate reports may not be supported by the Hot Topic Analytics configuration. In this case, Hot Topic Analytics does not take effect and cannot provide hot topic suggestions.

To access Hot Topic Analytics from incident reports, follow these steps:

1. Log on to Service Manager from the web client.

**Note:** You must use the web client instead of the Windows client to view the dynamic topic map in Hot Topic Analytics.

2. Click **Incident Management > Incident Overview**. The Incident Overview dashboard is displayed.
3. Click a section in a report where you can drill down the report and view the detailed record list. For example, if you click the section indicating "High" priority from the "Incident Backlog by Priority" report, the incidents with high priority are listed in the record list.
4. From the incident record list, click **More > Hot Topic Analytics**. The Hot Topic Analytics for incidents is displayed and the hot areas are suggested based on the specific filter that is used to drill down the report. For example, the high priority incidents.
5. Check the hot topics suggested by Hot Topic Analytics.
6. After you identify the problem candidates, select the check boxes before the incident IDs, and then click **Create problem** to create a problem based on the selected incidents.

When you create the new problem, the selected incidents are listed in the **Related Records** section of the new problem record.

# Smart Analytics best practices

This section provides the following best practices on how you can configure and use Smart Analytics so that it brings more value to your business:

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## Improving accuracy for Smart Ticket

Smart Analytics provides several methods to help you to increase Smart Ticket accuracy according to different data sets. This section provides some best practices for you to improve the accuracy of Smart Ticket.

- **Set up data cleansing rules**

Data cleansing can help you prepare the data that you want to send to Smart Analytics for indexing, training, and analyzing. By setting up proper data cleansing rules, you can have better data quality, which is critical to the best accuracy of auto-suggestion. To set up data cleansing rules, see ["Configure data cleansing" on page 23](#).

- **Choose best sample data**

In the definition for Smart Ticket or Hot Topic Analytics, you can specify a sample data query, through which you can decide what kind of data that you want to use as sample data to teach Smart Analytics to build the intelligence out of your large data volume.

For example, you may have an "Other" category in your Service Manager implementation to accommodate the interactions for which the Service Desk agents cannot find a better, more accurate category. Normally, the interactions in this "Other" category are not considered as good sample data for Smart Ticket. We recommend that you add a filtering clause such as `category~="Other"` into the **Training Sample Query** field to exclude those records.

- **Apply rule based training for Smart Ticket**

The basic training of Smart Ticket is meaning based training, which means Smart Analytics builds its intelligence based on the text information of your data. On top of meaning based intelligence, Smart



Analytics also supports you to add rule based training to the Smart Ticket. Those rules will further increase the suggestion accuracy, especially in the case that multiple suggestion results have the same relevancy with the new record. The typical scenario is that if one particular record has the same relevancy within several categories, you can append a rule to one specific category to improve the categorization accuracy.

For how to apply a rule to the Smart Ticket task definition, see ["Apply a rule-based training" on page 29](#).

- **Optimize your training for Smart Ticket**

Several advanced parameters defined in the Smart Ticket task definition are used to optimize the accuracy of auto suggestion. Note that these settings are tradeoffs between training time and accuracy, which means higher accuracy is achieved at the cost of longer training time. Listed below are some best practices for these optimization configurations.

- Training by documents or training by terms

Choose "best term" for a faster training process if you have huge data volume; choose "training documents" for a higher accuracy with a slower training process.

- Training sample per category

The maximum records for each category, normally more training sample per category leads to higher accuracy but longer training time.

- Source data coverage

The percentage of records out of the total source data that are used to create categories. Normally higher percentage means higher accuracy, but there is a threshold point. When the training source data percentage exceeds the threshold, the margin contribution will be lowered remarkably. The out-of-box value for this configuration is 90%, which is a best number tested in the lab. You can use the "source data coverage calculator" tool to find the best number for your data set.

- Document weight and term weight

Enable "Adjust term weight from test result" to automatically adjust the term weight for some terms in some categories based on the testing result, which may help improve accuracy.

Enable "Remove low weight document" to help reduce the disturbance of low relevance training samples and improve accuracy.

By default, these two parameters are disabled in the out-of-box environment.

These advanced features need your experiment to get best results. You may enable either one or both.

- **Perform tuning periodically**

Tuning the training result is a mechanism to continuously improve the accuracy of auto suggestion. For information about how to tune the training result, see "[Perform tuning in the Smart Ticket definition](#)" on page 30.

## Set stop phrases for Hot Topic Analytics

**User Role:** Administrator

If you want to add stop phrases for Hot Topic Analytics, follow these steps:

1. Make sure the following configuration is defined in the `AutonomyIDOLServer.cfg` file:  

```
QuerySummaryStopPhraseMode=9
```
2. Run Hot Topic Analytics, and then find the topics that you want to remove from the topic map.
3. Stop the Smart Analytics server.
4. Add those words as stop phrases in the `./content/main/qssp.db` file.
5. Start the Smart Analytics server.
6. Run Hot Topic Analytics again. Now, those stop phrases are no longer displayed in the topic map.

# Smart Analytics tailoring

This section provides the following tailoring best practices for Smart Analytics:

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Add "Customized Query" to Hot Topic Analytics .....	54
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## Extend Smart Ticket to other modules

**User Role:** Administrator

In the out-of-box system, Smart Ticket (auto-classification) is only enabled for the Service Desk module. If you want to use this feature in other modules, you can tailor your Service Manager system.

For example, if you want to automatically classify Change category with Process Designer enabled, follow these steps:

1. Define the Smart Ticket task for the Change module:
  - a. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Configuration > Smart Tickets**.
  - b. Select **Blank**, and then click the **Add** button.
  - c. In the **Add Smart Ticket Task** form, fill in the task name with any words meaningful to you.
  - d. In the **Configuration** tab, choose **Change** as **Module Name**.
  - e. In the **Training Sample Query** field, provide a query by using Query Builder. This query decides which Change records will be sent to Smart Analytics for Smart Ticket training.

