



Server Installation and Administration Guide

ARIS
Version 9.6

April 2014

This document applies to ARIS Version 9.6 and to all subsequent releases. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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1 General Notices

This manual describes the settings and features as they were at the time of print.

In this document, file names and user-defined content are formatted and identified as follows:

- File names, keyboard entries etc. are shown in **bold**.
- Entries with user-defined content are highlighted in **<bold and enclosed in angle brackets>**.
- Optional ACC command parameters are highlighted in **(round brackets followed by)?**

Warnings are highlighted.

Since manual and software are subject to different production cycles, the description of settings and features may differ from actual settings and features. Information about discrepancies is provided in the **Readme** file that accompanies the product. Please read this file and take the information into account when installing, setting up, and using the product.

In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

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If you are about to install all technical and/or business system functions without the services of Software AG, you require extensive knowledge of the system to be installed, its intended purpose, the target systems, and their various dependencies. Due to the number of platforms and interdependent hardware and software configurations, we can only describe specific installations. It is not possible to document all settings and dependencies.

When you combine various technologies, please observe the manufacturers' instructions, particularly announcements concerning releases on their Internet pages. We cannot guarantee proper functioning and installation of approved third-party systems and do not support them. Always follow the instructions provided in the installation manuals of the relevant manufacturers. If you experience difficulties, please contact the relevant manufacturer.

If you need help installing third-party systems, please contact your local Software AG sales organization (<https://empower.softwareag.com>). Please note that this type of manufacturer-specific or customer-specific change is not subject to the standard Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them.



2 Installation

This chapter describes all one-node server installation procedures using the setup programs.

For all other installation scenarios e.g. multi-node systems for a larger distributed scenario and higher availability please contact your local Software AG sales organization (page 161).

To avoid redundancies this document does not re-iterate information available in other documents. For more details please review the following documents (see installation media or download them <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer/>):

- For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document
- The client installation is described in the **ARIS Client Installation Guide**.
- For an overview on features and functionalities, please refer to the **Product Functionality Matrix** document
- For an overview on supported interfaces, methods, languages, and compatibilities, please refer to the **Technical Product Matrix** document

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Depending on the desired installation scenario, you first need to customize your database management system. If you use the standard database system just run the setup programs to install the servers you require. It is assumed that you perform the installation using the **start.exe** startup file as an administrator. You can also start individual installation programs via the corresponding **Setup.exe**.

If you are about to use all ARIS server types in your system, ARIS Connect Server, ARIS Design Server, ARIS Publisher Server and ARIS Risk & Compliance Manager Server must be installed on different machines. You can only install one server on one machine.

ARIS Agent must be provided for Linux systems (page 17). For local installations under Windows ARIS Agent will be installed automatically. To perform remote installations (page 16) please first run the ARIS Agent setup on the remote servers.

Please refer to the chapter Administration (page 51) to obtain information on additional settings required for using **ARIS**.



2.1 Available Setups

ARIS Connect Server Setup (page 5)

This setup will install **ARIS Agent**, **ARIS Connect Server** containing **ARIS Design Server**, **standard database system**, **ARIS Connect Viewer**, **ARIS Connect Designer** and **ARIS download clients** and provide the **default** tenant. The functionalities **ARIS Connect workflows**, **Share model**, **Change request** and **Approve model** are available using an ARIS Connect Server license. For full ARIS Process Governance functionality you need to purchase and import an ARIS Process Governance Server license.

The installation procedures are available for a Windows operating system (page 5) or a Linux operating system (page 17). If you use your Oracle database system or your Microsoft SQL database system please make sure to customize your operating database system (page 19) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (page 101).

ARIS Design Server Setup (standalone) (page 9)

This setup will install **ARIS Agent**, **ARIS Design Server**, **standard database system** and **ARIS download clients** and provide the **default** tenant.

The installation procedure is available for a Windows operating system (page 9) or a Linux operating system (page 17). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operating database system (page 19) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (page 101).

ARIS Risk & Compliance Manager Server Setup (page 12)

This setup will install **ARIS Agent**, **ARIS Risk & Compliance Manager Server** and **ARIS document storage**.

The installation procedure is available for a Windows operating system (page 14). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operating database system (page 19) before starting the ARIS setup.

If you are using ARIS Risk & Compliance Manager already you can connect the existing ARIS document storage and the ARIS Risk & Compliance Manager User Management to the active ARIS Connect Server or ARIS Design Server.

ARIS Publisher Server Setup (page 14)

This setup will install **ARIS Agent** and **ARIS Publisher Server**.

The installation procedure is available for a Windows operating system (page 14) or a Linux operating system (page 17).



The standard installation uses a **Derby** database system and Apache Tomcat Web Application Server. With this test system, only one user can access a Publisher export. Swim lane models cannot be exported using a Derby database. If you are installing ARIS Publisher Server on a Linux operating system you cannot use a Derby database.

For a productive system, a larger number of users and on a Linux system, you need an **Oracle** database system or a **Microsoft SQL** database system that must be configured for ARIS Publisher Server (page 26) before starting the ARIS setup. These systems are not included in the package. Depending on the ARIS Publisher Server license purchased (page 116), these systems enable all users to simultaneously work on exports.

For demonstration reasons (laptop) we also recommend the ARIS client installation including the server **LOCAL** (see Client Installation Guide).

Installing ARIS on a Linux Operating System (page 17)

Before installing ARIS Connect Server, ARIS Design Server or ARIS Publisher Server on a Linux operating system you must provide ARIS Agent to your Linux Debian or Red Hat system. To allow customizing activities additionally provide **ARIS Cloud Controller (ACC)**. Use the ***.deb** files for Debian systems and ***.rpm** files for Red Hat systems. After you have copied and installed the files start the remote installation from a Windows system.



2.1.1 ARIS Connect Server Installation (Windows Operating System)

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (page 16) please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Connect Server** containing **ARIS Design Server**, **standard database system**, **ARIS Connect Viewer**, **ARIS Connect Designer** and **ARIS download clients** and provide the **default** tenant. The functionalities **ARIS Connect workflows**, **Share model**, **Change request** and **Approve model** are available using an ARIS Connect Server license. For full ARIS Process Governance functionality you need to purchase and import an ARIS Process Governance Server license.

The installation procedures are available for a Windows operating system (page 5) or a Linux operating system (page 17). If you use your Oracle database system or your Microsoft SQL database system please make sure to customize your operating database system (page 19) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (page 101).

If you run report scripts that process large quantities of database items, we recommend a 64-bit Windows installation. In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it

<http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

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Prerequisites

If you would like to import the license file right now please make sure to have the file saved on this computer. Otherwise the license must be imported using the Administration.

Procedure

1. Start the ARIS Connect Server installation.
2. Install ARIS Connect Server on the active computer.
3. Specify the port numbers to be used.
4. Select the suitable system settings option. You need to take the RAM required and the number of users who will be accessing the ARIS Server into account to ensure optimum load distribution and better protection against failure. For a productive system it is recommended to select the **Medium number of users** or **High number of users** option.

For demonstration reasons (laptop) we recommend the option **Small number of users**.
(page 78)



5. Select the database system. If you do not check **Standard** please make sure the database system has been customized (page 19) before running this setup.
6. After the database system has been customized, select the database management system and the JDBC driver.
7. Enter the connection parameters. Please use the database name, the application user and the schema names selected during customizing.

ORACLE (page 21)

Enter all database connection parameters

Please make sure that the database system has been customized.

Server:	<input type="text" value="arisapp122srv.eu.ab.company"/>
Port:	<input type="text" value="1521"/>
Database name:	<input type="text" value="CIP"/>
Application user:	<input type="text" value="ARIS9"/>
Password:	<input type="password" value="•••••"/>
Default schema:	<input type="text" value="default"/>
Master schema:	<input type="text" value="master"/>



Microsoft SQL (page 24)

Enter all database connection parameters
 Please enter all parameters to provide the Microsoft SQL database connection.

Server:	arisapp122srv.eu.ab.company
Port:	1433
Instance name:	CIP
Database name:	CIP
Application user:	ARIS9
Password:	••••••
Default schema:	default
Master schema:	master

8. Enter the SMTP mail processing parameters.
 If you do not do so ARIS will not work properly due to the missing mailing functionality.
 You can configure SMTP mail processing (page 76) any time. Some parameters can also be edited in the Administration (page 51) of this server. Please refer to the Administration online help.
9. Only if your mail server requires SMTP authentication check the option **SMTP authentication** and enter user name and password.
 If you enter these parameters but your mail server does not require SMTP authentication, the connection will be rejected.
10. If you are about to use a proxy server please enter all proxy processing parameters. They can also be entered using the Administration (page 51) of this server. Please refer to the Administration online help.
11. Start the installation process.
12. Once after the installation process is completed configure the system (page 51).
13. Click **Start > All Programs > ARIS > Administration > Start ARIS Connect Server**. This process will take a while. You can monitor the start process.
14. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller** and enter **list** to check the status of the processes.
15. After ARIS Connect is running open your browser and enter **localhost/umc** or **<IP address or fully-qualified host name>/umc**. The login dialog opens.
16. Enter the user name **superuser** and the password **superuser**. The administration opens.



17. Click **Logout**.

18. Send the URL **<IP address or fully-qualified host name>/umc** to the ARIS administrator.

ARIS Connect Server is installed, customized and running.

You can stop ARIS Connect server using the **Stop ARIS Connect Server** link in the Windows start menu or enter **stopall** in the **ARIS Cloud Controller**.

The administrator must import licenses, create users and user groups and assign privileges and licenses (page 38) for the **default** tenant. If you have created additional tenants (page 37) users and licenses must be managed for each tenant. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.1.2 ARIS Design Server Standalone Installation (Windows Operating System)

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (page 16) please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Design Server**, **standard database system** and **ARIS download clients** and provide the **default** tenant.

The installation procedure is available for a Windows operating system (page 9) or a Linux operating system (page 17). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operating database system (page 19) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (page 101).

If you run report scripts that process large quantities of database items, we recommend a 64-bit Windows installation. In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it

<http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

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Prerequisites

If you would like to import the license file right now please make sure to have the file saved on this computer. Otherwise the license must be imported using the Administration.

Procedure

1. Start the ARIS Design Server installation.
2. Install ARIS Design Server on the active computer.
3. Specify the port numbers to be used.
4. Select the suitable system settings option. You need to take the RAM required and the number of users who will be accessing the ARIS Server into account to ensure optimum load distribution and better protection against failure. For a productive system it is recommended to select the **Medium number of users** or **High number of users** option.

For demonstration reasons (laptop) we recommend the option **Small number of users**. (page 78)

5. Select the database system. If you do not check **Standard** please make sure the database system has been customized (page 19) before running this setup.
6. After the database system has been customized, select the database management system and the JDBC driver.



7. Enter the connection parameters. Please use the database name, the application user and the schema names selected during customizing.

ORACLE (page 21)

Enter all database connection parameters

Please make sure that the database system has been customized.

Server:	<input type="text" value="arisapp122srv.eu.ab.company"/>
Port:	<input type="text" value="1521"/>
Database name:	<input type="text" value="CIP"/>
Application user:	<input type="text" value="ARIS9"/>
Password:	<input type="password" value="•••••"/>
Default schema:	<input type="text" value="default"/>
Master schema:	<input type="text" value="master"/>

Microsoft SQL (page 24)

Enter all database connection parameters

Please enter all parameters to provide the Microsoft SQL database connection.

Server:	<input type="text" value="arisapp122srv.eu.ab.company"/>
Port:	<input type="text" value="1433"/>
Instance name:	<input type="text" value="CIP"/>
Database name:	<input type="text" value="CIP"/>
Application user:	<input type="text" value="ARIS9"/>
Password:	<input type="password" value="••••••"/>
Default schema:	<input type="text" value="default"/>
Master schema:	<input type="text" value="master"/>

8. Enter the SMTP mail processing parameters.

If you do not do so ARIS will not work properly due to the missing mailing functionality.



You can configure SMTP mail processing (page 76) any time. Some parameters can also be edited in the Administration (page 51) of this server. Please refer to the Administration online help.

9. Only if your mail server requires SMTP authentication check the option **SMTP authentication** and enter user name and password.

If you enter these parameters but your mail server does not require SMTP authentication, the connection will be rejected.

10. If you are about to use a proxy server please enter all proxy processing parameters. They can also be entered using the Administration (page 51) of this server. Please refer to the Administration online help.
11. Start the installation process.
12. Once after the installation process is completed configure the system (page 51).
13. Click **Start > All Programs > ARIS > Administration > Start ARIS Design Server**. This process will take a while.
14. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller** and enter **list** to check the status of the processes.
15. After <abs> is running open your browser and enter **localhost/umc** or **<IP address or fully-qualified host name>/umc**. The login dialog opens.
16. Enter the user name **superuser** and the password **superuser**. The administration opens.
17. Click **Logout**.
18. Send the URL **<IP address or fully-qualified host name>/umc** to the ARIS administrator. The ARIS Design Server is installed, customized and running.

You can stop ARIS Design Server using the **Stop ARIS Design Server** link in the Windows start menu or enter **stopall** in the **ARIS Cloud Controller**.

The administrator must import licenses, create users and user groups and assign privileges and licenses (page 38) for the **default** tenant. If you have created additional tenants (page 37) users and licenses must be managed for each tenant.

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.1.3 ARIS Risk & Compliance Manager Server Installation (Windows Operating System)

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (page 16) please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Risk & Compliance Manager Server** and **ARIS document storage**.

The installation procedure is available for a Windows operating system (page 14). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operating database system (page 19) before starting the ARIS setup.

In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

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If you require different installations, please refer to your local Software AG sales organization (page 161). Please note that this type of manufacturer-specific or customer-specific change is not subject to the standard Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them.

Prerequisites

If you would like to import the license file right now please make sure to have the file saved on this computer.

Procedure

1. Perform the ARIS Risk & Compliance Manager Server installation.
2. Install the server on the active computer.
3. Select the modeling approach you wish to install for ARIS Risk & Compliance Manager.
Attention: You cannot change the modeling approach after installation is complete.
4. If you change the default port numbers please enter free numbers to prevent port conflicts (page 157).
5. Specify the mail server parameters for outgoing mails. Enter the name of the mail server and the default e-mail address, if this information is already available.
6. If you enable the event processing and enter all server parameters ARIS Risk & Compliance Manager will receive e.g. WebMethods events and handle them.
7. Select the database system. If you do not check **Standard** please make sure to have the database system customized (page 19) before running this setup.
8. Select the suitable installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.



The option **Small** reserves 1 GB for the application.

The option **Medium** reserves 4 GB for the application.

The option **Large** reserves 24 GB for the application.

9. Start the installation process.
10. Once after the installation process is completed click **Start > All Programs > ARIS > Administration > Start ARIS Risk & Compliance Manager**. This process will take a while.
11. After ARIS Risk & Compliance Manager Server is running open your browser and enter **localhost/umc** or **<IP address or fully-qualified host name>/umc**. The login dialog opens.
12. Enter the user name **system** and the password **manager**. The administration opens.
13. Click **Logout**.
14. Send the URL **<IP address or fully-qualified host name>/umc** to the ARIS administrator. ARIS Risk & Compliance Manager Server is installed and running.

You can stop the server using the **Stop ARIS Risk & Compliance Manager** link in the Windows start menu.

The administrator must import licenses, create users and user groups and assign privileges and licenses (page 38) for the **default** tenant. If you have created additional tenants (page 37) users and licenses must be managed for each tenant.

If you already use ARIS Connect and have installed ARIS Risk & Compliance Manager later you can reconfigure (page 77) your ARIS Risk & Compliance Manager component to your productive ARIS Connect Server or ARIS Design Server installation. This will make ARIS Risk & Compliance Manager available for all users of your productive system and only one ARIS document storage will be in use.

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.1.4 ARIS Publisher Server Installation (Windows Operating System)

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (page 16) please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent** and **ARIS Publisher Server**.

The installation procedure is available for a Windows operating system (page 14) or a Linux operating system (page 17).

The standard installation uses a **Derby** database system and Apache Tomcat Web Application Server. With this test system, only one user can access a Publisher export. Swim lane models cannot be exported using a Derby database. If you are installing ARIS Publisher Server on a Linux operating system you cannot use a Derby database.

For a productive system, a larger number of users and on a Linux system, you need an **Oracle** database system or a **Microsoft SQL** database system that must be configured for ARIS Publisher Server (page 26) before starting the ARIS setup. These systems are not included in the package. Depending on the ARIS Publisher Server license purchased (page 116), these systems enable all users to simultaneously work on exports.

For demonstration reasons (laptop) we also recommend the ARIS client installation including the server **LOCAL** (see Client Installation Guide). If you are about to use your Oracle database system or your Microsoft SQL database system you need to configure your operating database system (page 26) before starting the ARIS setup.

In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

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If you require different installations, please refer to your local Software AG sales organization (page 161). Please note that this type of manufacturer-specific or customer-specific change is not subject to the standard Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them.

Prerequisites

Make sure to have the ARIS Publisher Server license file saved on this computer.

Procedure

1. Perform the ARIS Publisher Server installation.
2. Install ARIS Publisher Server on the active computer.
3. Select the ARIS Publisher Server to be installed.



4. If you retain the settings of the installation program, the context path and the free port (**19990**) to the web server are entered automatically.
5. Select the suitable installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.

The option **Small** is recommended for a single installation for demonstration purposes e. g. on a laptop (32-bit VM; 1 GB for the application, 256MB for Derby).

The option **Medium** reserves 3 GB for the application and 512MB for Derby. The use of Oracle or Microsoft SQL Server is recommended.

The option **Large** reserves 8 GB for the application and 1 GB for Derby. The use of Oracle or Microsoft SQL Server is obligatory.
6. If you use Process Governance please specify the integration parameters.

The **Process Governance** module and the **Start governance process** pop-up menu are only available in the Publisher exports if a Process Governance license is available for the connected ARIS Connect Server or ARIS Design Server and all Process Governance integration parameters have been entered during the ARIS Publisher Server setup process.
7. Select the database system. If you do not check **Standard** please make sure to have the database system customized (page 19) before running this setup.
8. Start the installation process.
9. Once after the installation process is completed configure the system (page 51).
10. Click **Start > All Programs > ARIS > Start ARIS Publisher Server**.
11. After ARIS Publisher Server is running open your browser and enter **http://<IP address or fully-qualified host name>:<port number>/businesspublisher**, e.g. **http://arispublishersrv:19990/businesspublisher**.
12. Start the Administration (page 39) of the ARIS Connect Server or ARIS Design Server and import the ARIS Publisher Server license file.

After the installation, reports are run by ARIS Publisher Server. You can additionally install a Report Server to optimize system performance when running reports. To install an ARIS Publisher Report Server start this setup again and select the ARIS Publisher Report Server to be installed. After you have installed ARIS Publisher Report Server, exports are managed by ARIS Publisher Server and reports are run by ARIS Publisher Report Server.

If you already use ARIS Connect or ARIS Design Server and have installed ARIS Publisher Server later you can force ARIS Publisher Server to use the Administration of your productive ARIS Connect Server or ARIS Design Server (page 111) installation. Only in this case ARIS document storage will be available if customized (page 113).

You may change the standard database connection parameters (page 31).

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.1.5 ARIS Remote Installations (Windows Operating System)

Before installing servers remotely on a Windows operating system or a Linux operating system you must provide ARIS Agent to your remote servers.

Procedure

1. Start the ARIS Agent setup on the server that will be used for remote installation. This will provide ARIS Cloud Controller (ACC) (page 61) on this machine.
2. Start the server installation from any Windows system.
3. Select the **remote installation** option and enter the name of the remote server.
4. If you have changed the remote access password (page 67) you must enter the new password using the option **Enter changed remote access password**.
5. Once after the installation process is completed configure the system (page 51).
6. Start the server (**Start > All Programs > ARIS > Administration**). This process will take a while.
7. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller** and enter **list** to check the status of the processes.
8. After the server is running open your browser and enter **<IP address or fully-qualified host name>/umc**. The login dialog opens.
9. Enter the user name **superuser** and the password **superuser**. The administration opens.
10. Click **Logout**.
11. Send the URL **<IP address or fully-qualified host name>/umc** to the ARIS administrator.

The Server is installed, customized and running.

You can stop enter **stopall** in the **ARIS Cloud Controller**.

The administrator must import licenses, create users and user groups and assign privileges and licenses (page 38) for the **default** tenant. If you have created additional tenants (page 37) users and licenses must be managed for each tenant.

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.1.6 Installing ARIS on a Linux Operating System

Before installing ARIS Connect Server, ARIS Design Server or ARIS Publisher Server on a Linux operating system you must provide ARIS Agent to your Linux Debian or Red Hat system. To allow customizing activities additionally provide **ARIS Cloud Controller (ACC)**. Use the ***.deb** files for Debian systems and ***.rpm** files for Red Hat systems. After you have copied and installed the files start the remote installation from a Windows system.

In **RedHat** and **centos** systems ***.rpm** files will perform these actions automatically:

- **/etc/sysctl.conf**

```
kernel.shmmax:
if "kernel.shmmax < 629145600" then "kernel.shmmax = 629145600"
max_file_max:
if "max_file_max < 200000" then "fs.file-max = 200000"
```

- **/etc/security/limits.d/40-aris.conf**

```
$max_file_max = "ulimit -n"
If "$max_file_max > 2^20" then max_file_max = 2^20
aris soft nofile $max_file_max
aris hard nofile $max_file_max
aris soft nproc unlimited
aris hard nproc unlimited
```

- **/etc/pam.d/su**

```
session required pam_limits.so
```

As the internal ARIS user running all components has no root privileges all privileged ports (<1024) cannot be used. To run ARIS under a privileged port you need to redirect the ports (page 66).

Procedure

1. Copy the file **aris-cloud-agent_1.0.0-SNAPSHOT_amd64.deb** or **aris-cloud-agent-1.0.0-1.x86_64.rpm** from the installation media to the hard drive of your Linux system.
This file provides ARIS Agent. ARIS Agent is needed to perform a remote ARIS Connect Server or ARIS Design Server installation.
2. To allow enhanced customizing of ARIS copy the file **aris-acc_1.0.0-SNAPSHOT_amd64.deb** or **aris-cloud-agent-1.0.0-1.x86_64.rpm** from the installation media to the hard drive of your Linux system.
This file provides ARIS Cloud Controller (ACC) (page 61).
3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files:
dpkg -i aris-cloud-agent_1.0.0-SNAPSHOT_amd64.deb
This command installs ARIS Agent to your Debian system.
dpkg -i aris-acc_1.0.0-SNAPSHOT_amd64.deb



This command installs ARIS Cloud Controller (/bin/acc.sh) to your Debian system.

```
rpm -i aris-cloud-agent-1.0.0-1.x86_64.rpm
```

This command installs ARIS Agent to your Red Hat system.

```
rpm -i aris-acc-1.0.0-1.x86_64.rpm
```

This command installs ARIS Cloud Controller (/bin/acc.sh) to your Red Hat system.

4. If you are not about to use the standard database system, please make sure to customize your Oracle or Microsoft SQL database system (page 19) before starting the ARIS Server installation. For an ARIS Publisher Server installation the customizing is mandatory as the standard database system **Derby** cannot be used.
5. Start the installation of ARIS Connect Server (page 5), ARIS Design Server (page 9) or ARIS Publisher Server (page 14) from a Windows system.
6. Select the **remote installation** option and enter the name of your Linux system.
7. If you have changed the remote access password (page 67) you must enter the new password using the option **Enter changed remote access password**.
8. Once after the installation process is completed configure the system (page 51).
9. Start **ARIS Cloud Controller** (acc.sh) and enter **startall**. This process will take a while.
10. Enter **list** to check the status of all components.
11. After all processes are running open your browser and enter **localhost/umc** or **<IP address or fully-qualified host name>/umc**. The login dialog opens.
12. Enter the user name **system** and the password **manager**. The administration opens.
13. Click **Logout**.
14. Send the URL **<IP address or fully-qualified host name>/umc** to the ARIS administrator.

The ARIS Server is installed, customized and running.

You can stop enter **stopall** in the **ARIS Cloud Controller**.

The ARIS administrator should immediately change the password **superuser** to prevent unauthorized access. The name **superuser** cannot be changed. Also the password **manager** of the system user **system** should be changed.

The administrator must import licenses, create users and user groups and assign privileges and licenses (page 38) for the **default** tenant. If you have created additional tenants (page 37) users and licenses must be managed for each tenant.

To uninstall ARIS from a Debian system enter **dpkg --purge aris-acc** or **dpkg --purge aris-cloud-agent**. To uninstall ARIS from a Red Hat system enter **rpm -e aris-acc** or **rpm -e aris-cloud-agent**.

Update installations are available (page 32). Components will be stopped. After the system has been updated all components will be started automatically.



2.2 Using Oracle or Microsoft SQL Server instead of the Standard Database System

Please customize the Oracle (page 19) or the Microsoft SQL Server (page 21) database management system before starting one of the following server setups:

- ARIS Connect Server setup (page 5)
- ARIS Design Server setup (page 9)
- ARIS Risk & Compliance Manager Server setup (page 12)
- Update setup (page 32)

Before performing an ARIS Publisher Server setup please customize the Oracle (page 26) or the Microsoft SQL Server (page 29) database management system for ARIS Publisher Server.

2.2.1 Customize the Oracle Database

In this chapter the customizing of an Oracle database is described for a Microsoft Windows operating system. To customize the system on a Linux operating system please use the **sh** files instead of the **bat** files.

If you run ARIS based on Oracle as the database management system, you need to create an application user (page 21) and create an empty schema for each tenant (page 21) before starting the ARIS Server setup (page 2).

If you need help in setting up your database system, please contact Software AG (<https://empower.softwareag.com>). Please note that this service is not subject to the standard Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

Please consider the legal notices <http://documentation.softwareag.com/legal/>.