- f. Enter the fields in the Change module that you want to be automatically filled by Smart Ticket. For example, category.
  - g. Enter the fields in the Change module that you want to use as the inputs for Smart Analytics to provide suggestions. For example, description.
2. Create new Smart Ticket rule sets for the Change workflow by referring to the following out-of-box Smart Ticket rule sets as examples.

Rule Set	Description
sd.idol.ocr	This rule triggers Optical Character Recognition (OCR) and auto-classification to fill the fields defined in the Smart Ticket definitions.
sd.idol.tuning.action	This rule sends the record to the tuning list.

**Tip:** For information about how the design workflows and rule actions, refer to the Process Designer documents in the Service Manager help center.

3. Add the Smart Ticket rule sets that you created to the Change workflow:
- a. From **Change Management > Configuration > Change Workflows**, select the workflow to which you want to apply the Smart Ticket rule. For example, standard change.
  - b. Select the **Registration and Categorization** phase.
  - c. Click the **Rule Sets** tab in the property section.
  - d. Select the **On Exit** event.
  - e. Select the Smart Ticket rule that you created.

## Execute OCR in other processes

**User Role:** Administrator

Optical Character Recognition (OCR) is an out-of-box feature for Smart Ticket, which can extract texts from images, and then put the text into the interaction records when submitting requests by using Smart Ticket.

If you want to execute OCR when proceeding with other processes such as escalating, saving, or closing records, you can refer to the following example to tailor your Service Manager.

The following example describes how to execute OCR when escalating an interaction to an incident in Service Manager Codeless and Service Manager Classic modes. You need to make changes accordingly if you want to execute OCR on other actions in different modules.

### Execute OCR when escalating an interaction to an incident in the Service Manager Classic mode

To execute OCR when escalating an interaction to an incident in Service Manager Classic, follow these steps:

1. Add a new ScriptLibrary, such as IDOL\_OCR\_Esclation, as follows:

```
function processOCRNonPD(interaction, language) {
  var ocrResult = lib.IDOL_Utilityies.processOCR(interaction, 'description',
language);
  if (ocrResult) {
    interaction.doSave();
    system.functions.rtecall("refresh", vars['$L.errorcode'], interaction);
  }
}
```

2. Update the "cc.first.log2" process:

- a. Open the "cc.first.log2" process, and then go to the **RAD** tab.
- b. Locate the "cc.save" RAD application.
- c. In the **Post RAD Expressions** section of the "cc.save" RAD application, add the following statement:

```
if ($L.exit="normal") then ($L.void=jscall("IDOL_OCR_
Esclation.processOCRNonPD", $L.file, $G.my.language))
```

### Execute OCR when escalating an interaction to an incident in the Service Manager Codeless mode

To execute OCR when escalating an interaction to an incident in Service Manager Codeless, follow these steps:

1. Add a new ScriptLibrary, such as IDOL\_OCR\_Esclation, as follows:

```
function processOCRPD(interaction, language) {
  var ocrResult = lib.IDOL_Utilityies.processOCR(interaction, 'description',
language);
  if (ocrResult) {
    interaction.doSave();
    system.functions.rtecall("refresh", vars['$L.errorcode'], interaction);
  }
}
```

2. Update the "sd.escalate" process:
  - a. Open the "sd.escalate" process, and then go to the **RAD** tab.
  - b. Locate the "se.view.engine" RAD application.
  - c. In the **Post RAD Expressions** section of the "se.view.engine" RAD application, add the following statement:

```
if ($L.es.action={"added", "normal", "resetrec"}) then ($L.void=jscall  
("IDOL_OCR_Escalation.processOCRPD", $L.file, $G.my.language))
```

## Add filters to the Hot Topic Analytics form

**User Role:** Administrator

In the out-of-box system, the Hot Topic Analytics form contains some pre-defined filter fields. If you want to add more filter fields, follow these steps:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Smart Analytics > Hot Topic Analytics**.
2. Go to the **Filter Fields** tab.
3. In the **Properties Fields** section, select fields that can be used for advanced filtering in Hot Topic Analytics. For example, you can define Category or Priority as filter.
4. Click **Save** to save your modification.
5. Add the new filter fields into the "Hot Topic Analytics" form by using form designer. The format name is "idol.hta.im.pd.advcontent" for Service Manager Codeless and "idol.hta.im.advcontent" for Service Manager Classic.

**Note:** Make sure that you re-index the module for the new filter fields to take effects.

## Add "Customized Query" to Hot Topic Analytics

**User Role:** Administrator

In the out-of-box system, you can only use the pre-defined filter fields on the Hot Topic Analytics form. If you want to tailor your system to add more filter fields, see ["Add filters to the Hot Topic Analytics form" on the previous page](#).

In addition, if you want to add the "Customized Query" capability when you use Hot Topic Analytics, you can follow the instructions in this section to tailor your system. With the "Customized Query" capability, you can use Query Editor to build more complex queries based on your specific needs.

**Note:** You can only use the fields that are specified in the **Properties Fields** section of the Hot Topic Analytics configuration. Otherwise, your queries will not take effect because the fields that you use are not included in the intelligence of Hot Topic Analytics.

To add "Customized Query" to the Hot Topic Analytics form, follow these steps:

1. Click **Tailoring > Script Library**.
2. In the **Name** field, type `IDOLModuleConfiguration`, and then click **Search**. The detailed script is displayed.
3. Search for the "isCustomizedQueryEnabled" parameter.
4. Change the value of "isCustomizedQueryEnabled" from `false` to `true`.
5. Click **Save** to save your change.

## Enable Hot Topic Analytics for other modules

**User Role:** Administrator

In the out-of-box system, Hot Topic Analytics is only available for analyzing incidents to help you identify problem candidates. If you want to use Hot Topic Analytics to help you identify hot topics in records from other modules such as interactions or problems, you can tailor your Service Manager system.

You can refer to the following sections for instructions on how to enable Hot Topic Analytics for problems, interactions, and other modules.

### Hot Topic Analytics for Problems

To enable Hot Topic Analytics to analyze the problem records and identify change candidates, follow these steps:

1. Add a new Hot Topic Analytics configuration record for the Problem Management module:
  - a. From the System Navigator, click **Tailoring > Database Manager**.
  - b. Type `idolpbmhunter` in the **Table** field, and then click **Search** to open the Hot Topic Analytics form.
  - c. In the **Module Name** field, select **Problem**.
  - d. Enter information for all the required fields including the time stamp, title, contents, and properties fields, and then click **Add**.

**Tip:** To fill in these fields, you can refer to the out-of-box Hot Topic Analytics configuration, and then use the same or similar settings.

- e. Click **Start Index** to complete indexing.
2. Add a menu item to the System Navigator to display Hot Topic Analytics for Problems:
  - a. From the System Navigator, click **Tailoring > Tailoring Tools > Menus**.
  - b. In the **Menu Name** field, type the parent menu where you want to add the new "Hot Topic Analytics for Problems" menu item, and then click **Search** to open the menu.

**Tip:** For example, you can type `HOME` to add the new "Hot Topic Analytics for Problems" menu item to the main menu.

- c. Add a new row at the end of the menu table by entering information for the following settings:

Setting	Value
Description	Hot Topic Analytics for Problems
Application	launch.idol.problem.hunter
Parameter Name	{"name","query"}
Parameter Value	{"rootcause","true"}
Condition	true

- d. Click **Save**.



- e. Log off and log back on Service Manager. Now you can access "Hot Topic Analytics for Problems" by using the new menu item.

**Note:** When you use the Hot Topic Analytics for Problems, a **Create Change** button is available on the form. If you want to customize the action button, see ["Customize actions in hot topic map" on page 59](#).

## Hot Topic Analytics for Service Desk Interactions

To enable Hot Topic Analytics to analyze the Service Desk interaction records and identify incident candidates, follow these steps:

1. Add a new Hot Topic Analytics configuration record for the Service Desk module:
  - a. From the System Navigator, click **Tailoring > Database Manager**.
  - b. Type `idolpbmhunter` in the **Table** field, and then click **Search** to open the Hot Topic Analytics form.
  - c. In the **Module Name** field, select **Interaction**.
  - d. Enter information for all the required fields including the time stamp, title, contents, and properties fields, and then click **Add**.

**Tip:** To fill in these fields, you can refer to the out-of-box Hot Topic Analytics configuration, and then use the same or similar settings.

- e. Click **Start Index** to complete indexing.
2. Add a menu item to the System Navigator to display Hot Topic Analytics for Interactions:
  - a. From the System Navigator, click **Tailoring > Tailoring Tools > Menus**.
  - b. In the **Menu Name** field, type the parent menu where you want to add the new "Hot Topic Analytics for Interactions" menu item, and then click **Search** to open the menu.

**Tip:** For example, you can type `HOME` to add the new "Hot Topic Analytics for Interactions" menu item to the main menu.

- c. Add a new row at the end of the menu table by entering information for the following settings:

Setting	Value
Description	Hot Topic Analytics for Interactions
Application	launch.idol.problem.hunter
Parameter Name	{"name","query"}
Parameter Value	{"incidents","true"}
Condition	true

- d. Click **Save**.
- e. Log off and log back on Service Manager. Now you can access "Hot Topic Analytics for Interactions" by using the new menu item.

**Note:** When you use the Hot Topic Analytics for Interactions, a **Create Incident** button is available on the form. If you want to customize the action button, see ["Customize actions in hot topic map" on the next page](#).

### Hot Topic Analytics for other modules

To enable Hot Topic Analytics for other modules, besides the steps described in previous sections to add a new Hot Topic Analytics configuration record and a new menu item, you need to complete the following additional steps:

1. Tailor the "IDOLModuleConfiguration" script file:
  - a. Click **Tailoring > Script Library**.
  - b. In the **Name** field, type `IDOLModuleConfiguration`, and then click **Search**. The detailed script is displayed.
  - c. Modify the script accordingly so that it can work for the records from other modules.

**Note:** In the out-of-box system, the "IDOLModuleConfiguration" script file is defined only for enabling Hot Topic Analytics for Incidents, Problems, and Interactions.

**Tip:** You can search for "rootcause" in the script file to see where you need to make changes for the script to support other modules.

2. Create new display screens, formats, and processes accordingly.

**Tip:** You can refer to the "idol.hta.pm" display screen, the "idol.hta.pm.advcontent" format, and the "idol.hot.topic.create.problem" process as examples for your tailoring.

## Customize actions in hot topic map

**User Role:** Administrator

If you want to customize the actions available in the hot topic map, you can tailor the out-of-box Hot Topic Analytics. For example, for the out-of-box Hot Topic Analytics for Incidents, the Create Problem action (button) is available. You can change this action or add a new action according to your business needs.

To customize the actions in hot topic map, follow these steps:

1. Click **Tailoring > Script Library**.
2. In the **Name** field, type `IDOLModuleConfiguration`, and then click **Search**. The detailed script is displayed.
3. Locate the "MODULE\_CONFIGS" Javascript Object. Inside `MODULE_CONFIGS`, you can see the configuration entries for different modules. The entry "key" must correspond to the table name of an SM module. For example: "probsummary"

The "actions" configuration section is a Javascript array. The items defined in this array will be rendered as "the action button" in the Hot Topic Analytics chart. For example, you can see the following lines in the script:

```
actions : [{
  id: 'idol-action-list',
  text: scmsg(1023, 'idol'),
  aria: scmsg(1023, 'idol'),
  process: 'idol.hot.topic.view'
}, {
  id: 'idol-action-link-incident',
  text: scmsg(1025, 'idol'),
```

```

        aria: scmsg(1025, 'idol'),
        process: function() {
            return PDE.isIncidentEnabled() ? 'idol.hot.topic.create.pd.incident' :
            'idol.hot.topic.create.incident';
        }
    }
}]]
    
```

4. Modify the "actions" configuration section to add the definition for the new action. The parameters that you need to specify are described in the following table.