To customize the system you need the following components:

- An operating Oracle database.
- The ojdbc6.jar driver. You can download this driver from the Oracle Web Site to a directory of your choice.
- SQL scripts and all additional files. These scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Oracle) or they can be downloaded from the ARIS Download Center (aris.softwareag.com/ARISDownloadCenter/ARISDownloadCenter?language=en).
- Ensure that SQL*PLUS is available.



Warning

If you are about to update your ARIS 9.x version using an Oracle database you must upgrade your database schema first before starting the server. Otherwise your runtime environment and data might be harmed and the application may not work anymore.

To do so please use the files on you installation medium under

Add-ons\DatabaseScripts\Oracle\Design&ConnectServer. Base requirement for this configuration is a correct configured **envset.bat**.

Execute the **cip_update_schema_for_tenant.bat** file for MS Windows operating system or **cip_update_schema_for_tenant.sh** file for a Unix operating system.

This has to be executed for each tenant separately. Call the file directly on a computer where an Oracle client is installed in the following syntax:

cip_update_schema_for_tenant.bat <tenant_name>, e.g.

cip_update_schema_for_tenant.bat default

or

cip_update_schema_for_tenant.bat myprojecttenant.

2.2.1.1 Configure envset.bat

Before you create an application user (page 21) and create an empty schema (page 21) to store the data of one tenant each you may change the default settings.

1. Edit the file **envset.bat** to specify the connection data of the Oracle instance:

```
SET CIP_ORA_BIN_PATH=<path to sqlplus.exe>
SET TARGET_HOST=<target_>host> (fully qualified name or IP address)
SET TARGET_PORT=<target_port> (e.g. 1521)
SET TARGET_SERVICE_NAME=<target_service_name> (e.g. the database name ARIS)
```

2. Edit the following line to change the name of the application user:

```
SET CIP_APP_USER=ARIS9
SET CIP_APP_PWD=*ARIS!1dm9n#
SET CIP_TENANT_SCHEMA_PWD=*ARIS!1dm9n#yy
```

3. With the next two lines you specify the DBA user:

```
SET CIP_INSTALL_USER=system
SET CIP_INSTALL_PWD=manager
```

4. If your data table space name is different from **ARISDATA** respectively **TEMP** for temp table space, then edit these lines:

```
SET CIP_TS_DATA=ARISDATA
SET CIP_TS_TEMP=TEMP
```

After you have saved the changes you can create the application user (page 21).



2.2.1.2 Create the Application User

The application user is the oracle user connecting ARIS and the Oracle database. The default user name is **ARIS9**. You can change the user name and the password. Therefore you need to configure the **envset.bat** (page 20) file before creating the application user.

Run the script **cip_create_app_user.bat**.

The application user has been created.

This user name and the corresponding password must be entered during the ARIS Server setup (page 2) process.

2.2.1.3 Create an Empty Schema for Each Tenant

Two schemes are mandatory. One for the **master** tenant and one for the **default** tenant. The names, e.g. **aris_master** and **aris_default** can be modified. The names must be entered later during the ARIS Server setup (page 2) process. If you need additional tenants (page 37) you must create additional schemes.

Create the schema objects. Please run these commands for each schema name **aris_master**, **aris_default** and additional tenants.

Run the script **cip_create_schema_for_tenant.bat** and pass the schema name as parameter, e.g.

```
cip_create_schema_for_tenant.bat aris_master (mandatory)
cip_create_schema_for_tenant.bat aris_default (mandatory)
cip_create_schema_for_tenant.bat <oracle schema name for additional tenant>
(optional)
```

If the schema already exists it will be dropped and recreated.

Start the ARIS Server setup (page 2) process, select the database management system **ORACLE** and the JDBC driver.

After you have set up the schema you need to assign the tenants (page 74) to additionally created schemes only.

2.2.2 Customize the Microsoft SQL Server System

If you run ARIS Connect Server, ARIS Design Server or ARIS Risk & Compliance Manager Server based on Microsoft SQL Server as the database management system, you need to configure the **envset.bat** file (page 23) and install the database (page 24) using the script files before starting the ARIS Server setup (page 2). You can also setup the database (page 24) and create an empty schema for each tenant (page 24) manually.

If you need help in setting up your database system, please contact Software AG (<https://empower.softwareag.com>). Please note that this service is not subject to the standard



Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

Please consider the legal notices <http://documentation.softwareag.com/legal/>.

To customize the system you need the following components:

- An operating Microsoft SQL Server database.
- The Microsoft JDBC Driver **sqljdbc4.jar**. You can download this driver from the Microsoft Web Site to a directory of your choice.
- SQL scripts and all additional files. These scripts and files are located on the installation medium (Add-ons\DatabaseScripts\MSSQL) or they can be downloaded from the ARIS Download Center (aris.softwareag.com/ARISDownloadCenter/ARISDownloadCenter?language=en).



2.2.2.1 Configure envset.bat

Before you install the database (page 24) to store the data of one tenant each you may change the default settings.

Edit the file **envset.bat** to specify the connection data of the Microsoft SQL instance:

```

REM If you use named instances then append a "\" and the name of your instance
SET MSSQL_SAG_MSSQL_SERVER_NAME=localhost
REM The login name
SET MSSQL_SAG_MSSQL_LOGIN_NAME=localhost\username
SET MSSQL_SAG_DATABASE_NAME=ARIS95DB
SET MSSQL_SAG_FILEGROUP_FILE_DIR=F:\msqldata\ARIS95DB
SET MSSQL_SAG_FILEGROUP_PRIM=%MSSQL_SAG_DATABASE_NAME%PRIM
SET
MSSQL_SAG_FILEGROUP_PRIM_FILE=%MSSQL_SAG_FILEGROUP_FILE_DIR%\%MSSQL_SAG_DATAB
ASE_NAME%PRIM.mdf
SET MSSQL_SAG_FILEGROUP_DATA=%MSSQL_SAG_DATABASE_NAME%DATA
SET
MSSQL_SAG_FILEGROUP_DATA_FILE=%MSSQL_SAG_FILEGROUP_FILE_DIR%\%MSSQL_SAG_DATAB
ASE_NAME%DATA.ndf
SET MSSQL_SAG_FILEGROUP_INDEX=%MSSQL_SAG_DATABASE_NAME%INDEX
SET
MSSQL_SAG_FILEGROUP_INDEX_FILE=%MSSQL_SAG_FILEGROUP_FILE_DIR%\%MSSQL_SAG_DATA
BASE_NAME%INDEX.ndf
SET MSSQL_SAG_FILEGROUP_LOG=%MSSQL_SAG_DATABASE_NAME%LOG
SET
MSSQL_SAG_FILEGROUP_LOG_FILE=%MSSQL_SAG_FILEGROUP_FILE_DIR%\%MSSQL_SAG_DATABA
SE_NAME%LOG.ldf
SET MSSQL_SAG_APP_USER=ARIS9
SET MSSQL_SAG_APP_PWD=*ARIS!ldm9n#
SET MSSQL_SAG_TENANT_DEFAULT=CIP_DEFAULT
SET MSSQL_SAG_TENANT_MASTER=CIP_MASTER
REM
REM The remainder of this script is not intended to get customized.
REM
SET MSSQL_SAG_PARAMS= -b -m 1
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -S %MSSQL_SAG_MSSQL_SERVER_NAME%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v database = %MSSQL_SAG_DATABASE_NAME%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgprim = %MSSQL_SAG_FILEGROUP_PRIM%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgdata = %MSSQL_SAG_FILEGROUP_DATA%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgindex = %MSSQL_SAG_FILEGROUP_INDEX%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fglog = %MSSQL_SAG_FILEGROUP_LOG%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgprimfile =
"%MSSQL_SAG_FILEGROUP_PRIM_FILE%"
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgdatafile =
"%MSSQL_SAG_FILEGROUP_DATA_FILE%"
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fgindexfile =
"%MSSQL_SAG_FILEGROUP_INDEX_FILE%"
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v fglogfile =
"%MSSQL_SAG_FILEGROUP_LOG_FILE%"
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v username = %MSSQL_SAG_APP_USER%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v password = %MSSQL_SAG_APP_PWD%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v servername =
%MSSQL_SAG_MSSQL_SERVER_NAME%
SET MSSQL_SAG_PARAMS=%MSSQL_SAG_PARAMS% -v loginname =
%MSSQL_SAG_MSSQL_LOGIN_NAME%

```

After you have saved the changes, please install the database (page 24).



2.2.2.2 Install the Database Automatically

After you have configured the **envset.bat** file (page 23) you need to execute the **inst.bat** file. This will create the database including the two mandatory tenants and the application user.

If you need additional tenants please use the **create_schema_for_tenant.bat** file. After you have set up the schema you need to assign the tenants (page 74) to additionally created schemes only. If you do not use the scripts you can also setup the database (page 24) and create an empty schema for each tenant manually (page 24).

2.2.2.3 Setup Database Manually

Only if you did not use the **envset.bat** (page 23) and **inst.bat** (page 24) files, please setup the database manually. In this example the database e.g. **CIP** has been created. Instance and Database must have a collation with a **_CI_** in its name, e.g. **Latin1_General_CI_AI**.

1. Turn on **Snapshot-Isolation** and **READ COMMITTED** mode:

```
ALTER DATABASE CIP SET ALLOW_SNAPSHOT_ISOLATION ON
GO
ALTER DATABASE CIP SET READ_COMMITTED_SNAPSHOT ON
GO
```

2. Create a login **ARIS9** and the user **ARIS9** in this database:

```
CREATE LOGIN ARIS9 WITH PASSWORD=N'*ARIS!1dm9n#', DEFAULT_DATABASE=[CIP]
GO
USE [CIP]
GO
CREATE USER [ARIS9] FOR LOGIN [ARIS9]
GO
```

2.2.2.4 Create an Empty Schema for Each Tenant Manually

Only if you did not use the **envset.bat**, **inst.bat** and the **create_schema_for_tenant.bat** files, please create additional schemes manually. Two schemes are mandatory. One for the **master** tenant and one for the **default** tenant. The names, e.g. **aris_master** and **aris_default** can be modified. The names must be entered later during the ARIS Server setup (page 2) process. If you need additional tenants you must create additional schemes.

Create the schema objects and a user that controls the schemes. The naming convention for that user is **<user name>_<database name>_<schema name>**. Grant the privilege to impersonate on that new schema and user to the user.

Please run these commands for each schema name **aris_master**, **aris_default** and additional tenants.



Syntax

```
USE [<database name>]
GO
CREATE SCHEMA [<database name>_<schema name>]
GO
CREATE USER [<user name>_<database name>_<schema name>] WITHOUT LOGIN
ALTER USER <user name>_<database name>_<schema name> WITH DEFAULT_SCHEMA =
<database name>_<schema name>
GRANT CONTROL ON SCHEMA :: [<database name>_<schema name>] TO [<user
name>_<database name>_<schema name>]GRANT IMPERSONATE ON USER::<user
name>_<database name>_<schema name> TO ARIS9
GRANT CREATE TABLE TO [<user name>_<database name>_<schema name>]
GRANT CREATE VIEW TO [<user name>_<database name>_<schema name>]
GRANT CREATE FUNCTION TO [<user name>_<database name>_<schema name>]
GO
```

Example

In this example the database **CIP** is used. The schema name is **CIP_MASTER** and the **user name** is **ARIS9**.

```
USE [CIP]
GO
CREATE SCHEMA [CIP_MASTER]
GO
CREATE USER [ARIS9_CIP_MASTER] WITHOUT LOGIN
ALTER USER ARIS9_CIP_MASTER WITH DEFAULT_SCHEMA = CIP_MASTER
GRANT CONTROL ON SCHEMA :: [CIP_MASTER] TO [ARIS9_CIP_MASTER]
GRANT IMPERSONATE ON USER::ARIS9_CIP_MASTER TO ARIS9
GRANT CREATE TABLE TO [ARIS9_CIP_MASTER]
GRANT CREATE VIEW TO [ARIS9_CIP_MASTER]
GRANT CREATE FUNCTION TO [ARIS9_CIP_MASTER]
GO
```

Start the ARIS Server setup (page 2) process, select the database management system **Microsoft SQL** and the JDBC driver.

After you have set up the schema you need to assign the tenants (page 74) to additionally created schemes.



2.3 Using Oracle or Microsoft SQL Server for ARIS Publisher Server

Before performing an ARIS Publisher Server setup please customize the Oracle (page 26) or the Microsoft SQL Server (page 29) database management system for ARIS Publisher Server.

If you install a database yourself, always follow the instructions provided by the respective manufacturer, or contact your local Software AG sales organization (page 161). Please consider the legal notices <http://documentation.softwareag.com/legal/>.

You may change the database connection parameters (page 31).

2.3.1 Use Oracle Database (Tomcat)

Please adjust your system as required to run ARIS Publisher Server in combination with Apache Tomcat Web application server and an Oracle database.

Prerequisite

- You have created an Oracle database and configured it as follows. If you install a database yourself, always follow the instructions provided in the Oracle Installation Guide. We recommend that you use two separate Oracle databases for ARIS Design Server and ARIS Publisher. This keeps the two systems from competing for resources, and you achieve better performance and higher availability.
- Use of the database character set **AL32UTF8** is mandatory.
- We recommend a block size of 8K.
- `query_rewrite_enabled=true`
- `query_rewrite_integrity=trusted`
- You have created two table spaces: **ARISBPDATA** (for table data) and **ARISBPINDEX** (for index data). To use other names or existing table spaces, you must customize the configuration file **webappserver.cfg** (see below). We recommend that you set the table spaces for automatic, unlimited growth. Otherwise, you run the risk of completely exhausting the memory in the table spaces, which may cause important functions of ARIS Design Server and ARIS Publisher to fail. If the option for automatic growth is not set, regular monitoring (e.g. weekly) of the Oracle instance is required to ensure that the table spaces are manually increased on time.
- You have created an Oracle user that ARIS Publisher can use to connect to the database. The name of the Oracle user is assumed to be **ARISBP**. You can select any password. Enter it - coded or uncoded - in the configuration file `<Installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\WEB-INF\Resources.xml` (see below). If you prefer another name, change the name there as well:

```
CREATE USER ARISBP IDENTIFIED BY ARISBP;
```



- The Oracle user must have the following privileges
 GRANT CREATE SESSION TO ARISBP;
 GRANT CREATE TABLE TO ARISBP;
 GRANT CREATE VIEW TO ARISBP;
 GRANT QUERY REWRITE TO ARISBP;
 ALTER USER ARISBP QUOTA UNLIMITED ON ARISBPDATA;
 ALTER USER ARISBP QUOTA UNLIMITED ON ARISBPINDEX;
- We recommend that you turn off the Oracle recycle bin because large quantities of tables accumulate there when exports are deleted.
- To encrypt passwords use the ARIS Server Administrator (page 101) command **encrypt**.

Procedure

1. Open the file **Resources.xml** in the ARIS Publisher Server installation directory.
2. Ensure that the following entries are specified:

```
<Context path="/businesspublisher" docBase="installation path>/businesspublisher/"
debug="0" reloadable="false" crossContxt="true">
```

```
<Resource name="jdbc/businesspublisherdb" auth="Container"
type="javax.sql.DataSource"
```

```
    maxActive="30" maxIdle="30" maxWait="1000" initialSize="10"
```

```
    <!-- Configure the DBCP (database connection pool) with these values. For an explanation
of these values, go to:
```

```
    http://jakarta.apache.org/commons/dbcp/configuration.html
```

```
(http://jakarta.apache.org/commons/dbcp/configuration.html)-->
```

```
    username="ARISBP" password="ARISBP" <!-- where you use the Oracle user
name and password
```

```
    (see Prerequisites) > -->
```

```
    driverClassName="oracle.jdbc.driver.OracleDriver"
```

```
    url="jdbc:oracle:thin:@localhost:1521:ARISBP" <!--
```

```
url="jdbc:oracle:thin:@hostname:port:sid where you replace hostname,
port, and sid in the URL as appropriate-- >
```

```
    connectionProperties="SetBigStringTryClob=true"/>
```

```
    validationquery="Select 1 from dual"/>
```

```
</Context>
```

3. Open the file ARIS Publisher Server installation directory..\webappserver.cfg.



4. Ensure that the following entries are correctly specified:

```
<bp-oracle tablespace-data="ARISBPDATA" tablespace-index="ARISBPINDEX" />
```

If you have decided to use other table space names (see Prerequisite), please specify them here.

5. Ensure that the database connection is set for **Oracle** here:

```
<dao-class  
name="com.idsscheer.aris.businesspublisher.application.dao.database.AOracleDA  
O" />
```

6. Ensure that the JDBC driver **ojdbc6.jar** exists (download from Oracle Web Site) in the ARIS Publisher Server installation directory **..\lib**.

We recommend using **JDBC driver** version **11.2.0.3**, otherwise, database errors may occur. You may change the database connection parameters (page 31).



2.3.2 Use Microsoft SQL Database

Please adjust the system as required to manage ARIS Publisher Server in combination with a Microsoft SQL Server database. For additional information about Microsoft SQL Server, visit <http://support.microsoft.com/kb/914277/en-us> (<http://support.microsoft.com/kb/914277/en-us>).

Prerequisite

- The file **create_db.sql** (installation media) is copied to a directory of your choice. This script can be modified according to your security guide lines.
- You have installed Microsoft SQL Server under **Microsoft Windows**. Microsoft SQL Server is not included in the package.
- You have downloaded the SQL Server JDBC driver (**jtDS.jar** or **sqljdbc4.jar**) from the Microsoft Download Center to a directory of your choice.
- To encrypt passwords use the ARIS Server Administrator (page 101) command **encrypt**.

Procedure

1. Open the **Server properties** dialog.
2. On the **Security** tab, select the **SQL Server and Windows authentication mode** option.
3. Create a database using the script **create_db.sql**.

- a. Open the script for editing.
- b. Adjust the path to the database file. Ensure that the path has been created before you run the script.

If you specify or encode the database name, user name, and password you must also customize the configuration files <Installation

path>\server\bin\work\work_businesspublisher_<s, m or

l>\base\webapps\businesspublisher\WEB-INF**Resources.xml** and **webappserver.cfg**.

- c. Ensure that **Latin1_General_CI_AI** sorting is selected for the COLLATE statement.

The script creates the specified data groups. If you have changed the names in the script, you must also change them in the configuration file **Resources.xml**.

ARISBPDATA: contains all database objects

ARISBPINDEX: contains all index data

- d. Copy the required JDBC driver (see prerequisite) to the Tomcat installation directory under **common/lib**.

4. Customize the configuration file **Resources.xml** as follows:

If you use **jtDS.jar**:

```
<Resource name="jdbc/businesspublisherdb"
auth="Container"
type="javax.sql.DataSource"
maxActive="100" maxIdle="20" maxWait="1000"
username="<enter username>"
password="<enter password>"
```



```

    driverClassName="net.sourceforge.jtds.jdbc.Driver"
    url="jdbc:jtds:sqlserver://<hostname>:<portnumber>/<database
name>;instance=<instancename>"
    validationquery="Select 1 " />
</Context>

```

If you use **sqljdbc4.jar**:

```

    <Resource name="jdbc/businesspublisherdb"
    auth="Container"
    type="javax.sql.DataSource"
    maxActive="100" maxIdle="20" maxWait="1000"
    username="<enter username>"
    password="<enter password>"
    driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
    url="jdbc:sqlserver://<hostname>:<portnumber>/<database
name>;instance=<instancename>" />
    factory="com.idsscheer.aris.tools.databaseConnectionPool.ADatabaseSourceF
actory"
    validationquery="Select 1 " />

```

5. Customize the configuration file ..<ARIS Publisher Server installation path>..\webappserver.cfg.

Ensure that the entries in the following line are correct:

```

<bp-mssql schema="ARISBPDATA" filegroup-data="ARISBPDATA"
filegroup-index="ARISBPINDEX" />

```

If you have changed the names in the script, you must adjust them here.

6. Ensure that the database connection is set for **MSSQL**.

```

<dao-class
name="com.idsscheer.aris.businesspublisher.application.dao.database.AMSSQLDAO
" />

```

You may change the database connection parameters (page 31).



2.3.3 Change Database Connection Parameters

After the installation of ARIS Publisher Server you might change the database connection parameters.

This example shows the affected parameters when using an Oracle system with a ARIS Publisher Server installation for a medium number of users.

Example

The following values will be changed within the **businesspublisher_m** component:

- <DBMS-Hostname>=**ora-server.domain.tld**
- <TCPIP-PORT>=**1521**
- <SERVICE-NAME>=**ARIS**
- <DBMS-USERNAME> (and Schema)=**ARISBP95**
- <DBMS-PASSWORD>=**ARISBP**
- Tablespace-Name for Data=**ARISBP9DATA**
- Tablespace-Name for Index=**ARISBP9INDEX**

```
update external service <DBID> url="jdbc:oracle:thin:@<DBMS-Hostname>:<TCPIP-PORT>:<SERVICE-NAME>" driverClassName="oracle.jdbc.OracleDriver" username="<DBMS-USERNAME>" password="<DBMS-PASSWORD>" maxIdle=15 maxActive=100 maxWait=10000 removeAbandoned=false removeAbandonedTimeout=600 logAbandoned=true defaultAutoCommit=false rollbackOnReturn=true host=<DBMS-Hostname> jmxEnabled=true
```

To change the settings in the server configuration please follow this procedure:

1. Start ARIS Cloud Controller (ACC) (page 61) on your ARIS Publisher Server.
2. To stop all components, enter:
stop all
3. Reconfigure the **businesspublisher** component, enter:

```
reconfigure businesspublisher_m + bp.db.url="jdbc:oracle:thin:@<DBMS-Hostname>:<TCPIP-PORT>:<SERVICE-NAME>" + bp.db.username="<DBMS-USERNAME>" + bp.db.passwd="<DBMS-PASSWORD>" + bp.arisbpdata="<DATA-TABLESPACE>" + bp.arisbpindex="<INDEX-TABLESPACE>"
```

e. g.:

```
reconfigure businesspublisher_m + bp.db.url="jdbc:oracle:thin:@ora-server.domain.tld:1521:OSLTP2" + bp.db.username="ARISBP95" + bp.db.passwd="ARISBP" + bp.arisbpdata="ARISBP9DATA" + bp.arisbpindex="ARISBP9INDEX"
```

Please make sure to place a plus-character (+) in front of each property to be changed.

4. Start all components, enter:

```
start all
```

The properties have been changed.



2.4 Update Installation

ARIS Connect Server, ARIS Design Server and ARIS Risk & Compliance Manager Server

Before updating please read the **known restrictions** page (page 159).

The update installation setup is available for one-node server installations only. All components and the default tenant's system database will be updated and migrated. All other tenants must be updated manually (page 73).

Warning

Scheduled reports as well as ACC enhancements concerning SSL, SAP® JCo and ODBC drivers will be lost and must be reconfigured manually.

If you have changed the remote access password (page 67) please change the password to **g3h31m** before starting the update. You need the superuser's password for each tenant.

After you have updated (page 32) ARIS Connect a re-indexing will take place after the first log in for each database. Using large databases this may take some time. It is recommended to re-index all databases for each tenant (page 73) before users have access to ARIS Connect.

To update customized installations e.g. multi-node systems please contact your local Software AG sales organization (page 161).

Systems with Process Governance

When upgrading from ARIS version 9.5, you must migrate your Process Governance data (page 59).

Using the Standard Database System

To update the installed version 9.5 using the standard database system please run the current ARIS installation program. The update can be performed on the operating system. Outdated components will be stopped, updated and restarted automatically.

1. Back up all tenants (page 35).
2. Start the update setup.
3. Update all other tenants (page 73).
4. Reconfigure ACC enhancements.
5. Re-index databases (page 73).

Please make sure to update locally installed clients too.



Using Oracle or Microsoft SQL as Database System

To update your installation:

1. Back up all tenants (page 35).
2. Customized the Oracle system.

Warning

If you are about to update your ARIS 9.5 version using an Oracle database you must upgrade your database schema first before starting the server. Otherwise your runtime environment and data might be harmed and the application may not work anymore.

To do so please use the files on you installation medium under

Add-ons\DatabaseScripts\Oracle\Design&ConnectServer. Base requirement for this configuration is a correct configured **envset.bat**.

Execute the **cip_update_schema_for_tenant.bat** file for MS Windows operating system or **cip_update_schema_for_tenant.sh** file for a Unix operating system.

This has to be executed for each tenant separately. Call the file directly on a computer where an Oracle client is installed in the following syntax:

cip_update_schema_for_tenant.bat <tenant_name>, e.g.

cip_update_schema_for_tenant.bat default

or

cip_update_schema_for_tenant.bat myprojecttenant.

3. Start the update setup.
4. Update all other tenants (page 73).
5. Reconfigure ACC enhancements.
6. Re-index databases (page 73).

It is not possible changing the database system using the update setup. To change the database system:

1. Back up all tenants (page 35).
2. Uninstall ARIS.
3. Customized the Oracle or Microsoft SQL database system.

Warning

If you are about to update your ARIS 9.5 version using an Oracle database you must upgrade your database schema first before starting the server. Otherwise your runtime environment and data might be harmed and the application may not work anymore.

To do so please use the files on you installation medium under

Add-ons\DatabaseScripts\Oracle\Design&ConnectServer. Base requirement for this configuration is a correct configured **envset.bat**.

Execute the **cip_update_schema_for_tenant.bat** file for MS Windows operating system or **cip_update_schema_for_tenant.sh** file for a Unix operating system.



This has to be executed for each tenant separately. Call the file directly on a computer where an Oracle client is installed in the following syntax:

```
cip_update_schema_for_tenant.bat <tenant_name>, e.g.
```

```
cip_update_schema_for_tenant.bat default
```

or

```
cip_update_schema_for_tenant.bat myprojecttenant.
```

4. Start the ARIS Server setup and select the desired database system.
5. Restore data (page 35).
6. Update all other tenants (page 73).
7. Reconfigure ACC enhancements.
8. Re-index databases (page 73).