Parameter	Description
id	A unique value to identify which "action button" is clicked. The "id" value also has the CSS style attached. Currently, two styles are available: <ul style="list-style-type: none"> <li>■ "idol-action-list" has an "Open" icon.</li> <li>■ "idol-action-link" has a "Link" icon.</li> </ul>
text	The "action button" label that is displayed on the chart
aria	Texts used for accessibility
process	Represents the SM process name. The process is invoked when the "action button" is clicked. The configuration value can be either a text string or a function that returns a text string. When the process is invoked, two additional variables are available: <ul style="list-style-type: none"> <li>■ "\$L.idol.selected.filename": the current module table name</li> <li>■ "\$L.idol.selected.query": the SM query to retrieve the selected records in the Hot Topic Analytics chart</li> </ul>

For example, you can modify the following lines accordingly and add them to the script:

```

{
    id: 'idol-action-link-others',
    text : 'Link to some other module',
    aria : 'Link to some other module',
    process : 'idol.link.to.other.module'
}
    
```

5. Click **Save** to save your change in the script file.
6. Create the process that you use for the new action button. For example, you need to create the "idol.link.to.other.module" process that you specified in step 4. In the process, you can define the behaviors when the action button is clicked.

## Configure Smart Analytics to support more languages

**User Role:** Administrator

With the out-of-box configuration, Smart Analytics supports the same language list that Service Manager supports. If the texts entered in the records (such as in title and description) are not in a language that is included in the supported language list of Service Manager, these texts cannot be indexed and analyzed by Smart Analytics.

However, Smart Analytics can be configured to index and analyze texts in other languages in addition to the out-of-box supported languages. To do this, follow these steps:

1. In the IDOL configuration file (AutonomyIDOLServer.cfg), add the desired language type into the [LanguageTypes] section. For example, if you want to support Vietnamese, you can add the following line into the [LanguageTypes] section:

```
19=Vietnamese
```

**Tip:** You can refer to the AutonomyIDOLServer.cfg.default file (in the same directory as AutonomyIDOLServer.cfg) for a full list of language types and encoding settings.

2. Add encoding format and stoplist into the [LanguageTypes] section. For example, you can add the following configurations for Vietnamese:

```
[vietnamese]  
Encodings=UTF8:vietnameseUTF8  
Stoplist=vietnamese.dat
```

**Note:** The stoplist file is a text file placed in the <Smart Analytics>/IDOL/langfiles folder, which contains words that you do not want to be treated as keywords in the query requests to IDOL.

3. Save the file.

**Note:** The AutonomyIDOLServer.cfg configuration file does not affect the language support for the Optical Character Recognition (OCR) feature. OCR recognizes images based on the language setting specified in the contact record of a user in Service Manager. If no language is set in the user's contact record, English is used as the default value in image recognition by Smart Analytics.

# Troubleshooting

This section contains the following topics to help administrators to troubleshoot Smart Analytics:

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## Troubleshooting: Checking Smart Analytics log files

You can check the following log files to help you troubleshoot Smart Analytics issues:

### **Service Manager server log**

This Service Manager server log file (*sm.log*) tracks all interactions between Service Manager and Smart Analytics. By default, the *sm.log* file is in the following directory: <Service Manager>\Server\logs\sm.log.

### Smart Analytics log files

The log files from the Smart Analytics IDOL Server provide details to help you identify possible problems or invalid configurations. By default, you can find these log files in the following directory on the Smart Analytics IDOL Server:

- **Linux:** /opt/HP/SM/SmartAnalytics/IDOLServer/IDOL/logs
- **Windows:** <Smart Analytics Installation>\IDOL\Logs

Check the following table for details about the log files in the IDOL Server.

File name	Description
action.log	Logs all the actions on IDOL Server.
agentstore_application.log	Logs general application errors, warnings and information relating to the agent index.
agentstore_index.log	Logs messages relating to the indexing, deletion and updating of agents.
agentstore_query.log	Logs messages relating to the querying of agents.
application.log	Logs general application errors, warnings and information relating to indexes.
category_application.log	Logs general application errors, warnings and information relating to the category index.
category_category.log	Logs messages relating to category actions that read or manipulate the categories, including errors, warnings and progress information.
category_cluster.log	Logs messages relating to cluster actions, including errors, warnings and progress information.
category_schedule.log	Logs messages relating to the running of the Analysis Schedules that are specified in the configuration file.
category_taxonomy.log	Logs messages relating to the TaxonomyGenerate action, including errors, warnings and progress information.
content_application.log	Logs general application errors, warnings and information relating to the data index.
content_index.log	Logs messages relating to the indexing, deletion and updating of documents.
content_query.log	Logs messages relating to query processes.

File name	Description
content_queryterms.log	Logs the query terms. DiSH collects this log stream using the service port to produce statistics based on query terms.
index.log	Logs the index actions that the Smart Analytics server receives.
query.log	Logs all the requests that the Smart Analytics server receives.
stats_index.log	Logs the statistics of the Smart Analytics server.

By default, the IDOL Server keeps the log files in the `./logs` folder and compresses the log files into the zip files when the size reaches 20480 KBs. You can customize the settings according to your requirements.

For example, if you want to delete history log files automatically whenever the number of log files is more than 100, you can add `LogOldAction=Delete` and `LogMaxOldFiles=100` into the configuration file.

The following items are the default logging configuration of the IDOL Server:

```
LogArchiveDirectory=./logs/archive
LogDirectory=./logs
LogTime=TRUE
LogEcho=FALSE
LogLevel=normal
LogExpireAction=compress
LogOldAction=move
LogMaxSizeKBs=20480
```

You can find these configuration items in the [Logging] section of the IDOL configuration file, which is located in the following path by default:

```
<SmartAnalytics Installation>\IDOL\AutonomyIDOLServer.cfg
```

The following table lists the description for these configuration items:

Parameter	Description
LogArchiveDirectory	Path to log archive directory. Type the directory in which you want the application to archive old log files when <i>LogOldAction</i> is set to Move.
LogDirectory	Path to log directory.
LogTime	Displays time with each log entry. Enable this parameter to display the current time next to each log entry in the log file.  Possible values: TRUE or FALSE
LogEcho	Displays logging messages on the console.  Possible values: TRUE or FALSE



Parameter	Description
LogLevel	<p>The log levels are hierarchical from least logging to most logging. You can use the <i>LogLevelMatch</i> parameter to specify which messages are reported relative to the specified <i>LogLevel</i>. For example, if <i>LogLevelMatch</i>=LessThan and <i>LogLevel</i>=Warning, "Normal" and "Full" message types are reported.</p> <p>The following are the possible values for this parameter:</p> <ul style="list-style-type: none"><li>• Always Basic processes are logged. <b>Note:</b> This produces only minimal logging and no errors are logged.</li><li>• Error Errors are logged.</li><li>• Warning Errors and warnings are logged.</li><li>• Normal Errors, warnings, and basic processes are logged.</li><li>• Full Every occurrence is logged. <b>Note:</b> This produces a large log file and can affect performance.</li></ul>

Parameter	Description
LogExpireAction	<p data-bbox="492 289 1338 386">Determines how log files are handled when they exceed the maximum size. Type one of the following to determine how log files are handled when they exceed the <i>MaxLogSizeKBs</i> size:</p> <ul data-bbox="492 422 1382 1293" style="list-style-type: none"><li data-bbox="492 422 1382 583">• Compress <p data-bbox="529 485 1357 583">The log file's name is appended with a timestamp, compressed and saved in the log directory. By default, this is a ZIP file. Use the <i>LogCompressionMode</i> parameter to specify another compression format.</p></li><li data-bbox="492 619 1382 781">• Consecutive <p data-bbox="529 682 1295 781">The log file's name is appended with a number and saved in the log directory. When the next log file reaches its <i>LogMaxSizeKBs</i> size, it is appended with the next consecutive number.</p></li><li data-bbox="492 816 1382 940">• Datestamp <p data-bbox="529 879 1317 940">The log file's name is appended with a timestamp and saved in the log directory.</p></li><li data-bbox="492 976 1382 1138">• Previous <p data-bbox="529 1039 1382 1138">The log file's name is appended with .previous and saved in the log directory. Every time a log file reaches its <i>LogMaxSizeKBs</i> size, it is given the same postfix so that it overwrites the old log file.</p></li><li data-bbox="492 1173 1382 1293">• Day <p data-bbox="529 1236 1370 1293">Only one log file is created for each day and is appended with the current timestamp. Log files are archived after they reach the <i>LogMaxSizeKBs</i> size.</p></li></ul> <div data-bbox="532 1329 1370 1507" style="background-color: #f0f0f0; padding: 10px;"><p data-bbox="548 1354 1341 1482"><b>Note:</b> The <i>LogMaxSizeKBs</i> parameter takes precedence over the <i>LogExpireAction</i> parameter. Therefore, if you set <i>LogExpireAction</i> to <i>Day</i>, and the value for <i>LogMaxSizeKBs</i> results in more than one log file, multiple log files are generated for each day.</p></div>

Parameter	Description
LogOldAction	<p>Determines how log files are handled when the maximum number of log files is exceeded. Type one of the following to determine how log files are handled when the <i>LogDirectory</i> has reached the maximum number of log files, as determined by the <i>LogMaxOldFiles</i> parameter:</p> <ul style="list-style-type: none"> <li>• Delete The log files are deleted.</li> <li>• Move The log files are moved to the specified <i>LogArchiveDirectory</i>.</li> </ul>
LogMaxSizeKBs	<p>Maximum log file size (in kilobytes). If you do not want to restrict the log file size, type -1.</p> <p>The <i>LogExpireAction</i> parameter determines how a log file is handled after it has reached its maximum size.</p>
LogMaxOldFiles	<p>Maximum number of log files in the log directory. The maximum number of log files the specified <i>LogDirectory</i> can store before the application runs the specified <i>LogOldAction</i>. If you do not want to restrict how many log files the <i>LogDirectory</i> can store, type -1. (default: -1, unlimited)</p>

## Troubleshooting: Smart Analytics setup

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### Unable to install Smart Analytics with an error message “Windows error 216 occurred while loading the Java VM”

If you encounter the error message “Windows error 216 occurred while loading the Java VM” when installing Smart Analytics, it indicates that you are running the installer on a 32-bit Windows, which Smart Analytics does not support. For more information, see ["System requirements" on page 8](#).

## Failed to start Smart Analytics IDOL Server with error message

If you see an error message that indicates the `msvcr100.dll` file is missing from your computer, install .Net Framework 3.5 (or a higher version) and Visual C++ Redistributable X64 package. You can download these two packages from Microsoft website.

## Failed to connect Smart Analytics IDOL Server or Image Server

If your Service Manager failed to connect the Smart Analytics IDOL Server, check the `application.log` file in the `<SM Smart Analytics>\IDOL\logs\` directory to make sure that the Smart Analytics IDOL Server is started. You also need to make sure that the following five components are started: agent store, content, community, category, and view. If any component is not running normally, restart the Smart Analytics IDOL Server.