ARIS Publisher Server

If the database system had been changed from Derby to Oracle you cannot update the installed version 9.0.

After you have updated the ARIS Publisher Server you must import the ARIS Publisher Server license again.

Update Linux Installation

Red Hat

```
rpm -Uvh aris-*.rpm
```

Debian

```
dpkg -i aris-*.deb
```



2.5 Back up and Restore Data

Before you perform an update installation (page 32), please make sure to save all tenant's data before starting the setup process. Administrators can save tenant data in different ways. Using the ACC command **backup tenant** (page 69) will save all data of that tenant at once. Tenants can easily be restored using the **restore tenant** (page 70) command.

Scheduled reports as well as ACC enhancements concerning SSL, SAP® JCo and ODBC drivers cannot be backed-up and must be reconfigured manually after an update.

You can also save data individually:

Database

On the **Administration** tab, using the  **Backup** functionality.

In ARIS Server Administrator, using the **Backup** or **backupasn** commands.

If the size of the backup file (ADB) exceeds 2 GB, errors may occur when restoring the file.

Filter

On the **Administration** tab with the function  **Export** in the pop-up menu for a filter (individual backup).

In ARIS Server Administrator, using the **backupsystemdb** command.

Method, configuration, and queries

In ARIS Server Administrator, using the **backupsystemdb** command.

Scripts

On the **Administration** tab with the function **Export** in the pop-up menu for a script (individual backup).

In ARIS Server Administrator, using the **backupsystemdb** command.



Queries and ad hoc analyses

On the **Administration** tab with the function  **Back up analysis data**.

When you perform an update installation, add languages, or uninstall a component, the relevant files and directories are backed up automatically. A selection of files is listed here to provide examples for client installations:

- <ARIS installation directory>\backup<date>
- <ARIS installation directory>\html
- <ARIS installation directory>\script

For server installations:

- <ARIS installation directory>\server\backup
- <ARIS installation directory>\server\data (saved databases after uninstallation)
- <ARIS installation directory>\server\sysconfig
- <ARIS installation directory>\server\templates



3 Tenant Management

After the installation of ARIS Connect or ARIS Design Server the **default** tenant is available. If you need additional tenants to provide different sets of databases, users, configurations or ARIS methods you can easily create tenants.

If you do not use the standard database system, please make sure to create additional schemes in your Oracle (page 21) or Microsoft SQL database management system (page 24) and you have assigned the tenants (page 74) to these schemes.

Administrators can manage tenants in different ways:

- Create tenants using ACC (page 68)
- Backup tenants using ACC (page 69)
- Restore tenants using ACC (page 70)
- Copy tenants using ACC (page 71)
- Delete tenants using ACC (page 72)
- Update a tenant using ACC (page 73)
- Advanced tenant management using ACC (page 100)
- Tenant management using command line tools (page 53)

Please make sure to manage (page 38) users and licenses for all tenants.



4 User and License Management

For all ARIS products users are managed centrally within the Administration. The role specific data access is handled by license privileges and function privileges managed within the Administration and database specific privileges and filters associated to users and user groups. These privileges and filters are managed within ARIS for each database of a tenant.

User management within the Administration

The Administration is a tool managing users, user groups, privileges, licenses, documents, and configurations for each tenant (page 37) affecting all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system.

Administration is available for users holding the **User management** and **License management** function privilege. Initially only the **superuser** and **system** system users are available. These users are able to manage users for all tenants of your system (page 38). Users can also be managed using the Administration's command line tools (page 52).

If you are about to manage users within the Administration please make sure to have the ARIS Risk & Compliance Manager Server reconfigured (page 77) and that you have forced ARIS Publisher Server to use the specific Administration (page 111).

Administrators must perform these actions in order to allow access to ARIS:

1. Change the passwords of the **superuser** user and the **system** user. (page 40)
2. Import the license if it has not been imported during the setup process. (page 40)
3. Create users (page 41) or import (page 42) them from the LDAP system.
4. Create user groups (page 42) or import (page 42) them from the LDAP system.
5. Assign users to user groups. (page 43)
6. Assign privileges. (page 43)

Further information is available in the <:admin>'s online help (<**User name**> > **Help**).

All users and user groups managed in the Administration are available in every existing or future database of this tenant. In each database product specific privileges must be assigned in ARIS (page 44). To do so, please also refer to the ARIS online help chapter **Manage users**.



User management within ARIS

While creating a database all users and user groups are imported from the Administration. To control data access and role specific actions administrators need to assign privileges and filters for each database. The server **LOCAL** can only be used by the **system** user.

Please make sure to have managed users and licenses before you manage users in ARIS.

These actions can be performed by all users holding the function privileges **Database administrator** and **User management**.

1. Create databases (page 44).
2. Assign database specific privileges and filters. (page 44)
3. Provide the URL **<IP. address or fully-qualified host name>/#<Tenant>/home**, e.g. **http://aris.connect.sag/#default/home** to all users using ARIS Connect.

All authorized users have access to licensed ARIS products.

Privileges and filters must be assigned for each additional database.

4.1 Log into the Administration as superuser

The Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (page 37) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system. Administration is available for users holding the **User management** and **License management** function privilege. After the installation only the administrators **superuser** or **system** can login.

ARIS also provides a set of command-line tools (page 52) that can be used to perform administrative operations.

Procedure

1. Click the link **localhost/umc** or **<IP address or fully-qualified host name>/umc**. The login dialog of the Administration opens.
2. Enter the user name **superuser** and the password **superuser**.
3. Select the tenant.
4. Click **Log in**.

The Administration opens.



4.2 Change Passwords

Change the **superuser** user's and the **system** user's passwords. This will provide unauthorized actions within the system. These users are created automatically for each tenant. The **system** user holds all function privileges and access for all databases. The **superuser** user holds all privileges to allow user and license management.

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **User management**, and select **Users**. The list of users is displayed.
3. Enter **superuser** into the search box. The search result is shown.
4. Click **superuser**. The user data (details) is displayed.
5. Click  **Edit**.
6. Enable the **Change password** check box. The **Password** and **Confirm password** boxes are displayed.
7. Enter a new password, and reenter it. If you want to use the webMethods integration, passwords may not contain a colon.
8. Click **Save**.
9. Change the **system** user's password too

The passwords is changed. The users receive e-mail notifications.

4.3 Import License

Import the license if it has not been imported during the setup process. Users can also be manages using the Administration's command line tools (page 52).

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **Licenses**.
3. Click  **Import license file**. The **Upload license file** dialog opens.
4. Select the relevant license file.
5. Click **Upload**. The license file is transferred. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not available.

If you need additional license keys later, simply import the new license file as described above. To display imported license files, click the relevant license, and select  **Open license file**.



4.4 Create Users

You need to create users if you do not use a LDAP system (page 42). Users can also be managed using the Administration's command line tools (page 52).

1. Log into the Administration of the ARIS Server as superuser (page 39).
 2. Click  **User management**, and select **Users**. The list of users opens.
 3. Click  **Add user**.
 4. Enter the user name, first and last name, e-mail address, if applicable, and password. If a user that already exists in the LDAP system is created, the user name must match. The e-mail address is transferred automatically. For the other specifications you can enter any characters you wish because this information will automatically be transferred from the LDAP system after the user is created.
 5. The user name does not necessarily have to correspond to a person's first or last name. In many cases, a randomly selected character string is used, or an abbreviation of the first and/or last name.
 6. Click  **Save**. The detail view of the user is displayed.
 7. Assign a user group to the user, if required.
 8. Click **Associated user groups**.
 9. Click  **Edit association**. The **Associate user groups** dialog opens.
 10. Enable the check boxes of the relevant items in the **Available items** box, and click  **Add**. The items are transferred to the **Assigned items** box.
To remove items from the **Assigned items** box, disable the check boxes of the relevant items in this box, and click  **Remove**.
 11. Click  **Save**.
 12. Enable the required function and license privileges for the user under **Privileges**.
- The user is created with the corresponding user group and privilege assignments. The user cannot be created if a mandatory field was not filled out or a user name was entered that is already in use by another user in the system. LDAP users are indicated by the  **LDAP user** symbol.



4.5 Create Users Groups

You need to create users groups if you do not use a LDAP system (page 42). Users can also be managed using the Administration's command line tools (page 52).

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **User management**, and select **Users groups**. The list opens.
3. Click  **Add user group**.
4. Enter the name of the user group and an optional description.
5. Click  **Save**. The detail view is displayed.
6. Assign users to the group, if required.
7. Click **Associated users**.
8. Click  **Edit association**. The **Associate users** dialog opens.
9. Enable the check boxes of the relevant items in the **Available items** box, and click  **Add**. The items are transferred to the **Assigned items** box.
10. To remove items from the **Assigned items** box, disable the check boxes of the relevant items in this box, and click  **Remove**.
11. Click  **Save**.

The user group is created.

4.6 Import Users and User Groups from LDAP

You can import users from the LDAP system into the Administration. Users can also be managed using the Administration's command line tools (page 52).

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **User management**, and select **Users** or **User groups**. The list of users or user groups is displayed.
3. Click  **Additional functions**.
4. Click  **Start LDAP import**. The button is active only if an LDAP system is configured on the server.
5. Select the filter.
6. Click **OK**.

The users or user groups are transferred from the LDAP system according to the selected filter.



4.7 Assign Users to User Groups

Users holding identical privileges can be handled easily within user groups.

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **User management**, and select **User groups**.
3. Click **Associated users**.
4. Click  **Edit association**. The **Associate users** dialog opens.
5. Enable the check boxes of the relevant items in the **Available items** box, and click **Add**. The items are transferred to the **Assigned items** box.
6. To remove items from the **Assigned items** box, disable the check boxes of the relevant items in this box, and click **Remove**. To assign all available items, click **Add all**, and click **Remove all** to remove all assignments. To assign all available items, click **Add all**, and click **Remove all** to remove all assignments.
7. Click  **Save**.

The users are assigned to the user group.

4.8 Assign Privileges

Function privileges (page 48) define the role of a user or a user group as they control the actions a user can perform. License privileges (page 45) define the set of ARIS products and views a user can.

1. Log into the Administration of the ARIS Server as superuser (page 39).
2. Click  **User management**, and select **Users** or **User groups**. The list opens.
3. Select an item. The detail view is displayed.
4. Click **Privileges > Function privileges**.

Function privileges define the role of a user or a user group as they control the actions a user can perform. The current assignment is displayed.
5. Enable the check boxes of the function privileges to be assigned.
6. Click **License privileges**. License privileges define the set of ARIS products and views a user can log into. The current assignment is displayed.
7. Enable the check boxes of the license privileges to be assigned.

The user/user group holds the selected set of privileges. If users have assigned a privilege directly and via associated user groups, this is detected automatically so that the user only uses one license.

Database specific function privileges (page 49) must be assigned for each database (page 44).



4.9 Start ARIS

After ARIS Connect or ARIS Design Server is installed ARIS is available as download client.

1. Open your browser and enter **<IP address or fully-qualified host name>/#<tenant>/home**. The login dialog opens.
2. Enter the user name **system** and the password you have recently changed (page 40).
3. Click **Log in**.
4. Click the user name **system > Download clients**. The product page opens.
5. Start ARIS Architect/Designer.
6. Log in as **system** user.

ARIS is starting.

4.10 Create Databases

All databases will be available using this tenant. All users holding the function privilege **Database administrator** can perform this action.

1. Start ARIS. (page 43)
2. Click **ARIS >  Administration**, or **ARIS >  Explorer**.
3. Click ** Navigation** in the bar panel if the **Navigation** bar is not activated yet.
4. In the Explorer tree, click your connection to the ARIS Server and select ** New >  Database**.
5. Enter a name. Do not use any special characters.
6. Enable the **Versionable** check box if you want the content of the new database to be versioned.
7. Click **OK**. The database is created and displayed in the Navigation bar, either as a ** non-versionable** or ** versionable** database.

All users and user groups are automatically transferred from the Administration.

4.11 Assign Database specific Privileges and Filters

Access privileges and filters define the user's role for each database. This action can be performed by all users holding the function privilege **User management**.

1. Click **ARIS >  Administration**.
2. Log in to the database as **system** user or a user holding sufficient privileges.
3. Click ** Navigation** in the bar panel if the **Navigation** bar is not activated yet.
4. Click ** Users** on ** User groups** in the **Navigation** bar.
5. In the table, right-click the user or user group, and select ** Properties**.



6. Click **Access privileges** on the Selection tab. Access privileges regulate individual access to each database.
7. Select the users/user groups for which you want to assign privileges. You can assign **Read** (r), **Write** (w), and **Delete** (d) access privileges. The **Version** (v) access privilege is available for versionable databases only.
8. Select the required access privileges in the **Privileges** field.
9. If you click the **Pass on privileges** button, the privileges selected in the **Privileges** box are applied to all subgroups. This also applies to all new subgroups created below this group in the future.
10. Click **Function privileges** on the **Selection** tab. For users to be able to perform certain actions, they need the corresponding function privileges in each database. You can assign function privileges via user groups, as well.
11. In the **Assign** column, click the relevant function privileges.

Users holding the Administration's **Database administrator** function privilege will become system users in every database. They hold all function privileges of a database and can access all database groups.
12. You cannot change function privileges for system users. Only system users can check the **System user** check box. This user has all function and access privileges.
13. Click Method filter on the Selection tab. Filters enable users to log in with a particular filter to only provide them with the needed ARIS method content.
14. In the **Assign** column, click the relevant filters.
15. Click **OK**.

The selected privileges and filters are assigned. Users can now log in.

Privileges and filters must be assigned for each additional database.



4.12 What License and Function Privileges can be Assigned?

Privileges provide users with ARIS products and specific functions.

4.12.1 License Privileges

License privileges provide users with specific products and components. You can assign the following license privileges to users or user groups. The product-specific privileges must be assigned in the respective ARIS product.

- **ARIS Architect**

Develop, model, analyze, control, and manage the company-wide process architecture.

- **ARIS Access**

Access to ARIS data and repository content through external applications.

- **Business Strategy**

Develop high-quality software with consistent processes by integrating business processes and UML.

- **Enterprise Architecture Management**

Create a uniform inventory of systems and technologies to align business requirements with IT changes.

- **Process Governance**

Design and deploy BPM governance processes to coordinate, automate, and monitor BPM projects.

- **SAP®**

Support SAP® projects by means of business blueprints, test design, and the implementation of processes, and by providing a connection from ARIS to SAP® Solution Manager and SAP NetWeaver® Business Warehouse.

- **Simulation**

Identify process bottlenecks and run what-if analyses in order to obtain valuable decision support for process improvement programs.

- **webMethods integration**

Share business processes with IT in an automated manner so that they can be implemented and optimized.

- **ARIS Optimizer**

Calculate meaningful business process data and plan the operational structure and process organization based on these calculations.

- **ARIS Connect Designer**

Create, modify, and maintain models in the Web browser and make them available in the Cloud.



- **ARIS Connect Viewer**
Read ARIS Connect content.
- **ARIS Designer**
Provide models for business process management, which covers aspects such as business processes, business organization, data modeling, IT landscape, and workflow.
 - **Business Strategy**
Develop high-quality software with consistent processes by integrating business processes and UML.
 - **Enterprise Architecture Management**
Create a uniform inventory of systems and technologies to align business requirements with IT changes.
 - **SAP®**
Support SAP® projects by means of business blueprints, test design, and the implementation of processes, and by providing a connection from ARIS to SAP® Solution Manager and SAP NetWeaver® Business Warehouse.
- **ARIS Connect user**
Create, edit, and display dashboards and data feeds.
- **ARIS Connect Viewer**
Display dashboards and data feeds.
- **RCM Administrate & Operate**
Carry out all administrative and operative tasks in ARIS Risk & Compliance Manager.
- **RCM Contribute**
Add and edit additions to existing objects in ARIS Risk & Compliance Manager.
- **ARIS Smart Input**
Record data for processing with ARIS Optimizer or record the duration of processes.
- **ARIS UML Designer**
Use ARIS UML Designer to integrate business processes and UML in software development processes, and develop and provide high-quality software.
 - **ARIS Access**
Access to ARIS UML data and UML repository content through external applications.
- **ARIS Viewer**
Display processes.



4.12.2 Function Privileges within the Administration

Function privileges within the Administration provide users with specific functions and control their privileges across the database. You can assign the following function privileges to users or user groups within the Administration. The product-specific privileges must be assigned for each database in ARIS.

- **Analysis publisher**
Publish and delete analyses and queries.
- **Analysis administrator**
Manage the analysis database. Publish and delete analyses and queries.
- **User management**
Manage users, user groups, and privileges in the Administration.
- **<_col> administrator**
Manage private groups and moderate user's articles classified as questionable.
- **Dashboard administrator**
Manage server settings, dashboards, data feeds, and data source connections of ARIS Connect.
- **Database administrator**
Manage the tenant's databases. Users holding this function privilege are system users. System users hold all function privileges of a database and can access all database groups.
- **Document management**
Manage documents and document versions, directories, and privileges of ARIS document storage.
- **Configuration administrator**
Manage the tenant's configuration. Import and export configuration files such as filters and templates.
- **License management**
Import, export, and delete licenses in Administration.
- **PPM user**
Use PPM.
- **Portal administrator**
Specify which databases are published with which version for the process portal, and manage settings for the corporate design.
- **Process Governance administrator**
Manage Process Governance processes.
- **Publisher administrator**
Generate, update, and delete ARIS Publisher exports.



- **RCM administrator**
Run the semantic check reports, export and import scripts relevant for ARIS Risk & Compliance Manager in ARIS, and manage ARIS Risk & Compliance Manager.
- **Server administrator**
Manage the Design server component of ARIS Connect Server or ARIS Design Server.
- **Script administrator**
Manage the tenant's report scripts and macros.
- **Technical configuration**
Configure the system, e.g., LDAP, SMTP, and import and export configuration files in Administration, as well as manage documents.

4.12.3 Function Privileges within ARIS

You can use the function privileges to provide users with specific functionality and thus control their authorizations within databases. Function privileges are assigned on the properties pages of users or user groups.

- **Show user management**
Displays the User database item on the Administration tab. Users with this function privilege cannot create or delete users/user groups.
- **User management**
Displays the **User** and the **User groups** database items on the **Administration** tab.
Users with this function privilege can:
 - assign method filters
 - assign function privileges
 - assign access privileges
 - specify default method filtersUsers can only assign privileges which they have themselves.
- **Change management**
Users with this function privilege can:
 - modify proposals
 - propose and modify measures
 - specify end dates for measures
 - set priorities
 - define persons responsible



- **Database management**

Users with this function privilege can:

- edit database attributes
- create, modify and delete languages

- **Database export**

Users with this function privilege can:

- transfer database content to other databases (merge)
- export and import database content.

- **Method changes**

Users with this function privilege can change the color or line weight of objects in models by changing the **Fill color**, **Line color**, **Line style**, and **Weight boxes** on the **Format > Representation > Object appearance** page.

As a result, only the appearance of this object occurrence differs from the default appearance defined in the ARIS Method.

To change the ARIS Method you need the **configuration** and **method management** privilege.

- **Prefix management**

Users with this function privilege can manage database prefixes and change this attribute for all database items for which they have the **Write access** privilege.

Prefixes of a database are managed on the **Administration** tab on the **Identifier** properties page. By assigning a particular prefix to a user, you can identify the users who have created database items.

- **Font format management**

Users with this function privilege can create, change, or delete font formats in the database on the **Administration** tab.

- **Lock permanently**

Users with this function privilege can lock group content, objects, and models during Release Cycle Management. Permanently locked database items are displayed, but they can only be edited by the user who locked them. This user and system users can remove the lock.

- **Attribute formatting**

Users with this function privilege can format attributes.

- **Report automation**

Users with this function privilege can run reports as scheduled reports. The group **Scheduled reports** is displayed in the Explorer tree.



5 Customizing

This chapter provides information on configuring your system. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it

<http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

After the installation you may need to customize the system.

If you use standard license without extension packs the system will work without customization. For some extension packs, e.g. for Process-Driven Management for SAP® Solutions (page 124) you must customize ARIS depending on the functionality to be provided. You can also change settings entered during the setup process using the administration tools (page 51).

After you have customized the system administrators need to create users and user groups in the Administration and assign privileges and licenses (page 51).

5.1 Administration Tools

For administration please use the tools described in this chapter.

5.1.1 Administration

The Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (page 37) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system. Administration is available for users holding the **User management** and **License management** function privilege. After the installation only the administrators **superuser** or **system** can login.

ARIS also provides a set of command-line tools (page 52) that can be used to perform administrative operations.



5.1.2 Command Line Tools for the Administration

Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system.

ARIS also provides a set of command-line tools that can be used to perform administrative operations.

There are always at least two tenants, the tenant **default** and the tenant **master**. Most command-line operations require user authentication. The provided user must have sufficient permissions to perform the requested operation, e.g. a tenant create, read, update or delete can only be performed by administrators of tenant **master**.

- The Administration must be running.
- The command-line tools must be executed in the following path:
<ARIS installation path>/server/bin/work/work_umc<size>*/**tools/bin**.



5.1.2.1 Password Encryption

There are many places where one might want to use and store a password. The **y-password.bat** can be used to encrypt these passwords. Run it without argument to see the usage instructions.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-password.bat <option> <password>**
3. Cut the encrypted password and paste it to your configuration file.

There will be the following output:

```
[CLI] Setting verbosity level... [VALUE: 0=OFF]
[CLI] Plain:      <password>
[CLI] Encrypted:  f4a28327ad2f0c87336dd74fe0a70c39
```

General usage

Options	Description
-?, -h, --help	Show help Default: false

Commands	Description
encrypt	encrypts the password

Example

Input

```
y-password.bat| encrypt aris
```

Output

```
[CLI] Setting verbosity level... [VALUE: 0=OFF]
[CLI] Plain:      aris
[CLI] Encrypted:  f4a28327ad2f0c87336dd74fe0a70c39
```



5.1.2.2 Tenant Management

The batch file **y-tenantmgmt.bat** can also be used to manage tenants. Run it without argument to see the usage instructions.

Using some advanced ACC commands (page 80) makes it possible to create a tenant, import a license and migrate or restore a database in one step (page 100). If you do not use the standard database system, please make sure to create additional schemes in your Oracle (page 21) or Microsoft SQL database management system (page 24) and you have assigned the tenants (page 74) to these schemes.

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license. For local systems they need to login as system user **system**.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-tenantmgmt.bat** without parameters to display the help.

General usage

Options	Description
-?, -h, --help	Show help, default: false
-s, --server	URL of the server, e.g. http://my_host_url

Commands	Description	Parameters
createTenant	Creates a new tenant.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --arisservicePassword (-arisservicep) <PASSWORD> --superuserPassword (-superuserp) <PASSWORD> --systemPassword (-systemp) <PASSWORD>
listTenants	Lists all existing tenants.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory)



Commands	Description	Parameters
getTenant	Prints information about a tenant.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory)
deleteTenant	Deletes an existing tenant.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory)
createUser	Creates a new user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <NEWUSERLOGIN> (mandatory) --affectedPassword (-ap) <NEWUSERPWD> --affectedFirstName (-af) <NEWUSERFIRST> --affectedLastName (-al) <NEWUSERLASTNAME> --affectedEmail (-ae) <NEWUSEREMAIL> --affectedDescription (-ad) <NEWUSERDESCR>
getUser	Prints information about a user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <USERLOGIN> (mandatory)
updateUser	Updates an existing user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <NEWUSERLOGIN> (mandatory) --affectedPassword (-ap) <NEWUSERPWD> --affectedFirstName (-af) <NEWUSERFIRST> --affectedLastName (-al) <NEWUSERLASTNAME> --affectedEmail (-ae) <NEWUSEREMAIL> --affectedDescription (-ad) <NEWUSERDESCR>
deleteUser	Deletes an existing user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <USERLOGIN> (mandatory)



Commands	Description	Parameters
importConfig	Updates configuration of tenant.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --file (-f) <CONFIGFILE>
assignLicense	Assigns a license to a user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --license (-l) <PRODUCTCODE> (mandatory) --affectedUser (-au) <USERNAME> (mandatory)
exportConfig	Exports configuration of tenant.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --file (-f) <CONFIGFILE>
importLicense	Imports license files for a tenant	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --file (-f) <LICENSEFILE>
unassignLicense	Removes a license from user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --license (-l) <PRODUCTCODE> (mandatory) --affectedUser (-au) <USERNAME> (mandatory)

After creating a tenant, you have to import the relevant license and create the users. You can do so from command line or via graphical user interface Administration.

It is recommended to change the password of the default user **system** immediately after the installation.

Example

The following line creates a tenant with name **Test**. Please pay attention to the order.

```
y-tenantmgmt.bat -s http://my_aris_host.com -t test createTenant -u system -p manager
```

The following line creates a new tenant with name **test01** and initial system user password **abc**. Please pay attention to the order.

```
y-tenantmgmt.bat -s http://my_aris_host.com -t test01 createTenant -u system -p manager -systemp abc
```

The following line prints information of the default tenant.

```
y-tenantmgmt.bat -s http://my_aris_host.com -t default getTenant -u system -p manager
```



The following line updates the configuration of default tenant.

```
y-tenantmgmt.bat -s http://my_aris_host.com -t default importConfig -f  
sldapconfig.properties -u superuser -p superuser
```

The following line assigns a license configuration to the user my_user.

```
y-tenantmgmt.bat -s http://my_aris_host.com-t default -assignLicense au my_user -l  
YCZUS -u system -p manager
```



5.1.2.3 LDAP Synchronization

The batch file **y-ldapsync.bat** can be used to synchronize the Administration with LDAP. Run it without argument to see the usage instructions.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-ldapsync.bat -s <http://host_url> -t <tenant name> <command> -u <user name> -p <password>**

Users are synchronized or imported from an LDAP system.