The following is a sample message in the log file that indicates your Smart Analytics IDOL Server and the five components are started successfully:

```
30/06/2014 14:40:30 [0] 00-Always: Determining child engine status...
30/06/2014 14:40:30 [0] 00-Always: Engine [content] state : RUNNING
30/06/2014 14:40:30 [0] 00-Always: Engine [community] state : RUNNING
30/06/2014 14:40:30 [0] 00-Always: Engine [category] state : RUNNING
30/06/2014 14:40:30 [0] 00-Always: Engine [agentstore] state : RUNNING
30/06/2014 14:40:30 [0] 00-Always: Engine [view] state : RUNNING
30/06/2014 14:40:30 [0] 00-Always: All 5 components started successfully.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server validated operations key.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server has no QPS limit.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server is licensed for SSL encryption.
30/06/2014 14:40:30 [0] 30-Normal: Performed hostname lookup and converted
USERCLIENTS from [*,127.0.0.1] -> [*,127.0.0.1,::1].
30/06/2014 14:40:30 [0] 30-Normal: Performed hostname lookup and converted
ADMINCLIENTS from [*,127.0.0.1] -> [*,127.0.0.1,::1].
30/06/2014 14:40:30 [0] 30-Normal: This ACI Server will not accept unencrypted
communications from ACI clients.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server setting MaxInputString to 64000.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server successfully loaded online help.
30/06/2014 14:40:30 [0] 30-Normal: ACI Server successfully loaded admin UI.
30/06/2014 14:40:30 [100] 30-Normal: ACI thread 100 attached to port 9000
30/06/2014 14:40:30 [101] 30-Normal: ACI thread 101 attached to port 9000
30/06/2014 14:40:30 [102] 30-Normal: ACI thread 102 attached to port 9000
```

```
30/06/2014 14:40:30 [103] 30-Normal: ACI thread 103 attached to port 9000  
30/06/2014 14:40:30 [104] 30-Normal: ACI thread 104 attached to port 9000
```

If your Service Manager failed to connect the Image Server, check the `application.log` file in the `<Smart Analytics>\Imageserver\logs` directory to make sure that the Image Server is started.

The following is a sample message in the log file that indicates your Image Server is started successfully:

```
19/06/2014 10:55:43 [1] 00-Always: ACI Server starting at xxx.xxx.xxx.xxx:18000  
19/06/2014 10:55:43 [54] 00-Always: ACI Server thread 1 initialized  
19/06/2014 10:55:43 [55] 00-Always: ACI Server thread 2 initialized  
19/06/2014 10:55:43 [57] 00-Always: ACI Server thread 3 initialized  
19/06/2014 10:55:43 [58] 00-Always: ACI Server thread 4 initialized
```

## Unable to see the Multiple Company tab in the Smart Ticket configuration form

1. Make sure that the multi-company mode is enabled in Service Manager. To enable the multi-company mode, follow these steps:
  - a. Click **System Administration > Base System Configuration > Miscellaneous > System Information Record**.
  - b. On the **General** tab, select the **Run in Multi-Company Mode** option.
  - c. Click **Save**.
2. Log out and log back in Service Manager for the change to take effect.

## Troubleshooting: Smart Analytics operation

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## Train, Index, and Test buttons are disabled

If the **Train**, **Index**, and **Test** buttons are disabled in the configuration pages for Smart and Hot Topic Analytics, follow these steps:

1. Make sure that in the Smart Analytics Configuration form, the **Smart Analytics Server Enabled** option is enabled and be sure to click the **Save** button to save this configuration.
2. If the issue still exists, make sure that the upgrade to Service Manager 9.40 is successful. Check that all the libraries are of the Service Manager 9.40 version. The default folder is C:\Program Files (x86)\HP\Service Manager 9.40\Server\RUN\lib.
3. If the issue still exists, you might use an old license. In this case, launch the Service Manager server with the new license file, which includes the Smart Analytics module license.

For Service Manager trial version installation, follow these steps:

- a. Move your old license file out of the folder. The default folder is C:\Program Files (x86)\HP\Service Manager 9.40\Server\RUN\.
- b. Run **sm -instanton** to generate the instant on license.
- c. Restart the Service Manager server to load the instant on license.

## Indexing or training failure

Check the SMIS task log first, and then check the information in `sm.log`. For more information, see ["Check task logs in SMIS" on page 75](#).

## Hot Topic Analytics has no result after indexing

You may need to wait for a while (by default, 120 seconds) for Smart Analytics to commit the results from the cache to the disk.

## Hot Topic Analytics is slow

If you experience slow performance when using Hot Topic Analytics, check your action history in SAA to find out which fields are used in the `fieldtext=MATCH{<value>}:<Field_Name>` parameter. Then, you

can add the field name to the `PropertyFieldCSVs` parameter in the `[SetMatchFields]` section of the IDOL configuration file (`<Smart Analytics Installation>/IDOL/AutonomyIDOLServer.cfg`). Doing so may help to enhance the performance. For example, you can add "COMPANY" and "CATEGORY" as shown in the following example:

```
[SetMatchFields]
PropertyFieldCSVs=*/*_MATCH,*/EDK_*,*/MATCH_*,*/COMPANY,*/CATEGORY
```

The new added match fields will automatically take effect for new data indexing after you restart the IDOL Server.

To regenerate the modified `MatchType` fields for the existing indexed data without re-indexing, you can add the `RegenerateMatchIndex=true` parameter to `AutonomyIDOLServer.cfg`, and then restart your IDOL Server.

```
[Server]
RegenerateMatchIndex=true
```

**Tip:** This regeneration is executed every time when the IDOL Server restarts. To save the start-up time of the IDOL Server, disable this option after you finish your performance tuning.

## Unable to launch Hot Topic Analytics in the multi-company mode

The following error message is displayed and you are unable to launch Hot Topic Analytics in the multi-company mode:

```
ERROR uncaught exception: Error: "company" table doesn't have mandanten field defined
```

In this case, you need to configure the company information in Mandanten correctly.

To set up company in Mandanten, follow these steps.

1. Click **System Administration > Ongoing Maintenance > Mandanten > Mandanten Field Restrictions**.
2. Add a new definition with "probsummary" as **Field Name** and "company" as **Mandant Field Name**.