General usage

Options	Description
-?, -h, --help	Show help
-u	User name of the relevant user.
-p	Password of the relevant user.
-f	LDAP search filter
-s, --server	URL of the server, URL of the server, e.g. http://my_host_url
-t, --tenant	Tenant name Default: default

Commands	Description
importUsers	Imports users from an LDAP system, the spelling is case sensitive.
importGroups	Imports a hierarchy from an LDAP system, the spelling is case sensitive.
syncUsers	Synchronizes existing users with an LDAP system, the spelling is case sensitive.
syncGroups	Synchronizes existing groups with an LDAP system, the spelling is case sensitive.

Example 1

```
y-ldapsync.bat -s http://my_aris_host.com -t default importUsers -u system -p manager -f (cn=userID)
```

```
[CLI] Setting verbosity level... [VALUE: 0=OFF]
```

```
[CLI] Importing users... [TENANT: 30ff3081-aa9e-33e7-a7d7-5f9d00ae89ee, FILTER: (cn=userID)]
```



```
[CLI] Users successfully imported. [TENANT: 30ff3081-aa9e-33e7-a7d7-5f9d00ae89ee, COUNT: 1]
```

```
[CLI] CN=myuser,OU=Users,DC=mydomain
```

Example 2

Import all users from an LDAP system.

```
y-ldapsync.bat -s http://my_aris_host.com -t default importUsers -u system -p manager -f (cn=*)
```

5.1.2.4 Data Migration

Run it without arguments to see usage instructions. In case of a data import, the target database has to be empty. Run it without argument to see the usage instructions.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-datadump.bat -s <http://host_url> -t <tenant name > <command> -u <user name> -p >password> -f <dump file>**

In this case, there is a dump file written that contains the database content. There will be the following output:

```
[CLI] Setting verbosity level... [VALUE: 0=OFF]
```

```
[CLI] Exporting data... [TENANT: 30ff3081-aa9e-33e7-a7d7-5f9d00ae89ee, FILE: C:\out.zip]
```

```
[CLI] Data successfully exported. [TENANT: 30ff3081-aa9e-33e7-a7d7-5f9d00ae89ee]
```

General usage

Options	Description
-?, -h, --help	Show help
-f	File name of the dump file.
-s, --server	URL of the server, URL of the server, e.g. http://my_host_url
-t, --tenant	Tenant name Default: default



Commands	Description
export	<p>Exports all data of the specified tenant to a data dump file. Currently, a dump contains the following information:</p> <ul style="list-style-type: none"> ▪ tenant ▪ users ▪ groups ▪ user-group assignments ▪ profile pictures (optional) ▪ permissions, dependent on the privileges of the user who enters the command ▪ licenses, dependent on the privileges of the user who enters the command ▪ configuration, dependent on the privileges of the user who enters the command <p>The data is stored in JSON format and packed into an encrypted ZIP file. The ZIP file can be restored using the same command line tool.</p>
migrate	<p>Migrates data from central user management version 1.x to version 2.x. A dump file is used to perform this migration.</p> <ol style="list-style-type: none"> 1. All entities are assigned to default. 2. Organizational units are converted to user groups. In case of name conflicts, a unique suffix is appended to the group name. The suffix format conforms to the format used by other ARIS products. 3. User passwords are decrypted and re-hazed using K hashing mechanisms. 4. User flag active for process automation is migrated to permissions. 5. User flag process administration is migrated to permissions.
import	Imports a data base dump from a file.

Example

In this example, data are exported into a dump file.

```
y-datadump.bat -s <http://host_url> -t default export -u system -p manager -f out.zip
```



5.1.3 ARIS Cloud Controller (ACC)

ACC is a command line tool that allows advanced customizing of ARIS Server Components (page 80).

To start ACC under a Windows operating system click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**.

To start ACC under a Linux operating system run the **acc.sh** file. ACC is available if you have copied and installed the files **aris-acc_1.0.0-SNAPSHOT_amd64.deb** or **aris-cloud-agent-1.0.0-1.x86_64.rpm** depending on the Linux operating system (page 17).

Enter **help** or **help <command>** help to get information about the usage of the commands.

Enter **list** to monitor the status of all components (runnables). This example shows ACC of an ARIS Connect Server installation for a medium number of users.

```
ACC+ arisserver>list
15 installed runnables.
zoo_m          : STARTED
(com.aris.runnables.zookeeper-run-prod-1.0.0-RC17-Trunk-SNAPSHOT)
postgres_m     : STARTED
(com.aris.runnables.PostgreSQL-run-prod-1.0.0-RC17-Trunk-windows-SNAPSHOT)
postgresECP_m  : STARTED
(com.aris.runnables.PostgreSQL-ECP-run-prod-1.0.0-RC17-Trunk-windows-SNAPSHOT)
couchdb_m      : STARTED
(com.aris.runnables.couchdb-run-prod-1.1.1-RC17-Trunk-windows-SNAPSHOT)
cloudsearch_m  : STARTED
(com.aris.cip.y-cloudsearch-run-prod-3.0.0-RC26-Trunk-SNAPSHOT)
elastic_m      : STARTED
(com.aris.runnables.elasticsearch-run-prod-1.0.0-RC17-Trunk-SNAPSHOT)
adsadmin_m     : STARTED
(com.aris.adsadmin.y-adsadmin-run-prod-12.0.0-RC23-Trunk-SNAPSHOT)
umcadmin_m     : STARTED
(com.aris.umcadmin.y-umcadmin-run-prod-12.0.0-RC23-Trunk-SNAPSHOT)
loadbalancer_m : STARTED
(com.aris.runnables.httpd.httpd-run-prod-1.0.0-RC17-Trunk-windows-SNAPSHOT)
abs_m          : STARTED
(com.aris.modeling.components.y-server-run-prod-9.0.0-RC110-Trunk-SNAPSHOT)
apg_m          : STARTED (com.aris.age.age-run-prod-9.0.0-RC30-Trunk-SNAPSHOT)
copernicus_m   : STARTED
(com.aris.copernicus.copernicus-portal-server-run-prod-9.0.0-RC17-Trunk-SNAPSHOT)
)
octopus_m      : STARTED
(com.aris.octopus.y-octopus_server-run-prod-2.7.0-RC13-Trunk-SNAPSHOT)
ecp_m          : STARTED
(com.aris.runnables.ecp-run-prod-3.0.0-RC25-Trunk-SNAPSHOT)
simulation_m   : STARTED
(com.aris.modeling.components.simulationserver.y-simuserver-run-prod-9.0.0-RC110-Trunk-SNAPSHOT)
ACC+ arisserver>
```

The status of all components represented by their instanceIDs are listed. Possible states are:



- **UNKNOWN**

The component state is not yet known. This state is shown directly after the agent was started.

- **STOPPED**

The component is currently not running.

- **STARTING**

The component is starting, but this process is not complete yet.

- **STARTED**

The component is running.

- **STOPPING**

The component is stopping, but this process is not complete yet.

- **DOWN**

This component has and crashed. The agent will attempt to automatically restart the component momentarily.

- **FAILED**

Component has crashed. The agent has given up trying to restart the component.

If a component does not start properly please read the **Basic Troubleshooting** chapter (page 156).



Components of all ARIS Servers

This table lists all components run by ARIS Design Server (Design), ARIS Connect Server (Connect), ARIS Risk & Compliance Manager (ARCM), ARIS Publisher Server (Publisher) and the locally installed server installed by the ARIS Client Setup (LOCAL) for a medium number of users installation. That's why all instanceIds end with **_m**. Installations for a small or a large number of users are typified with **_s** or **_l**.

Components run by the server **LOCAL** are not accessible by ACC. This server is only available in combination with ARIS Client installations.

InstanceId (runnable)	Component	Design	Connect	ARCM	Publisher	LOCAL
		Components run by different server types				
zoo_m	Service registry	x	x	x		x
postgres_m	Standard database	x	x	x		x
postgresECP_m	Collaboration database		x			
couchdb_m	Document storage database	x	x	x		
cloudsearch_m	Search engine	x	x	x		x
elastic_m	Document storage search	x	x	x		x
adsadmin_m	Document storage	x	x	x		
umcadmin_m	Administration	x	x	x		x
loadbalancer_m	Load balancer	x	x	x		x
abs_m	Design server	x	x			x
apg_m	Process governance	x	x			
copernicus_m	Portal server	x	x			
octopus_m	Analysis server	x	x			x
ecp_m	Collaboration server	x	x			x
simulation_m	Simulation	x	x			x
businesspublisher_m	Publisher server				x	
arcm_m	ARIS Risk & Compliance Manager server			x		



5.1.3.1 Start / Stop Components

The start modus had been selected during the setup process. If you have chosen the option **Start automatically** all components will be started in the right order.

Components can also be started and stopped independently but most components will not work on their own. You must start all needed components in the right order.

- Enter **startall**.

All components are starting in correct order. To monitor the process enter **list**.

- Enter **start <instanceId>**, e.g. **start abs_m**.

The modeling component is starting.

- Enter **stopall**.

All components are stopping. To monitor the process enter **list**.

- Enter **stop <instanceId>**, e.g. **stop abs_m**.

The modeling component is stopping.

If you run ARIS on a laptop (8 GB) for demonstration reasons you might stop components you do not need (page 78) to ensure more memory for the system.

5.1.3.2 Provide Additional Memory

If you have performed an installation for a small (s), medium (m) or large (l) number of users you can provide additional memory for the modeling and governance components.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter **reconfigure <instanceId> +JAVA-Xmx="<amountOfMemory>"**.

The affected components will be started after the settings have been updated.

Examples

- **reconfigure abs_s +JAVA-Xmx="1024m"**

The memory settings for the modeling component of an s installation will be increased to max. 1024 MB (32 bit).

- **reconfigure abs_m +JAVA-Xmx="1G"**

The memory settings for the modeling component of an m installation will be increased to 1GB.

- **reconfigure apg_m +JAVA-Xmx="2G"**

The memory settings for the governance component of an m installation will be increased to 2GB.



5.1.3.3 Make SSL Certificate Available

By default, the load balancer is set to allow both unencrypted HTTP (port 80) and encrypted HTTPS/SSL (port 443) access. For SSL the SSL certificate has to fit to the load balancer's host name otherwise clients in particular web browsers will complain about an invalid certificate. Some might not work at all.

Obtaining a valid certificate

To use SSL you need to get a valid certificate signed by a certificate authority (CA) for the server on which the load balancer is running. Please make sure that the certificate is compatible with the Java version of all ARIS clients.

- You can buy a certificate from an official CA. Most clients in particular browsers will trust certificates signed by such a CA.
- If your company uses own CA get a certificate from this CA and add this CA to the trust store of all clients.

Adding a valid certificate to the load balancer

Your certificate should consist of two parts the private key used to encrypt information sent back to the client (file extension **.key**) and the server certificate (file extension **.crt**).

1. Put these two files into a ZIP file.
2. Copy this ZIP file to a location that can be accessed by ARIS Cloud Controller (ACC).
3. Start the ACC (page 61).
4. Stop (page 64) the component **load balancer**.
5. Enter the ACC command **enhance <instanceID of the load balancer component> with sslCertificate local file "<path to the ZIP file>"**.

If the instanceID of the load balancer is **loadbalancer_m** and your certificate ZIP file is located at **c:\temp\lbcert.zip** enter the ACC command **enhance loadbalancer_m with sslCertificate local file "c:\\temp\\lbcert.zip"**.

Notice the double backslashes. Alternatively, use single forward slashes, e. g.

"c:/temp/lbcert.zip".

6. Start (page 64) the component **load balancer** again.

The SSL certificate is available.

If ARIS clients cannot perform connections to servers using SSL certification you need to provide an additional certificate (page 156).



5.1.3.4 Redirect Ports

If you have performed an ARIS installation on a Linux operating system (page 17) the internal ARIS user running all components has no root privileges. So all privileged ports (<1024) cannot be used. To run ARIS under a privileged port a user with root privileges must redirect the ports, e.g. the HTTP port **80** or the HTTPS port **443**.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Relative to your Linux system you need to redirect different ports one after another.

Enter the commands using the following syntax:

```
iptables -t nat -A PREROUTING -i eth0 -p tcp --dport <port number to redirect> -j REDIRECT --to-ports <port number>
```

This example redirects port **80** to port **1080**.

```
iptables -t nat -A PREROUTING -i eth0 -p tcp --dport 80 -j REDIRECT --to-ports <1080>
```

3. Redirect other ports.
4. Enter **startall**.

ARIS components run using the redirected ports.

If components do not start up properly, please resolve possible port conflicts (page 157).



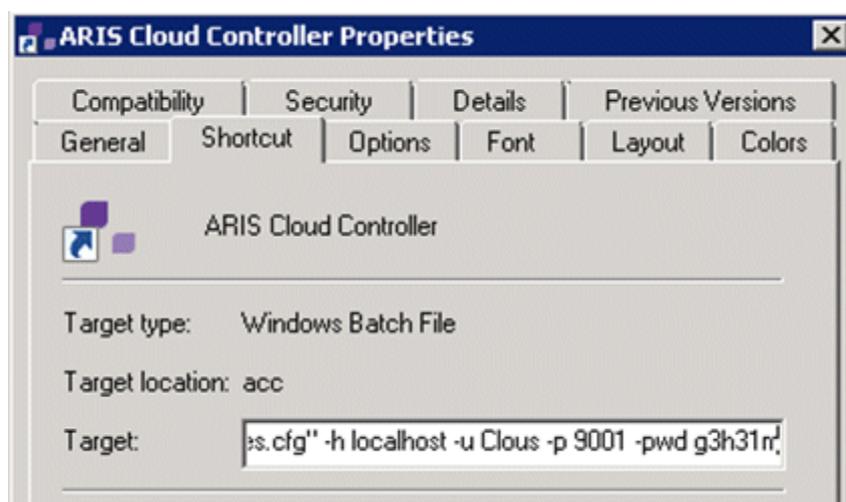
5.1.3.5 Change the Default Remote Access Password

The remote access user has access to ARIS Cloud Controller (ACC). You should change the default password **g3h31m** to prevent unauthorized access.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Change the password:

```
set password = "<enter the new password>"
```
3. Restart ACC. The Password has been changed.
4. If you use the **start** icon for ARIS Cloud Controller (**Start > All Programs > ARIS > Administration > ARIS Cloud Controller**) please also change the **password** command line parameter within the **ACC** shortcut:



If you run an ARIS Server setup after you have changed the default password please use the option **Enter changed remote access password** and enter the new password.

If you run an update setup (page 32) please change the password to **G3h31m** before starting the update.



5.1.3.6 Create a Tenant

After the installation of ARIS Connect or ARIS Design Server the **default** tenant is available. If you need additional tenants to provide different sets of databases, users, configurations or ARIS methods you can easily create tenants. You can also create tenants using the Administration's command line tools (page 53). Using some advanced ACC commands (page 80) makes it possible to create a tenant, import a license and migrate or restore a database in one step (page 100).

Prerequisites

If you do not use the standard database system, please make sure to create additional schemes in your Oracle (page 21) or Microsoft SQL database management system (page 24) and you have assigned the tenants (page 74) to these schemes.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter:

```
create tenant <tenant name>
```

e. g.:

```
create tenant test01
```

The tenant **test01** will be created.
3. The administrator must import licenses, create users and user groups and assign privileges and licenses (page 51) for the **test01** tenant.
4. Start a ARIS client and log in using this tenant. The syten database will be created for that tenant.

The tenant is created and can be backed up (page 69).



5.1.3.7 Back up a Tenant

You can back up a tenant using the ARIS Cloud Controller (ACC). Please note that no user can work on this tenant during the backup process. The backup contains the following data:

- All databases
- All user data (Administration)
- All ARIS document storage data including all access rights
- All ARIS Design Server or ARIS Connect server data

It is recommended to stop the **apg_<s, m or l>** (page 64) component before backing up tenants.

- All ad hoc analyses and queries

Scheduled reports as well as ACC enhancements concerning SSL, SAP® JCo and ODBC drivers will not be backed up.

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.
- Make sure to have been logged into an ARIS client using this tenant.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter

```
backup tenant <Tenant Id> to <pathToBackUpFile> username=<Superuser of the Administrator> password=<Superuser password>.
```

The backup is started. The complete backup is written to one single zip file.

You can restore (page 70) this tenant using this file. Using the **restore tenant** command will copy the content to an existing tenant.

You can manage tenants also using the Administration's command line tools (page 53).



5.1.3.8 Restore a Tenant

You can restore a tenant or copy the content of this tenant (page 71) to a different ARIS server. You need to have access to the relevant back-up zip file containing the data of a tenant:

- All databases
- All user data (Administration)
- All ARIS document storage data including all access rights
- All ARIS Design Server or ARIS Connect server data
- All ad hoc analyses and queries

Scheduled reports as well as ACC enhancements concerning SSL, SAP® JCo and ODBC drivers will not be restored.

Please note that all current data of a running tenant are deleted and replaced by the data of the backup file and that no user can work on this tenant during the restore process.

Prerequisites

- You need access to the relevant back-up zip file
- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter

```
restore tenant <Tenant Id> from <pathToBackUpFile> username=<Superuser of the Administrator> password=<Superuser password>.
```

The tenant will be restored.

Current data will be deleted and replaced. No user can work with this tenant during the restore process.

You can manage tenants also using the Administration's command line tools (page 53).



5.1.3.9 Copy a Tenant to a different Server

You can copy the content of a backed up tenant to a different ARIS Connect Server or ARIS Design Server. You need to have access to the relevant back-up zip file containing the data of a tenant:

- All databases
- All user data (Administration)
- All ARIS document storage data including all access rights
- All ARIS Design Server or ARIS Connect server data
- All ad hoc analyses and queries

Scheduled reports as well as ACC enhancements concerning SSL, SAP® JCo and ODBC drivers will not be copied.

Prerequisites

- You need access to the relevant back-up zip file
- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.

Procedure

1. Create a tenant (page 68) on the ARIS server where the tenant will be copied to and import the licenses (page 51).
2. Start ARIS Cloud Controller (ACC) (page 61).
3. Enter:

```
restore tenant <Tenant Id> from <pathToBackUpFile> username=<Superuser of the Administrator> password=<Superuser password>.
```

All data of the backup file will be copied to the new tenant. Current data will be deleted except the name of the new tenant.

No user can work with this tenant during the restore process.

You can manage tenants also using the Administration's command line tools (page 53).



5.1.3.10 Delete a Tenant

If you delete a tenant all information will be lost:

- All databases
- All user data (Administration)
- All ARIS document storage data including all access rights
- All ARIS Design Server or ARIS Connect server data
- All ad hoc analyses and queries

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.

Procedure

1. Back up (page 69) the tenant in order to restore (page 70) data.
2. Start ARIS Cloud Controller (ACC) (page 61).
3. Enter:

```
delete tenant <Tenant Id> username=<Superuser of the Administrator>  
password=<Superuser password>.
```

Deletes the specified tenant and all its associated data from the system. User name and password of an administrative user have to be specified using the parameters **master.tenant.user.name** and **master.tenant.user.pwd**, respectively.

If the optional **force** keyword is used, the security question **Are you sure?** is overridden, i.e., the tenant and its data is deleted without further notice.

You can manage tenants also using the Administration's command line tools (page 53).



5.1.3.11 Update the System Database

If you have updated (page 32) your installation you must update all tenant's system databases. Only the **default** tenant's system database was affected by the update. If you do not update system databases all updates concerning e.g. reports, macros, semantic checks, will not be available.

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter

```
invoke updatesystemdb on abs_<s, m or l> tenant.name=<tenant name>  
tenant.user.name=superuser tenant.user.pwd="<superuser's password>"
```

The system database of this tenant will be updated and migrated.

5.1.3.12 Reindex Database

After you have updated (page 32) ARIS Connect a re-indexing will take place after the first log in for each database. Using large databases this may take some time. It is recommended to re-index all databases for each tenant (page 73) before users have access to ARIS Connect.

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **license management**, **user management**, **user management configuration** and **database administration**.
- ARIS Design Server Standalone Installation
Users need to login as **superuser** or they need either an **ARIS Architect** license or an **ARIS UML Designer** license and the **database administration** function privilege. For local systems they need to login as system user **system**.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Enter

```
invoke maintainAll on abs_<s, m or l> tenant.name=<tenant name>  
tenant.user.name=superuser tenant.user.pwd="<superuser's password>"
```



The database will be re-indexed.

5.1.3.13 Configure the Database Connection for Additional Schemes

Assign Tenant to Database Schema

After you have created an empty Oracle (page 24) or Microsoft SQL (page 21) schema for an additional tenant the tenant must be assigned to the database schema.

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Discover the database db service ID (<dbserviceID>):

```
list external services
```

3. Assign a tenant to the additional schema:

```
assign tenant <tenant name> to service <dbserviceID> com.aris.cip.db.schema
=<schema name>
```

Please make sure to enter the tenant name in lower-case characters only.

4. Create the new tenant:

```
create tenant <tenant name>
```

The new tenant is available on ARIS Design Server. If you are about to use this tenant on a ARIS Connect Server, you must create the technical user and assign the tenant to the **administration** service.

Create the technical user and assign the tenant to the service

To make this tenant available on a ARIS Connect Server you must create the technical user and assign the tenant to the **Administration** service.

1. you must create the technical ARIS user:

```
enhance umcadmin_<s, m or l> with createUser trigger only options
tenant.name=<tenant name> tenant.user.name=superuser
tenant.user.pwd=<superuser's password>
affected.user=aris_tech_user_ecp_<tenant name> affected pwd=<tenant name>
as.technical.user=true
```

2. Assign the tenant to the **Administration** service:

```
assign tenant <tenant name> to service umc<dbserviceID>
ecpTechnicalUserName=aris_tech_user_ecp_<tenant name>
ecpTechnicalUserPassword=<tenant name>
```

The new tenant is available on ARIS Connect Servers.

Additional Settings

To enable **validationQuery** for external DB connections (Oracle & Microsoft SQL) please use the correct validation query for the DBMS.

For Oracle use:

```
"select 1 from dual"
```

For Microsoft SQL use:



```
"select 1"
```

During registration of external service add parameters e. g. for Oracle:

```
validationQuery="select 1 from dual" testOnBorrow=true,  
register external service db  
url="jdbc:oracle:thin:@<target_host>:<target_port>:<target_service_name>"  
driverClassName="oracle.jdbc.OracleDriver" username="<cip_app_user>"  
password="<cip_app_pwd>" maxIdle=15 maxActive=100 maxWait=10000  
removeAbandoned=false removeAbandonedTimeout=600 logAbandoned=true  
defaultAutoCommit=false rollbackOnReturn=true host=<target_host>  
port=<target_port> jmxEnabled=true validationQuery="select 1 from dual"  
testOnBorrow=true
```

After the external service was already registered, e .g. for Oracle, update the external service
<dbserviceID>

```
url="jdbc:oracle:thin:@<target_host>:<target_port>:<target_service_name>"  
driverClassName="oracle.jdbc.OracleDriver" username="<cip_app_user>"  
password="<cip_app_pwd>" maxIdle=15 maxActive=100 maxWait=10000  
removeAbandoned=false removeAbandonedTimeout=600 logAbandoned=true  
defaultAutoCommit=false rollbackOnReturn=true host=<target_host>  
jmxEnabled=true validationQuery="select 1 from dual" testOnBorrow=true
```

Enable validationQuery for external PostgreSQL connection

```
stopall  
reconfigure <postgres_runnable> dbsp.validationQuery="select 1"  
dbsp.testOnBorrow=true  
startall
```

The database connection is configured.



5.1.3.14 Configure SMTP Mail Server Connection

If you did not enter the SMTP server connection parameters during the setup process of a previous ARIS version you need to register your SMTP server manually.

1. Start ARIS Cloud Controller (ACC) (page 61).

2. Enter:

```
register external service smtp host="YourMailServerAdressWithDomain" port=25
```

3. Check that setting entering:

```
list external services
```

4. Set a sender's address. You can do that via this URL

```
http://<YourARISserverWithDomain>/umc/#configuration.
```

5. Click **SMTP** in the dropdown box to see all parameters of that section, double click the following parameter and enter your mail server address:

```
com.aris.umc.notification.sender=<ValidMailAccount@YourMailServerAddressWithDomain>
```

6. If you have installed ARIS Design Server, just restart the server entering:

```
stopall
```

7. When all components are stopped enter:

```
startall
```

8. If you use ARIS Connect Server you need to set your SMTP server for the **Collaboration** component. Enter:

```
reconfigure ecp_<s, m or l> +smtp host="<YourMailServerAddress>" +smtpport=25  
+ecp.configuration.email="<ValidMailAccount@YourMailServerAddressWithDomain>"
```

9. Verify that setting:

```
show instance ecp_<s, m or l>
```

10. Restart the server entering:

```
stopall
```

11. When all components are stopped enter:

```
startall
```

SMTP mail server configuration is set.



5.1.3.15 Use existing ARIS Document Storage and Administration for ARIS Risk & Compliance Manager

After you have installed ARIS Risk & Compliance Manager this installation uses a separate set of components, e. g. Administration or ARIS document storage. This means that the administrator has to manage users and documents. If you already use ARIS Connect and have installed ARIS Risk & Compliance Manager later you can reconfigure your ARIS Risk & Compliance Manager component to your productive ARIS Connect Server or ARIS Design Server installation. This will make ARIS Risk & Compliance Manager available for all users of your productive system and only one ARIS document storage will be in use.

1. Start ARIS Cloud Controller (page 61) on your ARIS Risk & Compliance Manager server.

2. To stop all components enter:

```
stop all
```

3. To reconfigure ARIS Risk & Compliance Manager and force that component to use the Administration of your ARIS Connect Server or ARIS Design Server installation, enter:

```
reconfigure arcm_<s,m or l> +zookeeper.connect.string="<ARISServer>\\:2181"
```

4. To start the ARIS Risk & Compliance Manager component again, enter:

```
start arcm_<s,m or l>
```

ARIS Risk & Compliance Manager is now accessible via the ARIS Connect Server or ARIS Design Server name, e.g. **http://arisserver/arcm** by all users managed within the Administration of your productive system.

To ensure more memory for the ARIS Risk & Compliance Manager system you can shut down all other components (page 78) or remove (page 80) them.



5.1.3.16 Shut down components

If you run ARIS Connect Server all components are started even if your current license does not include some component's functionality. You can stop those components that are not necessarily needed to ensure more memory for the system. Please make sure to turn them on again before you import a new license including additional functionality.

If you have added an ARIS Risk & Compliance Manager installation to your productive ARIS system and have reconfigured the **arcm_<s, m or l>** component (page 77) you might shut down all other components of your ARIS Risk & Compliance Manager installation.

Instead of turning off components manually (page 64) you may automate this process.

Turn off auto-start as general setting for all components in the ACC configuration and then turn auto-start on only for those components essentially needed to run ARIS Connect. In this example **simulation_<s, m or l>**, **octopus_<s, m or l>** and **apg_<s, m or l>** will be switched off.

Set the auto-start flag

To set the auto-start flag **true** e.g. for the component **zoo_l** you need to enter:

```
set zoo_s property autostart=true
```

Use the **show instance** command do see the current setting:

```
ACC+ nl>show instance zoo_l
ID: zoo_s state:STARTED
type:com.aris.runnables.zookeeper-run-prod-1.0.0-RC17-Trunk-SNAPSHOT)
Configuration parameters:
  clientPort=2181
  myid=1
  server=sbrvblulinsrv01:2888:3888, sbrvblulinsrv02:2888:3888
```

```
START command was issued at 01.11.2013 08:31:43
Average startup time: 2767msec
Autostart: ON
Desired state: STARTED
ACC+ nl>
```



Run ARIS Connect Server with essentially needed components only

This example of ACC commands turns auto-start in ACC off (is a default setting by setup). Then auto-start is turned on only for essential components and turned off for unneeded components:

```
set autostart.mode=autostart.flag
set zoo_l          property autostart="true"
set postgres_l     property autostart="true"
set postgresECP_l property autostart="true"
set couchdb_l      property autostart="true"
set cloudsearch_l property autostart="true"
set elastic_l      property autostart="true"
set adsadmin_l     property autostart="true"
set umcadmin_l     property autostart="true"
set loadbalancer_l property autostart="true"
set abs_l          property autostart="true"
set apg_l          property autostart="false"
set copernicus_l   property autostart="true"
set octopus_l     property autostart="false"
set ecp_l          property autostart="true"
set simulation_l  property autostart="false"
```

Important to know is that the above behavior only works when the ARIS agent is starting (Windows Service). So you need to enter **stopall** and restart ARIS agent (Windows Service) to see the effect.

Please note that **startall** overrules all of the above changes, hence, starts all components. This is an advantage to quickly get the full scope again.

Run ARIS Connect Server as ARIS Design Server

You can also run ARIS Connect Server start up as ARIS Design Server:

Auto-start is turned on only for 13 components of ARIS Design Server:

```
set autostart.mode=autostart.flag
set zoo_l          property autostart="true"
set postgres_l     property autostart="true"
set postgresECP_l property autostart="false"
set couchdb_l      property autostart="true"
set cloudsearch_l property autostart="true"
set elastic_l      property autostart="true"
set adsadmin_l     property autostart="true"
set umcadmin_l     property autostart="true"
set loadbalancer_l property autostart="true"
set abs_l          property autostart="true"
set apg_l          property autostart="true"
set copernicus_l   property autostart="true"
set octopus_l      property autostart="true"
set ecp_l          property autostart="false"
set simulation_l   property autostart="true"
```



5.1.3.17 Remove unneeded components

If you have added an ARIS Risk & Compliance Manager installation to your productive ARIS system and have reconfigured the **arcm_<s, m or l>** component (page 77) in order to use the ARIS Connect server's or ARIS Design Server's Administration, you might shut down all other components (page 78) of your ARIS Risk & Compliance Manager installation or remove them from your installation.

If you do so please make sure that no data have been stored within the ARIS Risk & Compliance Manager server. Deconfiguring a component will lead to a data loss.

1. Start ARIS Cloud Controller (page 61) on your ARIS Risk & Compliance Manager server.

2. To stop all components enter:

```
stop all
```

3. Deconfigure all components one after the other except **arcm_<s,m or l>**, enter:

```
deconfigure zoo_<s,m or l>
```

4. After you have deconfigured all unneeded components please start the ARIS Risk & Compliance Manager component again, enter:

```
start arcm_<s,m or l>
```

Only the **arcm_<s,m or l>** component is running on this ARIS Risk & Compliance Manager server.

5.1.3.18 Advanced Configuration using ACC

Using ACC commands will deeply affect your system. If you do so without the services of Software AG, you require extensive knowledge of the system. According to the standard Software AG software maintenance agreement in this case we cannot guarantee proper functioning.

ARIS Cloud Controller (ACC) can be used in three modes:

- **Interactive mode (default)**

ACC runs with an interactive shell, allowing you to manually issue commands.

- **Batch mode**

Activated by specifying a command file with the **-f** command line parameter (see ACC command line parameters below). ACC will execute the commands in the file in the given sequence and exit after execution or if one of the commands fails.

A command file line starting with a **#** will be interpreted as a comment line and ignored by ACC.

- **Command mode**

You can directly pass a single command to ACC as a command line parameter. The command will be executed and ACC will exit afterwards.

When passing commands directly as an ACC command line parameter, you have to be careful when escaping strings in your command, e.g. double-quote-delimited parameters. The operating system command **shell** will consume the double quotes, leaving your string parameter unescaped. So please escape the quote characters.



If you issue the command in command mode, e. g.:

```
set remote.repository.url="http://something.com/repo"
```

You should enter:

```
acc.bat -h localhost -u <remoteAccessPassword> set  
remote.repository.url=\"http://something.com/repo\"
```

If you enter:

```
acc.bat -h localhost -u <remoteAccessPassword> set  
remote.repository.url="http://something.com/repo"
```

ACC will return an error message, e. g.:

```
line 1:52 mismatched character '<EOF>' expecting '\n'  
Invalid or erroneous command "set  
remote.repository.url=http://something.com/repo ": line 1:30 extraneous input  
' : ' expecting EOF  
Use "help" to display a list of available commands.
```

Connecting to ACC Nodes

When starting ACC in one of the three usage modes without any additional command line parameter, it will by default not have any connection to any cloud node. There are three options to specify nodes you want to control with ACC:

- You can use the **add node** command to put the individual cloud nodes under ACC's control.
- Alternatively, you can list all your cloud nodes in a node file and pass this file to the ACC with the **\-n** (or **--nodefile**) command line option.
- If you only want to connect to a single node and issue commands there, you can also use the ACC's **-h** (or **--host**) command line option to directly specify the host or IP name of the node you want to control with ACC.



5.1.3.18.1 Command Line Parameters and Commands

Command Line Parameters

If <Command> is specified, ACC is started in command mode (i.e., only the command passed on the command line is executed ACC will exit afterwards).

Syntax

acc <parameters> [<Command>]

Switch	Value	Description
-?, --help		Show command line parameter help
-c, --config	Relative or absolute path to a config file	Path to a configuration file. A configuration file is basically a template, but may only contain a subset of ACC configuration commands, in particular the register app type and set acc cfg commands. If no configuration file is specified, ACC will look for a file named acc.cfg in the current working directory.
-f, --file	Relative or absolute path to a command file.	Use this parameter to start ACC in batch mode, executing the commands in the given command file. Put the path in double quotes if the path contains any whitespaces.
-s, --silent	- (toggle) Default = off	When using ACC in batch mode, this switch enables silent mode, i.e., the output of the commands is suppressed.
	any ACC command	To pass a command for running ACC in command mode.
-h, --host	String (IP or Hostname)	The host name or IP address of the single cloud node on which you want to issue commands. ACC is invoked with an implicit add node command using the given host name followed by a set current node command. The logical node name used is the first part of the host name if a host name was used as parameter, or the first part of the host name determined by a reverse name lookup if an IP address was used as parameter.
-p, --port	Positive integer 1 - 65535 (Port) Default=9000	The port of Acc's REST API on the single cloud node on which you want to issue commands, see -h switch.



Switch	Value	Description
-u, --username	The user name to use when connecting directly to an agent with the -h option.	Used to specify the user name to use when connecting directly to an agent with enabled authentication using the -h command-line option *.*
-pwd, --password	The password to use when connecting directly to an agent with the -h option.	Used to specify the password to use when connecting directly to an agent with enabled authentication using the -h command-line option *.* If a user name is specified (with -u) but this option is not given, ACC will prompt you for the password.
-n, --nodefile	Relative or absolute path to a node file.	File containing the list of nodes that are part of this cloud. Allows factoring out of node-specific infos (i.e., host names/IPs and ports) of the template, thereby making templates reusable in different environments without any editing. Put the path in double quotes if it contains any whitespace. Two formats are supported: The old format, where every node is given on a separate line using the syntax <nodeName>=<ipOrHostName> ['@' <agentPort>] or the new format, where the file only contains add node commands.
-ssl, --use-ssl	true/false or on/off Default=false/off	Specify a value of true or on to connect to an agent using SSL/HTTPS for its REST API.
-ig, --ignore-errors	- (toggle) Default=off	If set, processing of a command file will continue even if one of the contained commands fails.



ACC Commands

The commands can be grouped into five categories:

- Node management commands allow adding or removing nodes to the ACC's control.
- Zookeeper ensemble management commands allow adding or removing Zookeeper instances to different nodes.
- Lifecycle commands allow controlling the lifecycle of runnables on the respective node.
- Agent configuration commands allow setting and getting the configuration parameters of the agent on the respective node.
- ACC configuration commands allow changing the configuration of ACC itself, e.g., to register application types or set other configuration parameters

In addition a number of special commands exist when using the ACC in interactive mode.

Commands can optionally be prefixed with a node specification (**on [node] <nodeName>**) referred to as <nodeSpec> in the syntax description of the commands (page 95) to send them to a node other than the current node.
set current node

Command and Syntax	Description
list nodes list nodes	Lists the currently registered cloud nodes.
show nodes show node <nodeName>	Shows details of the specified node.
Add node Add node <nodeName> <ipOrHostName> (@ <agentPort>)? (<username> <password>)?	Registers a new cloud node with the given IP or hostname node with ACC under the given logical node name. Allows to optionally specify the port of the REST API of this node's agent if it isn't using the default.
remove node remove node <nodeName>	Deregisters the cloud node with the given logical node name.
add zk instance <nodeSpec>? add (zk zookeeper) (master observer)? instance? (using instanceId? <instanceId>)?	Adds a new zookeeper (ZK) instance to the cloud's zookeeper ensemble on the specified node or to the current node, if no node name is specified. Allows to optionally specify the instanceId to be used for the new zookeeper instance. If none is specified, ACC will automatically choose an instanceId. Note that the change is not submitted directly, but only with the separate commit zk changes command.



Command and Syntax	Description
remove zk instance <pre><nodeSpec>? remove (zk zookeeper) instance? (instanceId? <instanceId>)? \t remove (zk zookeeper) instance? (myId? <myId>)</pre>	Removes a zookeeper instance from the cloud's zookeeper ensemble. The zookeeper instance to be removed can be identifier either by specifying the node name and the instanceId of the zookeeper instance or the myId of the zookeeper instance.
show zk changes <pre>show pending?(zk zookeeper) (change changes)</pre>	Shows the currently pending changes of the zookeeper ensemble that will happen when using the commit zk changes command.
commit zk changes <pre>commit pending? (zk zookeeper) (change changes) force?</pre>	Commits all currently pending changes of the zookeeper ensemble.
validate zk changes <pre>validate pending? (zk zookeeper) (change changes)</pre>	Validates the currently pending changes of the zookeeper ensemble.
discard zk changes <pre>discard pending? (zk zookeeper) (change changes)</pre>	Discards all currently pending changes of the Zookeeper ensemble.
list zk instance <pre>list (zk zookeeper) instances</pre>	Lists all Zookeeper instances of the ensemble with their configuration.
list runnables <pre>list (instances runnables)</pre>	Lists all runnables that are configured on the specified node or the current node, if no node name is specified.
configure <pre><nodeSpec>? configure <groupId>.<artifactId> <version> <instInstancId> (<key> <value> (, <value>)*)* (enhance with <enhancement> (, <enhancement>)*)?</pre>	Configures a new runnable with the given group ID, artifact ID, and version using the given instance ID. Configuration parameters can be specified as key-value pairs (or list of comma-separated values). Values can be either Integers, identifiers (i.e., strings starting with a letter or the underscore character ('_'), and containing only letters, digits, dashes ('-') or the underscore character ('_')), or Strings (i.e., arbitrary sequences of characters, delimited by double-quotes ("")). Further, enhancements can be specified.
start <pre><nodeSpec>? start <instanceId></pre>	Starts the runnable with the given instance ID on the specified node (or the current node, if no node name is specified).



Command and Syntax	Description
stop <nodeSpec>? stop <instanceId>	Stops the runnable with the given instance ID on the specified node or the current node, if no node name is specified.
kill <nodeSpec>? kill <instanceId>	Kills the runnable with the given instance ID on the specified node or the current node, if no node name is specified.
reconfigure <nodeSpec>? reconfigure <instanceId> (+? <key> <value> (, <value>)* - <key>)*	Reconfigures the runnable with the given instance ID on the specified node (or the current node, if no node name is specified). As with the configure command, configuration parameters can be specified as key-value pairs (or list of comma-separated values). Values can be either Integers, identifiers (i.e., strings starting with a letter or the underscore character ('_'), and containing only letters, digits, dashes ('-') or the underscore character ('_')), or Strings (i.e., arbitrary sequences of characters, delimited by double-quotes ("")). Reconfigure will reset any existing parameterization of the runnable to only contain those key-value pairs passed to it. Optionally, reconfigure can also be used to only modify or remove selected key value pairs. Do this by prefixing each key-value pair with a + character. Use a key only, prefixed with a -, to unset any value already set for that key.
deconfigure <nodeSpec>? deconfigure <instanceId>	Deconfigures (i.e., removes) the runnable with the given instance ID from the specified node (or from the current node, if no node name is specified). <div style="background-color: #e6f2ff; padding: 5px;"> WARNING: You will lose any persistent data stored by this runnable! </div>
show instance <nodeSpec>? show (runnable instance) <instanceId> (cfg config configuration)	Shows details of the configuration of the runnable with the given instance ID on the specified node (or the current node, if no node name is specified).



Command and Syntax	Description
update <code><nodeSpec>? update (force check only)? <instanceId> (to? <version>)?</code>	<p>Updates the runnable with the given instance ID on the specified node (or the current node, if no node name is specified) to the specified version. The runnable needs to be stopped for updating. If no version is given and application type exists fitting the runnable, it will update it to the version specified by the application type if the version of the application type is newer than the version of the runnable. If check only is specified, the command will only check if an update would be performed for the runnable. If the force option is used, the command will not ask the user for confirmation of the update.</p>
startall <code><nodeSpec>? startall</code>	<p>Starts all runnables on the specified node (or the current node, if no node name is specified) that are not currently in STARTED or STARTING state.</p>
stopall <code><nodeSpec>? stopall</code>	<p>Stops all runnables on the specified node (or the current node, if no node name is specified) that are currently in STARTED state.</p>
killall <code><nodeSpec>? killall</code>	<p>Kills all runnables on the specified node (or the current node, if no node name is specified) that are currently not in STOPPED or DOWN state.</p>
deconfigureall <code><nodeSpec>? deconfigureall</code>	<p>Deconfigures (i.e., removes) all runnables on the specified node (or the current node, if no node name is specified) that are currently in STOPPED or DOWN state.</p> <p>WARNING: You will lose any persistent data stored by any of the deconfigured runnables!</p>
updateall <code><nodeSpec>? updateall</code>	<p>Updates all currently not running runnable on the specified node (or the current node, if no node name is specified) to the latest version. The latest version is determined based on the registered application types as described for update command. If check only is specified, the command will only check if an update would be performed for the runnables. If the force option is used, the command will not ask the user for confirmation of the update.</p>



Command and Syntax	Description
reset node <code><nodeSpec>? reset reset node <nodeName></code>	Resets the specified node (or the current node, if no node name is specified). This means that any process that has been started directly or indirectly by the agent is killed, all runnables are deconfigured, and the agent is reset. WARNING: You will lose all persistent data stored by all runnables on the node!
restart agent <code><nodeSpec>? restart agent</code>	Restarts the agent on the specified node (or the current node, if no node name is specified).
show agent <code><nodeSpec>? show agent (cfg config configuration)</code>	Shows the configuration parameters of the cloud agent on the specified node (or the current node, if no node name is specified).
set agent <code><nodeSpec>? set <key> <value> (, <value>)*</code>	Sets the specified configuration parameter of the cloud agent on the specified node (or the current node, if no node name is specified) to the given value (or list of comma-separated values). Values can be either Integers, identifiers (i.e., strings starting with a letter or the underscore character ('_'), and containing only letters, digits, dashes ('-') or the underscore character ('_')), or Strings (i.e., arbitrary sequences of characters, delimited by double-quotes ("")).
get agent param <code><nodeSpec>? get <key></code>	Gets the specified configuration parameter of the cloud agent on the specified node (or the current node, if no node name is specified).
set current node <code>set current node <nodeName></code>	Sets the node with the given node name as the cloud controller's current node, i.e., the which is used for all commands without an explicitly specified node.
<code>on [node] <nodeName></code>	Commands can optionally be prefixed with a node specification referred to as <code><nodeSpec></code> in the syntax description of the commands to send them to a node other than the current node. <code>set current node</code>
help <code>help (<command> <nonTerminal>)?</code>	Shows the list of available commands or detailed information of the specified command.
exit <code>exit</code>	Exits the ACC.



Command and Syntax	Description
wait for <code><nodeSpec>? wait for (<state> ((, or) <state>*) of <instanceId> (timeout <INT>)?</code>	Instructs the cloud controller to wait until the specified runnable instance has reached one of the specified runnable states. Optionally, a timeout (in milliseconds) can be specified. If the runnable instance does not reach one of the specified desired states after this time, processing will stop with an error.
register app type <code>register (app application) type <appTypeId> <groupId>.<artifactId> <version> <portSpec>* (defaults (<key> <value> (, <value>*)+)?)</code>	Allows to register a runnable (i.e., a specific group and artifact ID) in a specific version under a logical name, the application type ID. The application type ID can later be referenced in configure commands to more conveniently configure a new instance of this runnable. The command also allows to specify default configuration parameters which are added to the configure command of any runnable of that application type that is later configured. Further, it is possible to add port specifications, telling the agent which parameters of the runnable represent network ports.
deregister app type <code>deregister (app application) type <appTypeId>?</code>	Removes the registered application type with the given application type ID.
list app instances <code>list (app application) type <appTypeId> instances?</code>	Lists all instances of the specified application type across all nodes.
list app types <code>list (app application) types</code>	Lists all registered application types.
show controller <code>show (acc controller) (cfg config)</code>	Shows the current value of all ACC configuration parameters.
set controller <code>set (acc controller) (cfg config) <key> <value> (, <value>)*</code>	Sets the ACC configuration parameter <key> to the given <value>.
get controller cfg parameters <code>get (acc controller) (cfg config) <key></code>	Gets the value of the ACC configuration parameter <key>.



Command and Syntax	Description
create tenant <pre>create tenant <tenantId> (<key> <value> (, <value>)*)*</pre>	Triggers the creation of a new tenant including any additional associated activities (e.g., restoring of demo content etc.). User name and password of an administrative user have to be specified using the parameters <code>master.tenant.user.name</code> and <code>master.tenant.user.pwd</code> , respectively. An initial password of the new tenant's system user can be specified with the parameter <code>tenant.user.pwd</code> . If it is not specified, the password will be <code>manager</code> .
backup tenant <pre>backup tenant <tenantId> (to <path>)? (<key> <value> (, <value>)*)*</pre>	Performs a backup of all data of the specified tenant to the specified location. A user name and password of a user in the respective with sufficient administrative privileges in all applications needs to be specified using the parameters <code>username</code> and <code>password</code> , respectively. If the target path specified is an existing directory, the name of the backup file will be generated automatically and put into this directory. If the target path is an existing file, the user will be required to confirm overwriting of this file. If the directory of the target file does not exist, it will be created.
restore tenant <pre>restore tenant <tenantId> from <path> (<key> <value> (, <value>)*)*</pre>	Performs a restore of all data of the specified tenant from a file in the specified location. A user name and password of a user in the respective with sufficient administrative privileges in all applications needs to be specified using the parameters <code>user name</code> and <code>password</code> , respectively.
delete tenant <pre>delete tenant <tenantId></pre>	Deletes the specified tenant and all its associated data from the system. User name and password of an administrative user have to be specified using the parameters <code>master.tenant.user.name</code> and <code>master.tenant.user.pwd</code> , respectively. <div style="background-color: #e6f2ff; padding: 5px;"> Warning: If the optional <code>force</code> keyword is used, the security question Are you sure? is overridden, i.e., the tenant and its data is deleted without further notice. <code>force</code>? </div>
list tenants <pre>list tenants</pre>	Lists all currently registered tenants.
list <pre>list services for (tenants tenant <tenantId>)</pre>	Lists the current assignments of services to tenants. Optionally, a <code><tenantId></code> can be specified to show only the assignments for this tenant.



Command and Syntax	Description
<p>assign tenant to service</p> <pre>assign tenant? <tenantId> to service? <serviceId> (<key> <value> (, <value>)*)*</pre>	<p>Assigns the service instance with the specified <serviceId> to the tenant with the given <tenantId>. Optionally, parameters relevant for this tenant-2-service mapping can be specified.</p>
<p>unassign tenant from service</p> <pre>unassign tenant? <tenantId> from service? <serviceId></pre>	<p>Removes the existing service-to-tenant assignment between the service with the specified <serviceId> and the tenant with the given <tenantId>.</p>
<p>set tenant data</p> <pre>set tenant <tenantId> data (for (app application services) (<serviceType> <appType>))? (+? <key> <value> (, <value>)* - <key>)*</pre>	<p>Allows to set (or unset) tenant data for the specified tenant, optionally for the specified application or service type. Tenant data is a set of key-value pairs that is stored individually for each tenant for a specific application or service type using the optional for application or for service clause, respectively, or independently from a specific application or service type by omitting this clause. Several key-value pairs can be specified in one command. Any already existing value for a specified key is overwritten with the new value. By prefixing a key with -, any value already set for that key can be unset. Any key-value-pair that is not explicitly set or unset will remain unchanged.</p>
<p>get tenant data</p> <pre>get tenant <tenantId> data (for (app application services) (<serviceType> <appType>))? <key></pre>	<p>Allows to get the value for the tenant data item with the specified key for the specified tenant, optionally for a specific application or service. Tenant data is a set of key-value pairs that is stored for individually for each tenant a specific application or service type using the optional for application or for service clause, respectively, or independently from a specific application or service type by omitting this clause.</p>
<p>show tenant data</p> <pre>show tenant <tenantId> data (for (app application services) (<serviceType> <appType>))?</pre>	<p>Displays all tenant data values for the specified tenant, optionally for a specific application or service. Tenant data is a set of key-value pairs that is stored individually for each tenant for a specific application or service type using the optional for application or for service clause, respectively, or independently from a specific application or service type by omitting this clause.</p>



Command and Syntax	Description
set system config <pre>set system (config cfg configuration) (+? <key> <value> (, <value>)* - <key>)*</pre>	Allows to set (or unset) system configuration values. System configuration values are key-value pairs that are stored for the entire installation (i.e., independently from specific applications or tenants). Several key-value pairs can be specified in one set system config command. Any already existing value for a specified key is overwritten with the new value. By prefixing a key with -, any value already set for that key can be unset. Any key-value-pair that is not explicitly set or unset will remain unchanged.
get system config <pre>get system (config cfg configuration) <key></pre>	Allows to get the system configuration value with the specified key.
show system config <pre>show system (config cfg configuration)</pre>	Displays all system configuration data values that are currently configured.
register external service <pre>register external? service <serviceType> (<key> <value> (, <value>)*)*</pre>	Registers an external service of a given service type (e.g. external DBMS, SMTP server, HTTP proxy) with its configuration parameters within the system.
list external service <pre>list external? services</pre>	Lists all external (or non-managed) services currently registered with the system.
show external service <pre>show external? service <serviceId></pre>	Displays the details of an external service currently registered with the system.
deregister external service <pre>deregister external? service <serviceId></pre>	Removes a registered external service from the system.
update external service <pre>update external? service <serviceId> (<key> <value> (, <value>)*)*</pre>	Updates the configuration parameters of an already registered external service.
list tenants for services <pre>list tenants for (services service <serviceId>)</pre>	Lists the current assignments of tenants to services. Optionally, a <serviceId> can be specified to show only the assignments for this service.
get runnable property <pre><nodeSpec>? get (runnable instance)? <instanceId> property <key></pre>	Gets the specified property value of the specified runnable on the specified node (or the current node, if no node name is specified).