## Smart Analytics Assistant

Smart Analytics Assistant is a build-in tool that can help administrators to perform administrative tasks and troubleshoot Smart Analytics. To use this tool, see ["Use Smart Analytics Assistant" on page 35](#).

## Troubleshooting: Smart Analytics background schedule in SMIS

In Smart Analytics, some background processes are managed by Integration Manager, which is a plug-in based platform called Service Manager Integration Suite (SMIS). In the out-of-box system, Smart Analytics have three types of SMIS instances:

- **SMIDOL**

The SMIDOL instance is for the training, testing, index, and tuning processes, which are triggered in **Smart Analytics Configuration**. Normally, one Service Manager server only has one SMIDOL instance named as SMIDOL\*. The asterisk sign is the sequence number, which is usually 0.

- **SMIDOOCR**

The SMIDOOCR instance is for the image analyzing process, which is triggered when users submit requests from the ESS portal (including SRC and the Mobility client). For performance consideration, you can have multiple SMIDOOCR instances for one Service Manager server. The number of instances equals to the thread number of the Image Servers. If the Image Servers cannot be connected, only one instance is created. The instance name is SMIDOOCR\* (The asterisk is the sequence number). The Optical Character Recognition (OCR) task will be added to one of these instances after an interaction is created in ESS, depending on which instance has the least tasks in queue.

- **SMIDOLAutoFill**

The SMIDOLAutoFill instance is for the auto-fill process. If an interaction is submitted to ESS without an attachment, a task will be added into this instance. In addition, if SMIDOOCR is done, a SMIDOLAutoFill task will be also added . For performance consideration, one SM server has multiple SMIDOLAutoFill instances. The number of instances equals to the thread number of the IDOL Server. If the IDOL Server cannot be connected, only one instance will be created. The instance name is SMIDOLAutoFill\* (The asterisk is the sequence number).

You can check the following topics on troubleshooting Smart Analytics background schedule in SMIS:



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## Manually create and enable an instance in SMIS

The SMIDOL and SMIDOLAutoFill instances are created and enabled automatically when you enable Smart Analytics in the **Smart Analytics Configuration** menu. The SMIDOOCR is created and enabled automatically when you enable the Image Server in the **Smart Analytics Configuration** menu. These instances are also created when corresponding processes are triggered, such as the training, testing, tuning, index, or image process.

If the instance is not created automatically or you want to do some troubleshooting, you can manually start up these SMIS instances for Smart Analytics.

To create and enable a SMIS instance for Smart Analytics manually, follow these steps:

1. Do one of the following to access Integration Manager:
  - Click **Tailoring > Integration Manager**.
  - Type `smis` in the command line, and then press Enter.
2. Click **Add**.
3. Select the **SMIDOL**, **SMIDOLAutoFill**, or **SMIDOOCR** template, and then click **Next**. The Integration Instance Information screen is displayed.
4. Change the configuration as needed, and then click **Next**. The Parameters screen is displayed.
5. Do not change anything and click **Next**. The Fields screen is displayed.
6. Do not change anything and click **Next**. The Mapping screen is displayed.
7. Click **Finish**. The main SMIS configuration screen is displayed.
8. Click **Enable** to enable the instance.

## Manually disable and remove an instance in SMIS

The SMIDOL and SMIDOLAutoFill instances are removed when you disable Smart Analytics while the SMIDOLOCR instances are removed when you disable the Image Server in the **Smart Analytics Configuration** menu.

If you want to manually disable or delete an SMIS instance, follow these steps:

1. Do one of the following to access Integration Manager:
  - Click **Tailoring > Integration Manager**.
  - Type `smis` in the command line, and then press Enter.
2. Select an instance, and then click **Disable** or **Remove**.

## Configure the SMIS instances

If the SMIDOL, SMIDOLAutoFill, and SMIDOLOCR instances are created automatically, the default configuration is defined as follows:

Name:	SMIDOL*, SMIDOLAutoFill*, or SMIDOLOCR* <b>Note:</b> The asterisk sign (*) is the sequence number starting from 0.
Interval Times:	30s
Max Retry Times:	5
Log Level:	INFO
Log File Directory:	N/A
Run as system startup:	true

To change the settings for performance tuning or troubleshooting, follow these steps:

1. Do one of the following to access Integration Manager:
  - Click **Tailoring > Integration Manager**.
  - Type `smis` in the command line, and then press Enter.

2. Select an instance, and then click **Disable**.
3. Select the disabled instance, and then click **Edit**.
4. Change the configuration, and then click **Finish**.

## Check task logs in SMIS

To view all the task logs, click **Tailoring > Integration Manager**, and then click **Log**.

For training, testing, tuning, and index operations, check the log for the SMIDOL\* instance to identify the corresponding task.

For image operation, you have to check all the SMIDOLOCR\* instances to identify the corresponding task.

### **Tip:**

- Besides the task log, the program executed by SMIS prints log to `sm.log` by default. You can define another file to print all SMIS logs by specifying the log file directory in the SMIS instance.
- By default, if SMIS fails to execute a task after five retries, the task is set as expired and will never be triggered automatically. However, you can retry the task manually.
- If a SMIS instance is always running and obviously no background process of this instance is running, this instance may be dead due to some exception that cannot be caught. In this case, you cannot disable or delete the instance from the SMIS configuration page. The workaround is to kill the corresponding SMIS process from the Service Manager System Status page.

## Limitations

Smart Analytics contains the following limitations in the current release:

- **Smart Ticket**

In this release, IT agents are unable to use the Optical Character Recognition (OCR) feature when creating interactions for users in the out-of-box environment. However, when Process Designer is enabled, IT agents can use the “Image2Text” feature to copy and paste messages to the interaction records.