Command and Syntax	Description
set runnable property <code><nodeSpec>? set (runnable instance)? <instanceId> property (<key> <value> (, <value>)*)*</code>	Sets the specified property value of the specified runnable on the specified node (or the current node, if no node name is specified) to the given value.
enhance runnable <code><nodeSpec>? enhance <instanceId> with <enhancement> (, <enhancement>)*</code>	Retroactively enhances an already configured runnable with the specified enhancement(s). Note that depending on the type of the enhancement and the runnable, it might be necessary to restart the runnable for the enhancement to become effective.
enhance any instance <code>enhance any (<state> ((, or) <state>)*)? <appId> instance with <enhancement> (, <enhancement>)*</code>	Invokes an enhancement on a single instance of the specified application type. This is useful for enhancements that will not affect the instance, but the application as a whole.
invoke <code><nodeSpec>? invoke <operation> on <instanceId> (<key> <value> (, <value>)* <invocationFile>)*</code>	Allows to invoke an operation on the specified runnable, optionally passing parameters for the invocation as key-value pairs. In addition, files can be specified as additional input to the operation. These files can be taken from the reposit(y/ies) configured for the respective agent or can be local files on the machine where the ACC is executed.
invoke any <code>invoke <operation> on any (<state> ((, or) <state>)*)? <appId> instance (<key> <value> (, <value>)* <invocationFile>)*</code>	Allows to invoke an operation on any runnable of the specified application type, optionally passing parameters for the invocation as key-value pairs. In addition, files can be specified as additional input to the operation. These files can be taken from the reposit(y/ies) configured for the respective agent or can be local files on the machine where the ACC is executed. Additionally, the desired state(s) the runnable on which the invocation should be done can be specified.
register global enhancement <code>register global? enhancement <ID> <enhancement></code>	Registers a new global enhancement with <ID>, i.e., an enhancement that will be added to all runnables configured afterwards.
deregister global enhancement <code>deregister global? enhancement <ID></code>	Deregisters the existing global enhancement with ID <ID>.
list global enhancement <code>list global? enhancements</code>	Lists all global enhancements currently registered with the cloud controller.



Command and Syntax	Description
zk create (zk zookeeper) create <absoluteZookeeperPath> (payload <STRING>)?	Creates a new zookeeper node with the given path, creating any non-yet existing parent nodes in the path. Optionally, the node's payload can be specified as a string. It is not possible to set binary payloads with this command.
zk ls (zk zookeeper) ls <absoluteZookeeperPath>	Lists the children of the zookeeper node with the given path.
zk get (zk zookeeper) get <absoluteZookeeperPath>	Retrieves the payload of the zookeeper node with the given path. The payload is displayed as a string, which makes this method unsuitable for binary payloads.
zk delete (zk zookeeper) force? delete <absoluteZookeeperPath>	Deletes the zookeeper node with the given path. Deletion of a node is only successful, if the node does not have any child nodes. By using the force keyword, you can delete entire subtrees.
zk update (zk zookeeper) (set update) <absoluteZookeeperPath> (payload <STRING>)?	Changes the payload of the zookeeper node with the given path to the specified string. It is not possible to set binary payloads with this command.
zk dump (zk zookeeper) dump	Prints the entire zookeeper content to screen.



5.1.3.18.2 Glossary: Syntax Description

Description of used expressions:

Absolute path

`('/' | '\\ ' | [A-Z] ':') <relativePath>`

An absolute path starting with either a forward or backward slash (on Linux) or a file letter (on Windows), where the individual path steps are separated by either forward or backward slashes.

ACC locale file

`local file <key> (<relativePath> | <absolutePath>)`

Uses a file on the machine on which the ACC is running as input for an invoke command, by specifying the file either as absolute path or as a path relative to the ACC's current working directory.

Artifact enhancement

`<groupId>.<artifactId> <version> (classifier <ID>)? type <ID>`

Enhances a runnable with an artifact from the repository, by specifying the Maven-esque groupId, artifactId, version, type, and optionally the classifier, of the artifact.

Artifact file

`file <key> <groupId> . <artifactId> <version> (classifier <classifier>)? type <type>`

Uses an artifact from the repository as input for an invoke command, by specifying the Maven-esque groupId, artifactId, version, type, and optionally the classifier, of the artifact.

Enhancement point

`<ID>`

The name of the runnable's enhancement point to which to send the file and the optional parameters to be used for enhancement.

ID

`('a'..'z' | 'A'..'Z' | '_') ('a'..'z' | 'A'..'Z' | '0'..'9' | '_' | '-')*`

An ID (identifier) is any string beginning with a letter or the underscore character (`_`), and containing only letters, digits, the underscore character (`_`), or a dash character (`-`).

Integer

`'-'? '0'..'9'+`

A positive or negative Integer number.

Relative path

`(<ID> | <STRING>) (('/' | '\\ ') (<ID> | <STRING>))*`

A relative path, where the individual path steps are separated by either forward or backward slashes.

**Repository file**

```
file <key> <relativePath>
```

Uses a file from the repository as input for an invoke command, by specifying the file's path relative to the repository's root.

String

```
' ' ( <any character but '\\\' or '\ ' ) * ' '
```

An almost arbitrary sequence of characters, delimited by double quotes. To represent certain special characters, you can use the common escape sequence via the backslash character (\), e.g., `\n` for newline, `\\` for a backslash, `\t` for a tabulator, `\"` to obtain a double-quote as part of the string's content, etc.

Please find the description of used syntax entries in alphabetical order:

<absolute ZookeeperPath>

Absolute zookeeper path

```
('/' | '\\\' ) <relativePath>
```

A path in zookeeper.

<agentPort>

Agent's Port number.

<appType>

Application type

```
umc | abs | ads | apg | ecp | cop | ...
```

A technical application type as defined by the zookeeper component.

<appTypeId>

Application type ID

```
<ID>
```

An application type ID is used to uniquely identify a registered application type on the cloud controller. An application type ID can be any string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters.

<artifactId>

Artifact ID

```
<ID>
```

The common Maven-esque artifact ID of the runnable.

**<enhancement>**

Enhancement

```
<enhancementPoint> (<artifactEnhancement> | <fileEnhancement> |  
<localFileEnhancement>) (options ( <key> <value> (, <value>)*)+ )?
```

Enhance a runnable with a file. There are two ways to specify the source file, as Maven repository artifact or as repository file. Optionally, parameters can be specified that are passed to the runnable's corresponding enhancement point.

<groupId>

Group ID

```
<ID> (. (<ID> | <INT>))+
```

The common Maven-esque group ID of the runnable, i.e., a sequence of identifiers separated by dots (.).

<instanceId>

Instance ID

```
<ID>
```

An instance ID is used to uniquely identify a runnable within one node. An instance ID can be any string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters.

<invocationFile>

Invocation file

```
<artifactFile> | <repositoryFile> | <accLocalFile>
```

Specifies a file to be used as input for the operation. The file can be specified using Maven artifact coordinates (GAV), as a relative path to a file in one of the repositories known to the respective agent, or as a file local to the machine on which the ACC is running.

<ipOrHostName>

IP address or fully qualified name of the server to be connected.

<key>

Key

```
<ID> (. (<ID> | <INT>))+
```

A key can be any identifier i.e. any string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters or a dotted identifier, i.e., a sequence of several identifiers integers as parts, separated by a `.` character, e.g.: **ShortId**, **ASimpleButLongerIdentifier12345**, **A.dotted.identifier.1**



<nodeName>

Node name

A node name is a unique logical name given to a node registered by ACC. It can be any string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters.

<nodeSpec>

Node specification

on <nodeName>

All zookeeper ensemble management, lifecycle and agent configuration commands can optionally be prefixed with a node specification to send them to a node other than the current node or to determine the node if no current node has been set.

<operation>

Operation

<ID>

The name of the operation to invoke.

<password>

Required user password. This might be the password of a remote access user (page 67), a database user, the superuser or a system user.

<portSpec>

Port specification

port <key> (<INT> | <INT>:<INT>) (',' (<INT> | <INT>:<INT>))* (default <INT>)?

A port specification declares that a the configure parameter <key> represents a port (or is a port parameter for short). Individual or ranges of ports that are reserved for this port parameter can be specified. Further, a default can be declared, which indicates the port that is used by the runnable if no explicit value is specified for this port parameter during configure.

<serviceId>

Service ID

<ID>

A service ID is used to uniquely identify a service. It is assigned automatically by the system when the service is registered. It can be used to refer to a specific service for updating or deregistering it.

**<serviceType>**

Service type

db | smtp | proxy | postgresql-ecp | elasticsearch | rs | ...

A technical service type as defined by the **zookeeper** component. A service type specifies the type of an external or internal service to be registered.

<state>

State

STOPPED | STARTED | STARTING | STOPPING | UNKNOWN | DOWN |

The possible runnable lifecycle states.

<tenantId>

Tenant ID

<ID>

A tenant ID is used to uniquely identify a tenant. A tenant ID can be any string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters.

<username>

Required user name. This might be a remote access user (page 67), a database user, the superuser or a system user.

<value>

Value

<ID> | <INT> | <STRING>

A value can either be any identifier i.e., a string without whitespace, starting with a letter or underscore character (`_`), and containing only letters, digits, or underscore characters, and Integer number, or a string, i.e., an arbitrary, double-quote-delimited sequence of characters, e.g.: **ThisIsAnIdentifier435**, **_ThisIsAlsoAnIdentifier**, **12345**, **This is also a valid value!**.

<version>

Version

(`'a'..'z' | 'A'..'Z' | '0'..'9' | '_' | '-' | '.'`)+

The common Maven-esque version of the runnable.



5.1.3.18.3 Create a Tenant (advanced)

After the installation of ARIS Connect or ARIS Design Server the **default** tenant is available. If you need additional tenants to provide different sets of databases, users, configurations or ARIS methods you can easily create additional tenants.

Using some advanced ACC commands (page 80) makes it possible to create a tenant, import a license and migrate or restore a database in one step. You can also create tenants using the Administration's command line tools (page 53).

In this example the tenant **test01** will be created and the license file **U:/license.zip** will be imported. The ARIS user license (product code **YAA**) will be assigned to the **system** user. Also the the database **U:/publishedDatabase72.adb** will be migrated/restored and renamed from **publishedDatabase72** to **publishedDatabase**.

Prerequisites

If you do not use the standard database system, please make sure to create additional schemes in your Oracle (page 21) or Microsoft SQL database management system (page 24) and you have assigned the tenants (page 74) to these schemes.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 61).
2. Create tenant runnable types:

This is a list of `groupId.artifactId` for all runnable types that should have the **create tenant enhancement** triggered by the **create tenant** command. In this case we need four tenant runnable types calling the Administration forcing the tenant enhancement points **createTenant**, **importLicense**, **assignLicense** and **createTenant**. Additionally we need two tenant runnable types calling the modeling component forcing the tenant enhancement points **migrateDB** and **renameDB**.

enter, e.g.:

```
set acc config
create.tenant.runnable.types="com.aris.umcadmin.y-umcadmin-run-prod", "com.aris.umcadmin.y-umcadmin-run-prod", "com.aris.umcadmin.y-umcadmin-run-prod", "com.aris.umcadmin.y-umcadmin-run-prod", "com.aris.modeling.components.y-server-run-prod", "com.aris.modeling.components.y-server-run-prod"
```

3. Create tenant enhancement points:

This is a list of enhancement points that are used to trigger **create tenant**. Please make sure that in step 2 for each tenant enhancement point the corresponding runnable type has been created in the right order.

enter, e.g.:

```
set acc config
create.tenant.enhancement.points=createTenant,importLicense,assignLicense,createTenant,migrateDB,renameDB
```



4. Create tenant enhancement file by runnable type:

For each runnable type affected by create tenant this parameter holds the relative path to the file in the repository or the absolute local file path to use during enhancement. So the first value of this parameter will be used to create tenant enhance the first runnable type, then the file for the runnable type. Fill gaps i.e. for runnable types that need create tenant triggered, but don't need a file for it with empty strings or -,e.g.:

```
set acc config
create.tenant.enhancement.file.by.runnable.type=" ", "U:/Supreme_Test_key.zip",
" ", " ", "U:/publishedDatabase72.adb", " "
```

5. Create the tenant, enter:

```
create tenant <tenant name> license=<license> rename.olddbname=<path to back up
file of database to be migrated/restored> rename.newdbname=<new name of the
migrated/restored database>
```

e. g.:

```
create tenant test01 license="U:/license.zip"
rename.olddbname=publishedDatabase72 rename.newdbname=publishedDatabase
```

The tenant **test01** will be created and the license file **U:/license.zip** is imported. The ARIS user license (product code **YAA**) is assigned to the **system** user. Also the the database **U:/publishedDatabase72.adb** will be migrated/restored and renamed from **publishedDatabase72** to **publishedDatabase**.

The administrator must create users and user groups and assign privileges and licenses (page 51) for the **test01** tenant.

5.1.4 ARIS Server Administrator

ARIS Server Administrator is available if you have installed an ARIS client. You can use ARIS Server Administrator commands to manage the ARIS databases of a server or back up and restore the server configuration, for example. The program is a console application and runs in the command prompt. The individual commands of the program are supplied as command line parameters. The program provides information on the success and effect of each command executed.

You can start ARIS Server Administrator from any client computer and access the databases on the server:

1. Click **Start > Programs > ARIS > Administration > ARIS Server Administrator 9.6** if you accepted the program group suggested by the installation program. The command prompt opens and ARIS Server Administrator is launched in interactive mode.
2. Establish a connection to the server using the server command:

syntax: server <server name>:<port number> <tenant> <user name> <password>

example: server localhost:80 default system manager

ARIS Server Administrator is connected to the server.

Enter **help** or **help <command>** to get information about the usage of the commands.



5.2 Logging

If problems occur during operation, please stop all components (page 64), ARIS servers and your local ARIS client and execute the <path to server installation directory>\support\collectLogFiles.bat file. All ARIS log files will be collected and saved as a ZIP file.

All activities of components are recorded in the **log** directories of the server installation directory. If problems occur during operation, you can use the log files to find and resolve errors. If you cannot solve the problems and have a maintenance agreement, please send an error description and the entire contents of the **log** and **config** directories as ZIP files to your local Software AG sales organization.

The log files are located in the directory <path to installation directory>\.

- .server\bin\work\\base\logs\
e.g. C:\SoftwareAG\ARIS9.0\server\bin\work\work_abs_m\base\logs
- .\server\acc\log\
- .\server\logs\
- .\server\bin\log\

The activities of ARIS clients are recorded under <system drive>:\Documents and Settings\

Setup activities are logged using the file %temp%\ARIS_install_log.



5.3 Configure Single Sign-On

If you are using MS Active Directory Domain Services, you can configure SSO (single sign-on). This enables access to all ARIS components as soon as a user has logged in once to the domain. Single Sign-On in ARIS is based on Kerberos. Kerberos is a network authentication protocol that allows nodes to communicate over a non-secure network to prove their identity interrelated in a secure manner by using a symmetric key cryptography during certain phases of authentication. Kerberos is the de facto standard authentication protocol used in MS Active Directory environments. It is designed to provide a strong authentication for client/server applications, like web applications where the browser is the client. It is also the recommended way to authenticate users in a MS Windows network and it replaces the outdated and relatively insecure NT LAN Manager (NTLM). Besides this, it is widely used in UNIX environments and there exist implementations for every major platform.

Please contact your LDAP administrator before you change any configuration.

Prerequisite

Server

- Users who want to work with SSO have a valid user account in the Microsoft Active Directory Domain Services.
- The users exist in the Administration.
- Microsoft Active Directory Domain Services supports a Kerberos-based authentication (default) and the service principal name of ARIS Connect server is entered in the following format: **HTTP/<hostname>**, e.g. **HTTP/mypc01.my.domain.com**.

Client

- The client computers and servers are connected to the same MS Active Directory Domain Services.
- The browser used supports a Kerberos-based authentication.
- The browser has been configured accordingly.

The following steps must be taken to use SSO:

1. A technical user must be created in the MS Active Directory.
2. A Service Principal Name must be registered on the technical user.
3. The Single Sign-On configuration options must be set in the Administration.
4. The client application must be configured to use Single Sign-On.



Creating a technical user

A technical user is used to validate Kerberos tickets against the Microsoft Active Directory. This user must be created in the Microsoft Active Directory and a keytab file must be created for this user.

A keytab file contains a list of keys and principals. It is used to log on the technical user to the Microsoft Active Directory without being prompted for a password. The most common use of keytab files is to allow scripts to authenticate against the Microsoft Active Directory without human interaction or storing a password in a plain text file. Anyone with read permission on a keytab can use all of the keys contained so you must restrict and monitor permissions on any keytab file you create. The keytab must be recreated when the password of the technical user changes.

A keytab file can be created by passing the following parameters to the JRE command line tool ktab.exe:

```
ktab -a <TECHUSER_USER_PRINCIPAL_NAME> -n 0 -append -k umc.keytab - e.g. ktab  
-a aristechuser@MYDOMAIN.COM -n0 -append -k umc.keytab.
```

Configuration options in Administration

You need to configure SSO for the servers.

Procedure

1. Open the Administration.
2. Select **Configuration**.
3. Switch to **User management settings**.
4. Select **Kerberos/SPNEGO**.
5. To activate SSO, find the string
`com.aris.umc.kerberos.active`
Set this configuration key to **true**.
6. Select

```
com.aris.umc.kerberos.config
```

and upload the Kerberos configuration by clicking into the field.

In case the Kerberos configuration file is not available, create a new one. Name it e.g. **krb5.conf**, add the following lines and adapt the configuration to your requirements.

```
[libdefaults]
default_tgs_enctypes = des-cbc-md5 des-cbc-crc des3-cbc-sha1 aes128-cts
aes128-cts-hmac-sha1-96 aes256-cts aes256-cts-hmac-sha1-96 rc4-hmac
arcfour-hmac arcfour-hmac-md5
default_tkt_enctypes = des-cbc-md5 des-cbc-crc des3-cbc-sha1 aes128-cts
aes128-cts-hmac-sha1-96 aes256-cts aes256-cts-hmac-sha1-96 rc4-hmac
arcfour-hmac arcfour-hmac-md5
permitted_enctypes = des-cbc-md5 des-cbc-crc des3-cbc-sha1 aes128-cts
aes128-cts-hmac-sha1-96 aes256-cts aes256-cts-hmac-sha1-96 rc4-hmac
arcfour-hmac arcfour-hmac-md5
```

7. Upload this file.



8. In the Administration, upload the generated Kerberos key tab file by clicking into the field `com.aris.umc.kerberos.keyTab`

9. In the Administration, find the following string and and configure the username of the technical user.

```
com.aris.umc.kerberos.servicePrincipalName
```

If the service principal name in the keytab is e.g. **mypc01@MY.DOMAIN.COM** then the values of the properties **com.aris.umc.kerberos.servicePrincipalName** must contain the service principal name specified in the keytab.

10. In the Administration, find the following string and and configure the realm for the Kerberos service. Enter the fully qualified name of the domain in uppercase.

```
com.aris.umc.kerberos.realm
```

The values of the properties **com.aris.umc.kerberos.realm** must contain the fully qualified domain name - e.g. **MYDOMAIN.COM**.

11. In the Administration, find the following string and configure the fully qualified name of the KDC to be used:

```
com.aris.umc.kerberos.kdc
```

12. **Optional:** In the Administration, find the following string and define the list of IP addresses for which you want to enable SSO (**whitelist**):

```
com.aris.umc.kerberos.whitelist
```

Each entry in the list must begin in an individual line:

Example

```
192.168.100.1
192.168.100.*
10.0.0.*
#Allow all IPs
*.*.*.*
```

13. **Optional:** In the Administration, find the following string and configure the debug mode for Kerberos operations:

```
com.aris.umc.kerberos.debug=true
```

Example

The following can be configured in the Administration.

```
com.aris.umc.kerberos.active=true
com.aris.umc.kerberos.config=/etc/krb5.conf
com.aris.umc.kerberos.keyTab=C:/safePlace/krb-umc.keytab
com.aris.umc.kerberos.whitelist=./config/Kerberos/krb-ip-whitelist.conf
com.aris.umc.kerberos.servicePrincipalName=mypc01
com.aris.umc.kerberos.realm=MY.DOMAIN.COM
com.aris.umc.kerberos.kdc=mykdc01.my.domain.com
com.aris.umc.kerberos.whitelist=./config/Kerberos/krb-ip-whitelist.conf
com.aris.umc.kerberos.debug=false
```



Client configuration

Configure the browser settings to allow SSO. SSO has been tested using the following browsers:

- Microsoft Internet Explorer (version 6 or higher)
- Firefox
- Google Chrome
- Apple Safari (für Mac OS)

Microsoft Internet Explorer

Microsoft Internet Explorer supports Kerberos authentication only if the ARIS Connect server is a component of your local intranet.

Procedure

1. Launch Microsoft Internet Explorer.
2. Select **Tools > Internet Options**.
3. Activate the **Security** tab and click **Local Intranet**.
4. Click the **Sites** button and then the **Advanced** button.
5. Add the URL for the ARIS Connect server that has been configured for SSO. Add both the DNS host name and the IP address for ARIS Connect Server.
6. Disable **Require server verification (https:) for all sites in this zone**.
7. Click **Close** and then **OK**.
8. Click the **Custom level** button and make sure that no user-defined settings impede your new settings.
9. Scroll to the **User Authentication** section. Check whether **Automatic logon only in Intranet zone** is activated.
10. Click **OK** to close the dialogs.
11. Close and restart Microsoft Internet Explorer.

Mozilla Firefox

In Mozilla Firefox, you can define trusted pages via the computer name, IP address, or combinations of both. You can also use wildcards.

Procedure

1. Launch Mozilla Firefox.
2. Enter **about:config** in the address bar and press the Enter key. If a message is displayed, confirm it.
3. Enter **network.negotiate** in the **Filter** bar and press the Enter key.
4. Double-click **network.negotiate-auth.trusted-uris**.
5. Enter the computer name or IP address of the ARIS Connect server that has been configured for SSO and click **OK**.



6. Close and restart Mozilla Firefox.

If you want to use a stronger encryption than AES 128bit and if this is legally permitted in your country, replace the supplied JCE policy files of the JDK for ARIS Connect server with the **Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 6** <http://www.oracle.com/technetwork/java/javase/downloads/index.html>. This allows an unlimited key length.

If you cannot replace the policy files, but still want to use SSO, you must use a procedure that is supported by JDK for the encryption of Kerberos tickets (e.g., AES 128bit).

Google Chrome

Kerberos can be enabled by passing a comma-separated list of permitted URLs via the authentication server whitelist command line switch. For example pass in the following options that any URL ending in **mydomain.suffix.com** is permitted.

```
--auth-server-whitelist="*.mydomain.suffix.com,*.suffix.com"
```

Without the * prefix, the URL has to match exactly. MS Windows only: If the command line switch is not present, then the permitted list automatically contains all URLs of MS Internet Explorer local intranet zone.

Apple Safari (for Mac OS X)

Apple Safari supports Kerberos and requires no configuration to use this feature. Safari relies on Mac OS X support for the Massachusetts Institute of Technology (MIT) Kerberos standard for authentication to connect to single sign-on-enabled services. Please note that the Mac OS X computer needs to be bound to the MS Active Directory domain to allow single sign-on.

Optional: JRE (ARIS/Designer)

Please note that this is only necessary if Single Sign-On is not working in ARIS/Designer.

In order for Java to recognize a Kerberos environment, extra configurations may be needed on the client side. The following steps must be taken to set these configurations:

There are two ways to inform a Java application about realm and KDC. These are:

1. By a Kerberos configuration file (**krb5.ini**)

This file should contain the realm info and the host name of the KDC. The location of this file can be specified via system property `java.security.krb.conf`. By default, Java tries to locate the file in the following locations (ordered):

- a. `%JAVA_HOME%/lib/security/krb5.conf`
- b. `%WINDOWS_ROOT%/krb5.ini`

2. By the system properties **java.security.krb5.realm** and **java.security.krb5.kdc**.

In JRE 7, when neither of the above two ways is used, Java tries to fetch the realm and KDC settings using the Domain Name Service. An SRV (Service) Resource Records is used to indicate the host name and port number to contact for the KDC service, optionally with weighting and prioritization.



By default, newer versions of Windows do not allow Java to access the session key of a Ticket-Granting Tickets (TGT). The key is required to acquire additional service tickets. To allow this access, one needs to set the following registry key on the client, see Java Bug 6576422:

- Windows XP and 2000:
 - HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Lsa\Kerberos
 - Value Name: allowtgtsessionkey
 - Value Type: REG_DWORD
 - Value: 0x01
- Windows 2003, Vista, 7:
 - HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Lsa\Kerberos\Parameters
 - Value Name: allowtgtsessionkey
 - Value Type: REG_DWORD
 - Value: 0x01

The client application tries to acquire the TGT from the following locations (ordered):

- a. A file-based Java credentials cache (located in **%USERPROFILE%\krb5cc_<USERID> in Windows**).
- b. The native credentials cache (Local Security Authority for Windows).

If there is no native cache on the client, one can make use of an LSA-less approach by initializing the Java credentials cache with **kinit.exe** (JRE) as follows.

Run **kinit.exe** before running the Java application. This will create a credentials cache file in **%USERPROFILE%\krb5cc_<USERID>** which can then be used in step a. Tickets available in the file cache can be listed using **klist.exe** (JRE).

There is no way to tell Java to lookup the TGT from the native cache first. One needs to make sure that file **%USERPROFILE%\krb5cc_<USERID>** does not exist when the native cache should be used. This file is usually generated by **kinit.exe** (JRE).



5.4 ARIS Connect

Please make sure not to change the configuration files of ARIS Connect Server.

To customize ARIS Connect Server, please contact Software AG (<https://empower.softwareag.com>). Please note that this service is not subject to the standard Software AG software maintenance agreement and that these changes can only be performed if you requested and agreed on them.

5.5 ARIS Publisher/ARIS IT Inventory

This chapter describes the system configuration. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

Please consider the legal notices <http://documentation.softwareag.com/legal/>.

The operating systems depend on the database systems used.

Network connection

- Web application server to database server: Integration in a 1000 MBit network
- Client connection: Internet connection

5.5.1 IT Inventory - User Management, License and Permissions

To create IT Inventory you need to create specific users and user groups and provide the needed licenses in the Administration and provide access rights in the database. You can do this manually or use the import file.

Prerequisite

- Ensure that you have installed ARIS Design Server/ARIS Connect server and ARIS Publisher Server.
- You need an ARIS Publisher Server license including the IT Inventory extension pack and the number of users.