# Appendix A: Smart Analytics APIs

Smart Analytics provides the following out-of-box APIs for Smart Ticket (auto-classification) and Hot Topic Analytics:

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## Auto-classification RESTful API

**Note:** You must add the capability word "RESTful API" to a user's operator record for a user to be able to execute a RESTful API request. To do this, see ["Add RESTful API to operator's capabilities" on page 79](#).

To perform auto-classification, you need to use two RESTful APIs.

Use the first API to query all the categorization configurations, and then use your desired configuration (adapter id) to call the second API, which will return the category values.

Normally, you only need to use the first API once to get the configuration while you can use the second API to do categorization jobs as many times as you need.

### API-1: Get all the configurations/adapters definitions

Request:

```
GET http://<SM Server Address>:13930/SM/9/rest/idoladapters?view=expand
```

Response example:

```
{
  "@count": 2,
  "@start": 1,
  "@totalcount": 2,
  "Messages": [],
  "ResourceName": "idoladapter",
  "ReturnCode": 0,
  "content": [
    {"idoladapter": {
      "adapter.id": 5,
      "level1.field": "affected.item",
```

```

        "source": [
            "title",
            "description"
        ]
    }},
    {"idoladapter": {
        "adapter.id": 7,
        "level1.field": "category",
        "level2.field": "subcategory",
        "level3.field": "product.type",
        "source": [
            "title",
            "description"
        ]
    }}
]
}

```

**API-2: Get the categorization result based on adapter id. (For example: id=137, company=HP, text="my laptop is broken", return top 2 suggestions)**

Request:

POST <http://<SM Server Address>:13080/sm/9/rest/idoladapters/{adapter.id}>

An example of request body:

```

{
  "idoladapter":{
    "source":["Critical CPU temp. BIOS error message", Maybe I work too hard, but the
temperature of my computers CPU is critical according to the error message it
displays in the message"],
    "company" : "HP",
    "top":2
  }
}

```

Response example:

```

{
  "Messages": [],
  "ReturnCode": 0,
  "idoladapter": {
    "level1.field": "category",
    "level2.field": "subcategory",
    "level3.field": "product.type",

```

```
"suggest.candidates": [  
  {  
    "level1.value": "request for service",  
    "level2.value": "app. infrastructure",  
    "level3.value": "shared web hosting"  
  },  
  {  
    "level1.value": "request for service",  
    "level2.value": "infrastructure",  
    "level3.value": "server"  
  }  
]  
}
```

## Add RESTful API to operator's capabilities

To use the RESTful API, you must add RESTful API to the operator's capabilities:

1. From the System Navigator, click **System Administration > Ongoing Maintenance > Operators**.
2. Enter or select your search criteria, and then click **Search**.
3. Select an operator from the record list to view the operator record.
4. Click the **Startup** tab.
5. Add RESTful API in the **Execute Capabilities** section.

## Auto-classification Javascript API

This Javascript API returns an array of arrays that contains the suggested categories.

### Syntax

```
lib.acicategory.getCategoryByContent (file, adapterid, numresult, company)
```

### Arguments

Name	Data type	Required	Description
<b>file</b>	Datum object	Yes	This argument contains the object that holds the input source data. For example, an "incidents" file with title and description.
<b>adapterid</b>	Integer	Yes	This argument contains the id you use to call createAndTrainingOneCategory, or adapter.id in idoladapter.
<b>numresult</b>	Integer	Yes	This argument controls the number of suggested categories to return.
<b>company</b>	String	No	The company that the categories belong to.  <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0;"> <p><b>Note:</b> If you use an <i>adapterid</i> with the multi-company setting configured, you must specify this parameter in your request.</p> </div>

**Return values**

An array of arrays that contains the suggested categories. For example:

```
[["incident","hardware","hardware failure"],
["incident","performance","performance degradation"],["incident","failure","job failed"]]
```

**Example**

This example assumes that you configure a category group for interactions is configured as the following:

id: 201

Source fields: title and description

Category fields: category, subcategory, product\_type

Then, the Javascript API can be used as in the following example:

```
var f = new SCFile("incidents");
f.title = "my pc is broken";
f.description=["Starting from yesterday, my pc cannot be started. Both battery and power adapter looks good. The pc itself was very hot before it is broken."]
f.category="incident";
print(lib.JSON.json().stringify(lib.acicategory.getCategoryByContent(f,201,3,"es")))
```

If the input parameter (file) includes value of level 1 and level 2 fields that are configured in the idoladapter, this function will use their values as the parent schema to suggest child category to get better accuracy. In this example, the level 1 field is specified as `f.category="incident"`, which means the returned suggestion will all belong to the "incident" category.



## APIs for Hot Topic Analytics indexing

If you want to tailor the index schedule of Hot Topic Analytics, you can use the following out-of-box Javascript APIs to control when to run the index task:

- `lib.aciindex.manualFullReindex`

You can use this API to manually run a full index for the specified file that is used by Hot Topic Analytics.

- `lib.aciindex.manualIncrementalIndex`

You can use this API to manually run an incremental index for the specified file that is used by Hot Topic Analytics.

These two functions will run in synchronous mode. We recommend that you run these two functions in the background schedule of HP Service Manager.

### Syntax

```
lib.aciindex.manualFullReindex(file)
```

```
lib.aciindex.manualIncrementalIndex(file)
```

### Arguments

Name	Data type	Required	Description
<b>file</b>	Datum object	Yes	This argument is the Service Manager table (for example, "probsummary") that holds the input source data.  <b>Note:</b> Make sure that the fields of this "file" have been added into the <b>Filter Fields</b> section in the Hot Topic Analytics configuration ( <b>System Administration &gt; Ongoing Maintenance &gt; Smart Analytics &gt; Hot Topic Analytics</b> ). For more information, see <a href="#">"Configure Hot Topic Analytics" on page 31</a> .

# Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on Smart Analytics Administrator and User Guide (Service Manager 9.40)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [ovdoc-ITSM@hp.com](mailto:ovdoc-ITSM@hp.com).

We appreciate your feedback!