Import users and user groups using the import file

1. Open the Administration (<**IP address or fully-qualified host name**>/umc).
2. Import the configuration file **umcDataExport_with_IT_Inventory_without_keys** from the installation source. IT Inventory specific users and user groups will be created automatically.
3. Assign the license **ARIS Publisher** to IT Inventory users, e. g. in the UMG demo database to **peter** and **gunnar** .
4. Publish the database.

IT Inventory is created.



Create users and user groups manually

If you did not use the import file please follow this description.

1. Open the Administration (<**IP address or fully-qualified host name**>/umc).
 2. Create the user groups **IT Architects**, **IT Inventory**, **Process Manager** and **System Responsible**.
 3. Create IT Inventory specific users. In the UMG demo database for example: user **peter**, password **peter**, mail **peter.brown@umg.com**, and user **gunnar**, password **gunnar**, mail **gunnar.olssen@umg.com**.
 4. Assign IT Inventory users, e.g. **peter**, **gunnar** to user groups **Process Manager** and **System Responsible**.
 5. Assign the user **system** to the user group **IT Architects**.
 6. Assign the license **ARIS Viewer** to IT Inventory users, e. g. **peter** and **gunnar**.
 7. Set the access privileges for IT Inventory database user groups, for example UMG demo database:
 - for **IT Architects**: **read** on **4. IT Systems**,
 - for **IT Inventory**: **read** + **write** on all groups, exclude groups containing secret data.
 - for **Process Manager**: **read** on **4. IT Systems**, **read** + **write** on all groups,
 - for **System Responsible**: **read** + **write** on **4. IT Systems**, **read** on all groups.
 8. Publish the database.
- IT Inventory is created.

5.5.2 Modify Configuration

This chapter describes how to customize ARIS Publisher Server according to your needs.

ARIS Publisher is integrated in the **Administration** tab of ARIS. Administrators can create exports of ARIS databases after having installed an ARIS Publisher Server.

After the standard installation ARIS Publisher Server runs the reports executed from Publisher exports. You can additionally install an ARIS Publisher Report Server to optimize the system performance.

If you retain the settings of the installation program when you use the standard installation of ARIS Publisher Server, the context path and the free port to the Web server are entered automatically.

Additional modification is required for Process-driven Management for SAP® Solutions (page 146).



5.5.2.1 Use Administration for User Management

After you have installed ARIS Publisher Server this installation uses a different user management as other ARIS Servers using the Administration. This means that the publisher server administrator has to manage users separately and ARIS document storage will not be available in publisher exports. If you already use ARIS Connect or ARIS Design Server and have installed ARIS Publisher Server later you can force ARIS Publisher Server to use the Administration of your productive ARIS Connect Server or ARIS Design Server installation.

Procedure

In the file..<ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg, change the value of the LoginModuleSection to UMCLogin:

```
<LoginModuleSection value="UMCLogin"/>
```

Publisher users are authenticated via Administration and ARIS document storage will be available if it has been connected to the ARIS Publisher Server (page 113).

5.5.2.2 Configure a connection to SAP® systems

If you want to run transactions from a Publisher export and open the project documentation from SAP® Solution Manager, you need to customize the configuration file.

Prerequisite

- You have access privileges for the ARIS Publisher Server installation directory.
- Ensure that the users have been created in the SAP® system and have RFC privileges (page 125).

The special SAP® ports **sapgw00 3300/tcp** and **sapdp00 3200/tcp** must be enabled in the Windows Services file of the client computer (C:\Windows\ system32\ drivers\ etc/services). In general, these ports are entered automatically during SAP GUI installation.

- If you use server groups for access (SAP® routers), you need to enter the SAP® ports manually in consecutive sequence. By default, the syntax for a port number is as follows **3300** plus the <SAP® system number> will be used. If, for example, the system number is **03**, the port number **3303** must be entered. Entries that have not been entered in consecutive sequence are ignored.

If the dialog is not displayed correctly when starting SAP® transactions from a Publisher export, open the Java Control Panel and disable the **Enable the next-generation Java Plug-in** check box under **Java Plug-in** on the **Advanced** tab.

Procedure

1. Open the file in the ARIS Publisher Server installation directory <ARIS installation path>\ARIS9.6\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg with a text editor.



2. Find the `<sap_connectivity>` tag.
3. Set the value `<switch value="on"/>` to provide the pop-up menus **Run transaction** and **Solution Manager documentation**.
4. Save the changes and restart ARIS Publisher Server.

After you exported the database content, users can run SAP® transactions, for example.

5.5.2.3 Connect Process Governance

You can start governance processes from a Publisher export and provide feedback. The **Process Governance** module and the **Start governance process** pop-up menu are only available in the Publisher exports if a Process Governance license is available for the connected ARIS Connect Server or ARIS Design Server and all Process Governance integration parameters have been entered during the ARIS Publisher Server setup process. If you use anonymous login Process Governance is not available.

5.5.2.4 Activate/deactivate ARIS Rocket Search

If you have run an update installation, the ARIS Rocket Search is available to you only after you have adapted the configuration file.

Procedure

In the file..<ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg, add.

```
<rocketSearch>
  <engine value="on"/>
</rocketSearch>
```

You can reactivate the previous standard search by setting the **engine value** to **off**.

5.5.2.5 Show all groups in the Explorer tree

By default, only groups containing at least one item are displayed in exports. To display empty groups as well in the Explorer tree, change the corresponding setting in the configuration file.

Procedure

1. Open <ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg and change:

```
<switch value="off"/>
to
<switch value="on"/>
```

2. Restart ARIS Publisher Server.



5.5.2.6 Configure automatic e-mailing

If you reset passwords, for example, automatic e-mails containing the initial passwords are sent to the appropriate users.

Procedure

1. Open <ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config**webappserver.cfg** and configure the mail server settings under <**badmin**>.
2. Restart ARIS Publisher Server.

5.5.2.7 Connect document management systems (DMS)

If you want to connect document management systems, copy the configuration file **SpringCRModule.xml** to the installation directory of your ARIS Publisher Server.

Prerequisite

- You have set up ARIS document storage within the Administration of the connected ARIS Connect Server or ARIS Design Server.
- ARIS Publisher users are managed within the Administration (page 111).

Procedure

1. Copy the file <ARIS installation path>/server/bin/work/work_abs_<s, m or l>/base/webapps/abs/config/**SpringCRModule.xml** from the connected ARIS Connect Server or ARIS Design Server to <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/WEB-INF/Spring/**core**.
2. Configure the **adsProviderConfig** property in the **SpringCRModule.xml** file.
3. Specify the URL of a valid ARIS document storage server instance. This must be the same instance that the ARIS Connect Server or ARIS Design Server refers to. This property must not be empty.
4. Restart ARIS Publisher Server.



5.5.2.8 Change e-mail address (Contact [Webmaster])

By default, an example address is used for the **Contact [Webmaster]** function in the **Explorer** module.

Procedure

1. Open the file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/layouts/default/config/**layout.cfg.xml** and change the address in the <**responsible email**="name@company.com"/> entry.
2. Restart ARIS Publisher Server.

5.5.2.9 Change e-mail address (Contact [Process manager])

Web export users can send feedback to process managers with the **Contact [Process manager]** function in the **Explorer** module. By default, the address specified for the current user is used here.

In order to use the e-mail address specified in the **Person responsible** model attribute, please do the following:

Prerequisite

Make sure that the **Person responsible** model attribute is specified for each process with the correct e-mail address.

Procedure

1. Add **1584** to <**attr feedbackAttributeNr**> in the file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/layouts/default/config/**layout.cfg.xml**.
2. Restart ARIS Publisher Server.

If you use a user-defined attribute type to specify the e-mail address of a process manager, we recommend that you define it independent of the language. This ensures that an e-mail address is automatically entered in all languages. Please enter the GUID instead of the attribute type number for user-defined attribute types. You can find the GUID on the properties page of the attribute type **Administration** tab (Conventions > Method > Attribute types).



5.5.2.10 LDAP user management

If you do not use the Administration of your productive system (page 111) you can manage user authentication via an LDAP. To map LDAP user groups to ARIS user groups, you need to customize the configuration file.

Procedure

1. Open <ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config**webappserver.cfg** and specify the required <ldap> settings.
2. Restart ARIS Publisher Server.

Warning

If your LDAP server is set up so that it allows anonymous authentication (unauthenticated bind mechanism), users may be able to log in without a password.

You can use the administration interface for exports to encrypt (page 115) the password of the LDAP user specified here. Copy the encrypted password to this file and restart the server.

5.5.2.11 Encrypt LDAP password

If users are authenticated via LDAP, a default user and the related password must be entered in the configuration file **webappserver.cfg**. To prevent misuse, you can encrypt this password and enter it in the configuration file.

1. Log in to the Publisher export.
2. Click **Information** ⓘ and select the **Encrypt LDAP password** link in the **Other** box.
3. Enter the password to be encrypted, and click **Encrypt LDAP password**.
4. Copy the encrypted password to the clipboard.
5. Open the file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/config/**webappserver.cfg** and find <ldapdefaultpwd value="password"/> and paste the copied password as a value between the quotation marks.
6. Find <ldappwdencrypted value="false"/> and change the value from **false** to **true**.
7. Restart ARIS Publisher Server.



5.5.2.12 Update license

The license for ARIS Publisher Server also controls the number of users who can simultaneously access a Publisher export.

If the license was not imported during the setup process you must copy it as **ZIP** file with identical name to the directory:

<ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/config/**license** and restart ARIS Publisher Server.

Please make sure to import the updated ARIS Publisher Server license also into the ARIS Connect Server or the ARIS Design Server the ARIS Publisher Server is connected to.



5.5.2.13 Configure matrix

In the **Matrix** module, you can create matrices of one or several models. This allows you to examine various aspects of object relations. You can configure (page 117) the selection of available aspects, the objects (object families) used in aspects, and the graphical representation.

The following configuration files control matrix functions and layout:

File	Description
aspect_matrix.xml	Defines the object types included in the aspects. Please refer to the Method help (Help/Method help) for the API names of object types.
connectionTypeFamilies.xml	Defines connection families that are included in aspects.
templates.xml	Defines the model and connection types included in aspects. Similar connection types are grouped into families. The families are defined in the file connectionTypeFamilies.xml .

If you change the configuration file, please note the XML structure. Please use the default layout of the matrix as a guide.

We recommend that you ask ARIS Customized Solutions to change your configuration.

Procedure

1. Open the relevant configuration file under <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/views/**matrix** and change it according to your requirements.
2. Exit and then restart ARIS Publisher Server.



5.5.2.14 Configure navigation carousel

To display the navigation carousel in exports, a structuring model must be modeled in the database.

Ensure that the configuration file <ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\layouts\default\config\aspectOrientedEntry.cfg.xml is configured for evaluation (page 118) of the structuring model. This setting is selected by default. You do not have to customize this file unless it has been changed after installation.

Procedure

Ensure that the values of the keys are specified as follows:

```
<aoeDefinition exportName="*"
  isVisible="true"
```

Changes to this file take effect immediately without restarting ARIS Publisher Server.

You can also offer the navigation carousel without a structuring model. ARIS Customized Solutions will be pleased to help you with the implementation.

5.5.2.15 Display news

The **News** section in the **Home** module is used in the standard export as an example. If you have knowledge of RSS feed and XML programming, you can insert links in this area.

Procedure

Open the file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/layouts/default/config/layout.cfg.xml, and enter the URL for your RSS feed in the <news basename="news"> area.

```
<news basename="news">
  <!-- TODO synchronize access to feed-xml -->
  <url proto="http"
    location="<Your URL, e. g.
"http://www.ariscommunity.com/group/aris-bpm-blog/feed/teaser">"
    proxyAdress="<Your proxy address, e.g. "hades.company.com">"
    proxyPort="<Your proxy port>"
    refresh="600"/>
</news>
```

The **News** area can be customized to meet your requirements. ARIS Customized Solutions will be pleased to help you with the implementation. For example, you can keep a list of links to the models or objects that have been changed or created since a specific date.



5.5.2.16 Configure views for models

The number of views available to users as links in the **Contents** module varies according to the system configuration and model types. Administrators can change the links available for selection.

If you change configuration files, please note the XML structure. We recommend that you ask Software AG (<https://empower.softwareag.com>) to change your configuration.

Procedure

1. Open the file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/views/visualisation/**default_visualisation.xml** and change the file according to your requirements.
2. Exit and then restart ARIS Publisher Server.

5.5.2.17 Change icons

Icons are used for linked files saved in the **icons** subdirectory of your ARIS Publisher Server installation directory. Icons of Microsoft Office products and many other applications and systems, e.g., Windows system files, Web environment, Acrobat Reader, audio, video, Lotus Notes, etc., are displayed automatically. For these applications, you do not need any icons in the directory mentioned above unless you want to use your own icons.

You can change icons or add new ones. To create and edit icons in ICO format, you need a suitable application. Assign file names that conform to the extension of the relevant application.

To create icons that represent bitmap graphics, Lotus Notes or text files, for example, save the graphics under the names **bmp.ico**, **nsf.ico**, and **txt.ico**.

5.5.3 Logging

Activities such as imports from ARIS IT Inventory, as well as errors are logged in different files depending on the component, e.g. **inventoryImport-<Version.Build>_0.log**. If problems occur during operation, you can use the log files to find and resolve errors. If you cannot solve the problems and have a maintenance agreement, please send an error description and the entire contents of the **log** and **config** directories as ZIP files to your local Software AG sales organization. The log file names and the logging configuration are defined in the file. <ARIS installation path>/ARIS9.6/server/bin/work/work_businesspublisher_<s, m or l>/base/**logs** and **/conf**.



5.6 Process Governance

This chapter describes the configuration of Process Governance.

5.6.1 Provide Executable Governance Process

You can provide executable governance processes for users who use ARIS without Process Governance extension pack.

Precondition

You have access to a zipped file containing the relevant governance process.

Procedure

Copy the zipped file containing the relevant governance process to the **autodeployment** folder on an ARIS Design Server or ARIS Connect server instance.

```
<ARIS Design Server installation  
directory>\server\bin\work\work_apg<number>\base\model
```

All the tenants of this ARIS Design Server or ARIS Connect server can now use the deployed governance process.

If you are using several ARIS Design Server or ARIS Connect server instances that should provide the same governance process, you have to copy this zipped file to the autodeployment folders of all instances.

Example for an autodeployment folder

```
C:\ARIS\server\bin\work\work_apg1\base\model
```

5.6.2 ARIS Process Board

ARIS Process Board is automatically installed when you install an ARIS Connect server or an ARIS Design Server.

System requirements

For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).



5.6.2.1 Configure selectable languages for ARIS Process Board

It is possible to specify which locales are displayed in the list of selectable languages.

Procedure

1. Start (page 61) ARIS Cloud Controller.
2. Stop the relevant runnable, type e.g. **stop apg_m**.
3. Open the ARIS Process Board configuration file (e.g. **<ARIS9.x installation directory>\server\bin\work\work_apg_m\base\webapps\processboard\WEB-INF\tl-configuration.xml**).

All supported locales are listed by default in the configuration file.

4. Remove the locales you do not want to use.
 - If the configuration file contains the operating system's locale, it will be selected by default.
 - If the configuration file does not contain the operating system's locale, the first locale specified in the list will be selected.
5. Start the relevant runnable, type e.g. **start apg_m**.

If the configuration file does not contain any locales, the English (US) locale will be used by default (the xml locales element is empty).

5.6.2.2 Configure date format

You can format the date to the pattern defined in the locale specific attribute **datePattern**. In case the locale specific attribute is not specified, the date format pattern is loaded from the default date pattern tag of the locale. If both are not defined, the default pattern from the code is used.

1. Start (page 61) ARIS Cloud Controller.
2. Stop the relevant runnable, type e.g. **stop apg_m**.
3. Open the ARIS Process Board configuration file (**<ARIS9.x installation directory>\server\bin\work\work_apg_m\base\webapps\processboard\WEB-INF\tl-configuration.xml**).

All supported locales are listed by default in the configuration file.

4. Define the date pattern for the relevant locale.
5. Start the relevant runnable, type e.g. **start apg_m**.

You have configured the date format.



Example

```
<!-- language configuration, first element is selected on UI -->
<locales>

    <locale language="en" country="US" name="English (United States)"
datePattern="dd.mm.yyyy" dateTimePattern="dd.mm.yyyy HH:mm:ss" />
    <locale language="de" country="DE" name="German (Germany)"
datePattern="dd.mm.yyyy" dateTimePattern="dd.mm.yyyy HH:mm:ss" />
    .
    .
    .
</locales>
```

5.6.2.3 Customize ARIS Process Board

You can define colors, logos and other styles by changing customizable xml elements in the ARIS Process Board configuration file **tl-configuration.xml**.

Procedure

1. Start (page 61) ARIS Cloud Controller.
2. Stop the relevant runnable, type e.g. **stop apg_m**.
3. Open the **<ARIS installation directory>\server\bin\work\work_apg_<character>\base\webapps\processboard\WEB-INF\tl-configuration.xml** file with a text editor, e.g. **C:\Program files\ARIS9.x\server\bin\work\work_apg_m\base\webapps\processboard\WEB-INF\tl-configuration.xml**.
4. Set the element **styledeclarations active** to **true**: **<styledeclarations active="true">**
5. Customize the colors, logos and styles. You can define different customizations for each tenant. If you do not define a tenant, you customization is used for all tenants. If no customization is defined, the default colors and styles are used.
Many components can be grouped to special color groups. Constants are introduced to the XML file to define the color of a complete group of components.
6. Start the relevant runnable, type e.g. **start apg_m**.

You have defined colors, logos and other styles for ARIS Process Board.



5.6.2.4 Call ARIS Process Board

The following URL is used to call ARIS Process Board in the browser:

http://<server name>/processboard

If you have an e-mail integration, this link is automatically sent to a new user when activated. If you do not use e-mails, you need to communicate the link to all users.



5.7 Process-driven Management for SAP® Solutions

To be able to work properly with the products once they have been installed, please note the following:

- Ensure that the required software and SAP® systems are available (page 124).
- You need SAP® Java Connector (SAP® JCo) (page 128). This connector is used to create an RFC connection to the SAP® system using SAP® access parameters. For licensing reasons, it may not be installed automatically.
- When using ARIS Publisher, you must provide SAP® JCo and configure the connection to SAP® systems (page 111).
- When using installed clients, you must provide SAP® JCo (page 130).

Depending on the features you provide, you must customize the system.

- Use SAP® synchronization (page 131)
- Use customizing transactions/views (page 134)
- Use ARIS Online Guide (page 136)
- Use BI Modeler (page 145)
- Use Publisher exports (page 146)
- Ensure that the users have been created in the SAP® system and have RFC privileges (page 125).

The special SAP® ports **sapgw00 3300/tcp** and **sapdp00 3200/tcp** must be enabled in the Windows Services file of the client computer (C:\Windows\ system32\ drivers\ etc\services). In general, these ports are entered automatically during SAP GUI installation.

- If you use server groups for access (SAP® routers), you need to enter the SAP® ports manually in consecutive sequence. By default, the syntax for a port number is as follows **3300** plus the <SAP® **system number**> will be used. If, for example, the system number is **03**, the port number **3303** must be entered. Entries that have not been entered in consecutive sequence are ignored.

5.7.1 Required Software/SAP® systems

Please ensure that a local SAP GUI for Windows installation exists on all client computers. To run transactions, you need one of the following SAP systems in one of the following languages:

German (de), English (en), French (fr), Spanish (sp), or Japanese (ja):

- Local SAP GUI for Windows installation, version 7.1 to 7.3
- SAP R/3 4.6 c or d, 4.7
- ECC 5.0/ECC 6.0 (de, en, fr, sp, ja)
- SAP® JCo (page 128) on every client computer ARIS server and download client.
- Transfer the transport requests (synchronization (page 132) and customizing).



For Solution Manager synchronization, you also need SAP Java Connector **3.07**, or a higher **3.0x** version. It must be installed on your ARIS Design Server or local server.

To perform Solution Manager synchronization, you need SAP Solution Manager, version **4.0**, **7.0** or **7.1**, with the languages **German (de)**, **English (en)**, **French (fr)**, **Spanish (sp)**, and/or **Japanese (ja)**. Shortcuts are supported by SAP® synchronization. SAP® Solution Manager provides these only in version **4.0 SP 15** or higher.

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- Local SAP GUI for Windows installation, version 7.1 to 7.3
- SAP R/3 4.6 c or d, 4.7
- ECC 5.0/ECC 6.0 (de, en, fr, sp, ja)
or SAP® Solution Manager 4.0, 7.0 or 7.1

BI Modeler

The following adjustments are required:

- Transfer the current transport request.
- Ensure that the required software and SAP® systems are available.

System requirements

Please ensure that all computers meet the following requirements:

- Access to SAP BW 7.0 in **German (de)**, **English (en)**, or **French (fr)**
- The file **saplogon.ini** is available or SAP GUI for Windows is installed locally (version 7.1 to 7.3)
- The transport request was transferred.

Privileges

The **SAP_BW_RFC** object is required in the SAP® system. (page 128)

To download query files in PDF format and make them available in ARIS, please share a directory that ARIS Design Server can also access.

5.7.2 Requirements and privileges in the SAP® system

To guarantee that the data transfer between ARIS and your SAP® systems works properly, please consider the following points:

- Make sure that the users in the SAP® systems are created and have RFC privileges for the SAP® synchronization and BI Modeler.
- Make sure that the SAP® ports **sapgw00 3300/tcp** and **sapdp00 3200/tcp** are unlocked in the **Services** Windows file on the client computer (C:\Windows\system32\drivers\etc/). This enables RFC access. In general, these ports are entered automatically during SAP® GUI installation.



- If you access via server groups (SAP® router) you need to manually enter the SAP® ports in consecutive order. The syntax for a port number is **3300** plus the used **<SAP® system number>**. If, for example, the system number is **03** you need to enter **3303**. Entries that are not entered in consecutive order are ignored.

5.7.2.1 Privileges for SAP® synchronization

In order for this function to be available you need to assign users to certain roles in the SAP® system. The users then have the required authorizations. You need to assign the following roles.

- The predefined role **SAP_SOLAR01_ALL**
- The predefined role **SAP_SMSY_ALL**
- A role to be defined with RFC privileges

You can create the role to be defined using the **PFCG** transaction. Assign the authorization objects **S_RFC** and **S_RFACL** to the role.

Values for authorization object S_RFC

You can see all values to be defined in the following graphic.

Select the **Execute** activity in the **ACTVT** section.

The **RFC_NAME** section shows all names to be entered for the **S_RFC** authorization object of the RFC object to be protected. You need to complete the framed entries **SDIFRUNTIME**, **STFC**, and **ZIDS/ARIS_SOLAR_001**.

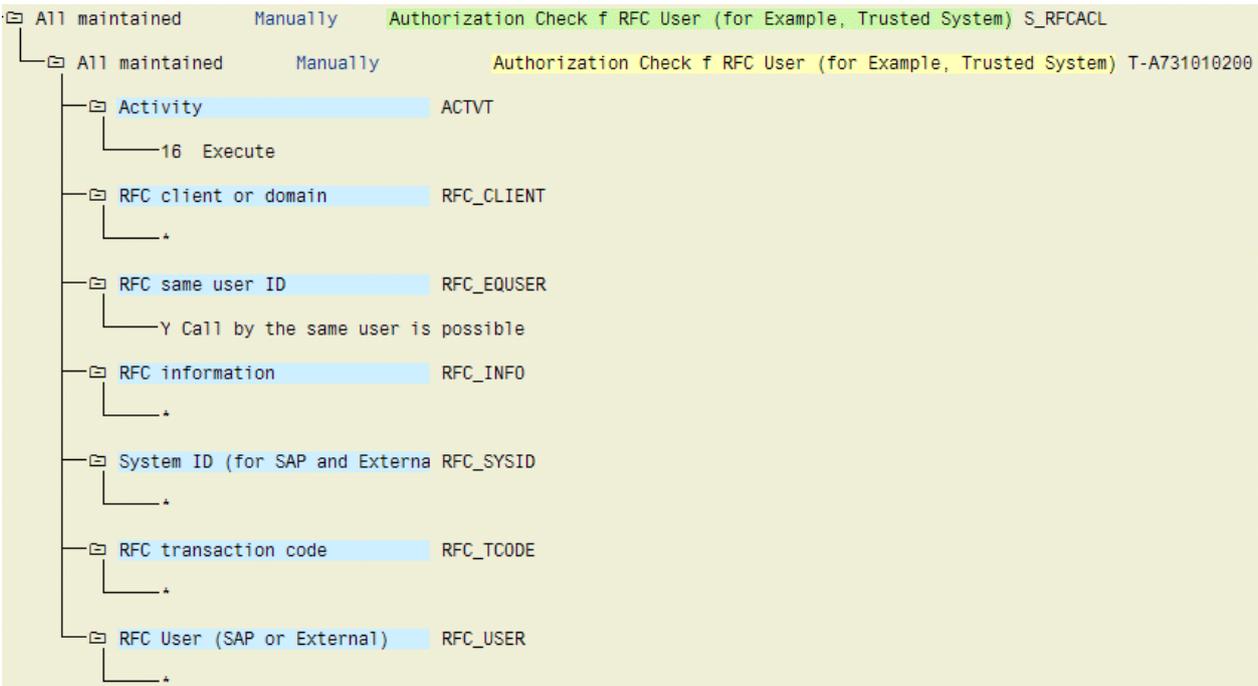


In the **RFC_TYPE** section you must select the **Function group** type.



Values for authorization object S_RFCACL

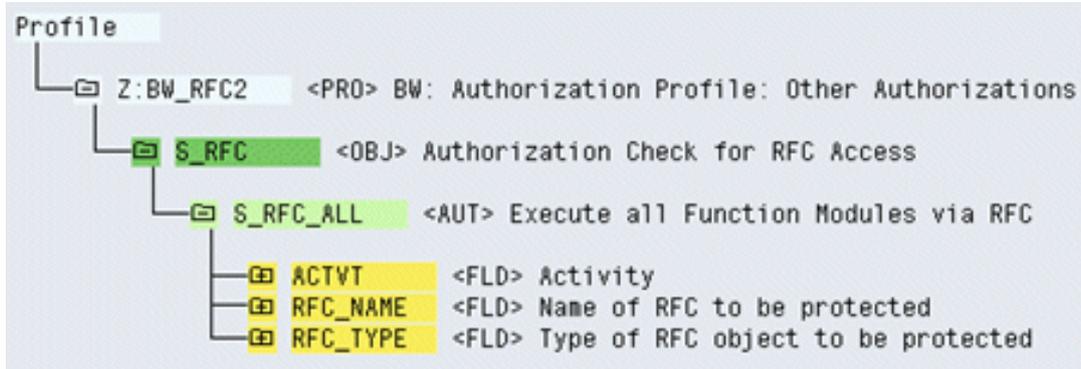
The **S_RFCACL** authorization object requires all privileges.





5.7.2.2 Privileges for BI Modeler

The following example of an SAP® profile serves as an authorization basis.



5.7.3 Provide SAP® JCo for Process-driven Management for SAP® Solutions

If you use the SAP® synchronization, BI Modeler or Test Designer you need to provide SAP® JCo 3.0.x containing **sapjco3.jar** and **sapjco3.dll** in order to allow the program to connect to the SAP® systems and provide all functions.

For licensing reasons, files of SAP® JCo may not be automatically installed during installation. This action will provide **sapjco3.jar** for download clients, ARIS Design Server and ARIS Connect Server automatically. Additionally all download client's users must copy the needed **sapjco3.dll** file (page 129) to their local machines. For installed clients (page 130) and the server **LOCAL** (page 131) the **sapjco3.jar** file and the **sapjco3.dll** file must be provided manually.

Procedure

1. Download **SAP JCo 3.0.x** 32 bit version appropriate for your operating system and for the runtime environment (JRE) used from the SAP Service Marketplace (<http://service.sap.com/connectors>). If you are using a different operating system please refer to the appropriate download package from SAP AG.
2. Save the zip file, e. g. **d:/sapjco30P_9-10005326.zip**.
3. Start ARIS Cloud Controller (ACC) (page 61).
4. Stop ARIS Design Server or ARIS Connect Server or enter stop **<Instanceld for the modeling component>** to stop the modeling component **abs_s**, **abs_m** or **abs_l**. **<Instanceld for the modeling component>** depends on the system settings of the installation. To find out the correct entry please enter **list** and look for one of the entries **abs_s**, **abs_m** or **abs_l**.
5. Provide **sapjco3.jar** for download clients and ARIS Design Server/ARIS Connect Server using this command:



```
enhance <InstanceId for the modeling component> with webappsClasspath local file  
<path to the saved zip file> ,
```

e. g.

```
enhance abs_s with webappsClasspath local file d:/sapjco30P_9-10005326.zip
```

6. Start <_abs_> or ARIS Connect Server or enter start <InstanceId for the modeling component> e. g. **abs_s**, **abs_m** or **abs_l**.

sapjco3.jar will be available for download clients, ARIS Design Server and ARIS Connect Server.

All users of download clients must to copy **SAP® JCo 3.dll (page 129)**. Please provide SAP® JCo for installed clients (page 130) or the server **LOCAL** (page 131) too.

If you have correctly provided SAP Java Connector **SAP JCo 3.0.x** but have installed older runtime libraries of Visual Studio 2005 C/C++, you may have to update (<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=766a6af7-ec73-40ff-b072-9112bab119c2>) the Microsoft Active Template Library (ATL). Please consider the SAP notes **1077727** and **1375494** on the SAP Service Marketplace (<http://service.sap.com/connectors>).

5.7.4 Provide SAP® JCo for Download Clients

If you use the SAP® synchronization, BI Modeler or Test Designer you need to provide SAP® JCo 3.0.x containing **sapjco3.jar** and **sapjco3.dll** in order to allow the program to connect to the SAP® systems and provide all functions.

For licensing reasons, files of SAP® JCo may not be automatically installed during installation.

After the **sapjco3.jar** file was made available for download clients, ARIS Design Server and ARIS Connect Server (page 128) all download client's users must copy the **sapjco3.dll** file (page 129) to their local machines.

Procedure

1. Make sure that a 32-bit JRE version is installed and in use.
2. Download **SAP JCo 3.0.x** 32 bit version appropriate for your operating system and for the runtime environment (JRE) used from the SAP Service Marketplace (<http://service.sap.com/connectors>). If you are using a different operating system please refer to the appropriate download package from SAP AG.
3. Copy the file **sapjco3.dll** next to the Windows operating system libraries.

For information on the Windows operating system, refer to the table below. If you are using a different operating system, such as Solaris, please refer to the appropriate download package from SAP AG.

4. Restart the ARIS client.

If you have correctly provided SAP Java Connector **SAP JCo 3.0.x** but have installed older runtime libraries of Visual Studio 2005 C/C++, you may have to update (<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=766a6af7-ec73-40ff-b072-9112bab119c2>) the Microsoft Active Template Library (ATL). Please consider the SAP



notes **1077727** and **1375494** on the SAP Service Marketplace (<http://service.sap.com/connectors>).

JCo and JRE	Windows	Processor	DLL	Windows installation directory
32-Bit	32-Bit	x86	sapjco3.dll	\system32
32-Bit	64-Bit	x86	sapjco3.dll	\SysWOW64

5.7.5 Provide SAP® JCo for Locally Installed Clients

If you use the SAP® synchronization, BI Modeler or Test Designer you need to provide SAP® JCo 3.0.x containing **sapjco3.jar** and **sapjco3.dll** in order to allow the program to connect to the SAP® systems and provide all functions.

For licensing reasons, files of SAP® JCo may not be automatically installed during installation.

Procedure

1. Download **SAP JCo 3.0.x** 32 bit version appropriate for your operating system and for the runtime environment (JRE) used from the SAP Service Marketplace (<http://service.sap.com/connectors>). If you are using a different operating system please refer to the appropriate download package from SAP AG.
2. Copy the file **sapjco3.dll** next to the Windows system libraries. The ARIS client automatically installs the 32-bit JRE version.

For information on JRE version and Windows system, refer to the table below. If you are using a different operating system, such as Solaris, please refer to the appropriate download package from SAP AG.

3. Copy the **sapjco3.jar** file to the **<ARIS installation directory>\client\lib** directory.
4. Restart the ARIS client.

sap Jco 3.0.x is available for this installed client. If you intend to use it together with the locally installed server **LOCAL** the latter must be provided with the 64-bit version of the SAP® **JCosapjco3** file (page 131) as well.

If you have correctly provided SAP Java Connector **SAP JCo 3.0.x** but have installed older runtime libraries of Visual Studio 2005 C/C++, you may have to update (<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=766a6af7-ec73-40ff-b072-9112bab119c2>) the Microsoft Active Template Library (ATL). Please consider the SAP notes **1077727** and **1375494** on the SAP Service Marketplace (<http://service.sap.com/connectors>).

JCo and JRE	Windows	Processor	DLL	Windows installation directory
32-Bit	32-Bit	x86	sapjco3.dll	\system32
32-Bit	64-Bit	x86	sapjco3.dll	\SysWOW64



5.7.6 Provide SAP® JCo for server LOCAL

If you use installed clients where the **sap Jco 3.0.x** 32-bit version is already available (page 130), and you intend to use them together with the locally installed server **LOCAL** the latter must be provided with the 64-bit version of the **sapjco3.jar** file as well.

For licensing reasons, files of SAP® JCo may not be automatically installed during installation.

Procedure

1. Stop the ARIS client.
2. Download **SAP JCo 3.0.x** 64 bit version appropriate for your operating system and for the runtime environment (JRE) used from the SAP Service Marketplace (<http://service.sap.com/connectors>). If you are using a different operating system please refer to the appropriate download package from SAP AG.
3. Save the zip file.
4. Extract the **sapjco3.jar** file to the **<ARIS client installation directory>\LOCALSERVER\bin\work\work_abs_local\base\webapps\abs\WEB-INF\lib** directory.
5. Copy the 64 bit version of the **sapjco3.dll** into the directory **<Windows installation directory>-Installationsverzeichnis>\system32**.
6. Start the ARIS client.

If you have correctly provided SAP Java Connector **SAP JCo 3.0.x** but have installed older runtime libraries of Visual Studio 2005 C/C++, you may have to update (<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=766a6af7-ec73-40ff-b072-9112bab119c2>) the Microsoft Active Template Library (ATL). Please consider the SAP notes **1077727** and **1375494** on the SAP Service Marketplace (<http://service.sap.com/connectors>).

5.7.7 Customizing Features

Depending on the features you provide, you must customize the system.

5.7.7.1 SAP® synchronization

SAP® synchronization is available to you for data synchronization between **ARIS** and **SAP® Solution Manager** in both directions.

- If you want to run the SAP® synchronization you need SAP® Solution Manager and access to the file **saplogon.ini**.



- Ensure that the current transport request (page 132) has been imported in the SAP® Solution Manager system that you want to use for synchronization.
- Ensure that the Web services (page 133) for the repository/scenario transfer are enabled in your SAP® system and properly configured.

5.7.7.1.1 Import transport request (synchronization)

To ensure that SAP® synchronization between **ARIS** and **SAP® Solution Manager** is available, you must import (page 132) the current transport request in the SAP® Solution Manager system. You find the transport request on the installation media. The function modules are created in the **/IDS/ARIS_SOLAR** package.

Procedure

1. Copy the file **K<number>.<SAP® system SID>** from the installation media to the directory **\sapmnt\trans\cofiles**.
2. Copy the file **R<number>.<SAP® system SID>** from the installation media to the directory **\sapmnt\trans\data**. The **sapmnt** directory usually corresponds to the directory **\usr\sap**. If you cannot find the **cofiles** and **data** directories under the specified paths, you can determine the correct path using the **DIR_TRANS** variable. To do this, log on to the relevant SAP® Solution Manager system and execute transaction **AL11**.

To transfer the transport request to the SAP® system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

- a. **TP addtobuffer <SAP® system SID>K<number> [target system SID]**
- b. **TP import <SAP® system SID>K<number> [client on target system]**

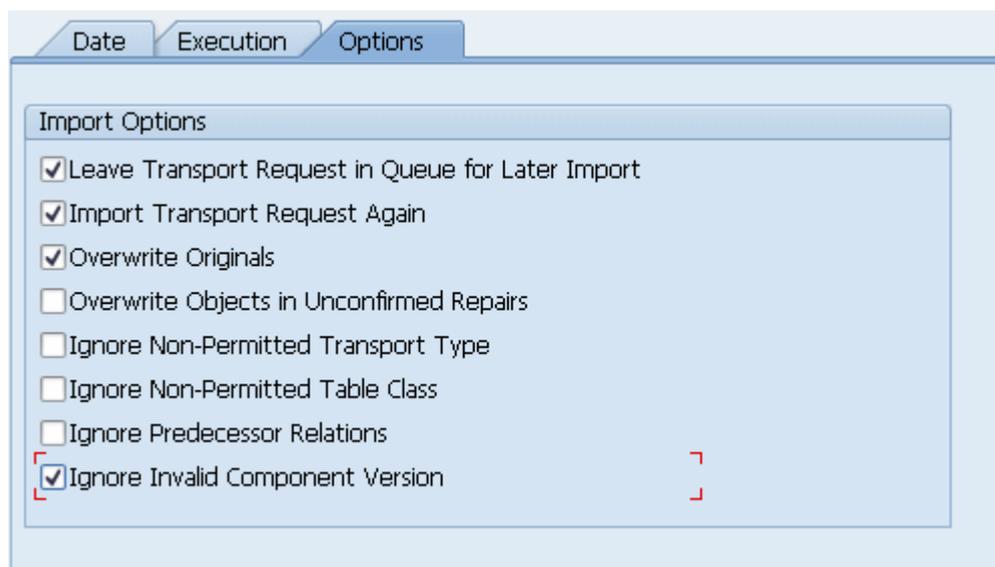
You can also execute the transport request using the transaction **STMS**.

Procedure

1. Log on to the relevant SAP® Solution Manager system as system administrator.
2. Execute transaction **STMS**. This takes you to the Transport Management System.
3. Click **Import overview (F5)**.
4. Double-click the relevant SAP® Solution Manager system. This takes you to the import queue.
5. In the menu, select **Extras > Other requests > Add**. The **Add transport request to import queue** dialog opens.
6. Enter **<SAP® system SID>K<number>** and confirm. You return to the import overview.
7. Select the transport request.
8. In the menu, select **Request > Import**. The **Import request** dialog opens.



9. Activate the **Options** tab and check **Ignore invalid component version**.



10. Enter the relevant target client and confirm via **F8** or **Start import**.

5.7.7.1.2 Activate Web services

To properly transfer repositories and scenarios from the SAP® system to ARIS databases, you must enable Web services.

Web services are services that provide functions usually via the Internet protocol **http**. Web services are called via URL. A URL consists of a host, a port, and a path (URI) such as `http://solutionmanager:8000/sap/bc/solman/bpr?sap-client=100`

Syntax

```
<protocol type>://<host name>:<port number>/<URI>?sap-client=<CLIENT>
```

The host name could be **solutionmanager**, for example. The port number is **8000** and the path (URI) is **/sap/bc/solman/bpr**. The client is the SAP® system client.

For SAP® Solution Manager 3.2, you need Support Package **06**. Additional information is available in the SAP® Service Marketplace.

Procedure

1. Start **SAP® Solution Manager** and call transaction **SICF**.
2. Right-click **default_host > sap > bc > solman**, for example, and select **Enable service**. When the service is enabled, additional subgroups are visible.

Enabling reveals the URI of the Web service. In this case, it is **/sap/bc/solman/bpr**. The protocol type is **http**. If you right-click **bpr** and select **Display service**, the URI is displayed in the **ICF path** box and the protocol type on the **Service data/Security requirements** tab.

The **Default** option corresponds to the protocol type **http**, while the **SSL** option corresponds to the protocol type **https**. To use SSL, you need a valid certificate.



You can also adjust the URL with the 'External aliases' function

Procedure

1. Start SAP® Solution Manager, and call the **SICF** transaction.
2. Click the **External aliases** button.
3. Select a host and create a new external alias (**F5**). You can adjust the path in the **External alias** box.
4. Activate the **Service data** tab. You can adjust the protocol type in the **Security requirements** box.

The **Default** option corresponds to the protocol type **http**, while the **SSL** option corresponds to the protocol type **https**. To use **SSL**, you need a valid certificate.

5. Activate the **Target item** tab. Select the **bpr** node for the Business Process Repository. The previous steps revealed the protocol type and the path of the Web service URL.
6. Call the **SMICM** transaction to determine the port and host name. To list the available ports, click **Go to > Services** in the main menu.

All ports for the different protocol types are displayed. If a protocol is missing or inactive (**Active** column), inform your system administrator.

Use this information to form the URL.

5.7.7.2 Start customizing transactions/views

To be able to start customizing transactions and call customizing views from ARIS, you must import the current transport request into the SAP system. You find the transport request on the installation media. The function module **Z_VIEW_MAINTENANCE_CALL** is created in the function group **ZARIS**. This function group is assigned to the development class **/IDS/ARIS_ONLINE_GUIDE**.

Procedure

1. Copy the file **K<number>.<SAP system SID>** from the installation media to the directory **\sapmnt\trans\cofiles**.
2. Copy the file **R<number>.<SAP system SID>** from the installation media to the directory **\sapmnt\trans\data**.

The directory **sapmnt** normally corresponds to the directory **\usr\sap**. If you cannot find the **cofiles** and **data** directories under the specified paths, you can determine the correct path using the **DIR_TRANS** variable. To do this, log on to the relevant SAP system, and run transaction **AL11**.

To transfer the transport request to the SAP system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

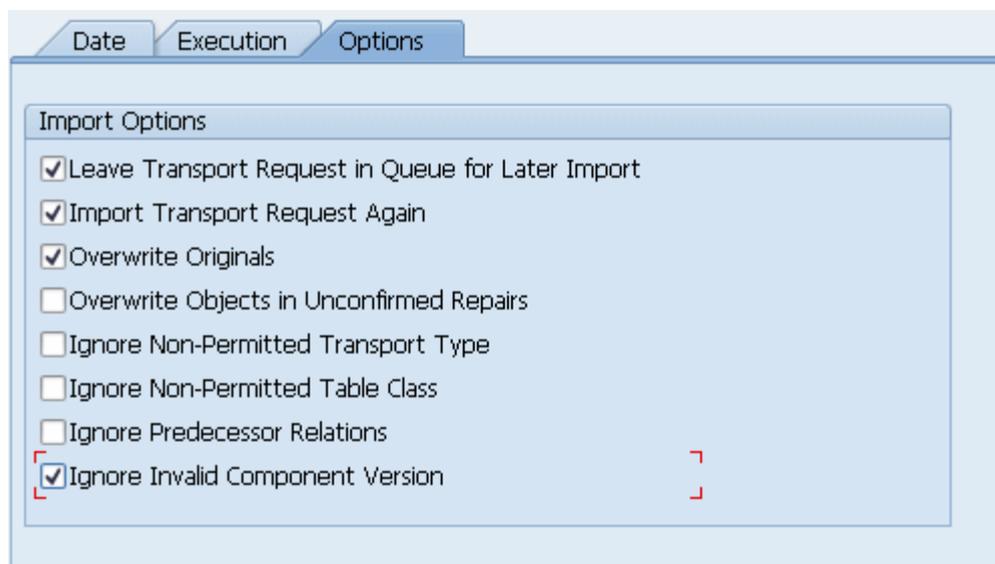
- a. **TP addtobuffer <SAP system SID>K<number> [target system SID]**
- b. **TP import <SAP system SID>K<number> [client on target system]**



You can also execute the transport request using the transaction **STMS**:

Procedure

1. Log on to the relevant SAP system as a system administrator.
2. Execute transaction **STMS**. This takes you to the Transport Management System.
3. Click **Import overview**.
4. Double-click the relevant SAP system. This takes you to the import queue.
5. In the menu, select **Add-ons > Other requests > Append**. The **Append transport request to import queue** dialog opens.
6. Enter **<SAP system SID>K<number>** and confirm. You return to the import overview.
7. Select the transport request.
8. In the menu, select **Request > Import**. The **Import request** dialog opens.
9. Activate the **Options** tab and check **Ignore invalid component version**.



10. Enter the relevant target client and confirm via **F8** or **Start import**.



5.7.7.3 ARIS Online Guide

SAP® system administrators can use ARIS Online Guide to make help on company-specific transactions available for users of SAP® systems alongside the standard F1 help. For example, ARIS Online Guide gives you access to documents that were created during customizing or later to explain complex processes.

- If you plan to use ARIS Online Guide, you must publish your database using **ARIS Publisher**.
- ARIS Publisher Server must be configured (page 146).
- An executable version of the SAP® GUI and an approved Web browser must be installed.

Once you have executed the client setup and made the created HTML documents available in the SAP® system, your SAP® system administrator must implement the transactions **/IDS/AOG_ADMIN**, **/IDS/AOG_USER**, and **ZEXTHLP** in the SAP® system and adapt the Web server.

To do so, please adjust the following:

1. Import required function modules (page 136).
2. Modify program **LSHL2U01** (page 138).
3. Specify settings (page 139).

5.7.7.3.1 Transfer function modules

A transport request is executed to import the required function modules. The current transport request is located on the installation medium in the directory specified.

Procedure

1. Copy the file **K<number>.<SAP® system SID>** from the installation media to the directory **\sapmnt\trans\cofiles**.
2. Copy the file **R<number>.<SAP® system SID>** from the installation media to the directory **\sapmnt\trans\data**. The directory **sapmnt** normally corresponds to the directory **\usr\sap**. If you cannot find the **cofiles** and **data** directories under the specified paths, you can determine the correct path using the **DIR_TRANS** variable. To do this, log on to the relevant SAP® system, and run transaction **AL11**.

To transfer the transport request to the SAP® system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

- a. **TP addtobuffer <SAP® system SID>K<number> [target system SID]**
- b. **TP import <SAP® system SID>K<number> [client on target system]**

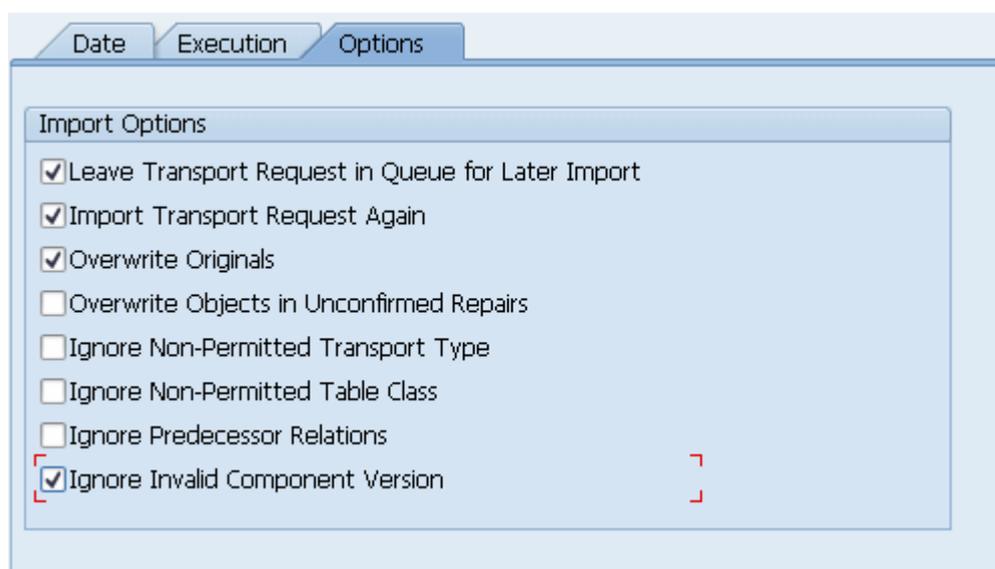
You can also execute the transport request using the transaction **STMS**.

Procedure

1. Log on to the relevant SAP® system as a system administrator.
2. Execute transaction **STMS**. This takes you to the Transport Management System.



3. Click **Import overview**.
4. Double-click the relevant SAP® system. This takes you to the import queue.
5. In the menu, select **Add-ons > Other requests > Append**. The **Append transport request to import queue** dialog opens.
6. Enter **<SAP® system SID>K<number>** and confirm. You return to the import overview.
7. Select the transport request.
8. In the menu, select **Request > Import**. The **Import request** dialog opens.
9. Activate the **Options** tab and check **Ignore invalid component version**.



10. Enter the relevant target client and confirm via **F8** or **Start import**.
Then assign each of the transactions **/IDS/AOG_ADMIN**, **/IDS/AOG_USER**, and **ZEXTHLP** a new or existing authorization object.
If you create any new authorization objects, you must include them in suitable authorization profiles.



5.7.7.3.2 Modify program LSHL2U01

After you have imported the required function modules, you must modify the SAP® standard function **HELP_START** in program **LSHL2U01**.

This will provide the F1 help call of ARIS Online Guide. To do this, you need a developer key and possibly an object key. You can obtain these keys via **OSS**.

Procedure

1. If required, log on to the relevant SAP® system.
2. Execute transaction **SE37**.

```

DATA: l_error_msg LIKE iwerrormsg. " DHB
DATA: l_action LIKE sy-xcode. " *17i
DATA: exit_flg.
DATA: save_help_info_call LIKE help_infos-call.
DATA: ihelpinfo TYPE help_info.
DATA: lv_help_mode TYPE char1.
DATA: lv_window_name TYPE sydatar.
DATA: a_msgv1 LIKE help_infos-msgv1,
      a_msgv2 LIKE help_infos-msgv2,
      a_msgv3 LIKE help_infos-msgv3,
      a_msgv4 LIKE help_infos-msgv4.
* help center
DATA: l_flag_hc_called TYPE as4flag. "note 1135202

*----- CALL MODIFICATION ARIS Online Guide
DATA: loaded TYPE c,
      bothhelp TYPE c.

IF help_infos-call CN 'TMV' AND help_infos-call CO 'D' AND help_infos-object
IS NOT INITIAL.
  CALL FUNCTION '/IDS/START_ARIS_ONLINE_GUIDE'
    EXPORTING
      i_program = help_infos-program
    IMPORTING
      e_help_loaded = loaded
      e_both_help = bothhelp.
  IF bothhelp NE 'X' AND loaded = 'X'.
    EXIT.
  ENDIF.
ENDIF.
***** end of insertion*****
*} INSERT
---Additional code. ---

```

The F1 help call of ARIS Online Guide is available.

After you have imported support packages into the SAP® system, this modification may be missing in some cases. The F1 help call of ARIS Online Guide is no longer available then. In this case, modify LSHL2U01 again.



5.7.7.3.3 Specify settings

Once you have imported the required function modules and modified the SAP® standard function **HELP_START**, you can use the transactions **/IDS/AOG_ADMIN** and **/IDS/AOG_USER** to specify various settings for the ARIS Online Guide in the SAP® system.

What is the **/IDS/AOG_ADMIN** transaction used for?

SAP system administrators use the **/IDS/AOG_ADMIN** transaction to specify default settings that all users of the client can adopt. Users can specify their own settings with the **/IDS/AOG_USER** transaction.

- If you plan to make only the help from ARIS Online Guide available to the above user, enable the **Use ARIS Online Guide** check box in the **ARIS Online Guide - Administration settings** dialog.
- To provide user access to the ARIS Online Guide help in addition to the F1 help that is available in the SAP system by default, enable the **Show additionally default help** check box.
- Enable the **Publisher URL overwritable** check box to authorize users to change the URL to the Publisher export.
- Enter required information to access the Publisher export providing ARIS Online Guide.

- **Publisher URL**

URL to access the published database:

`http://<servername>:<port number>/businesspublisher/link.do`

e.g. `http://aris1:19990/businesspublisher/link.do`

- **User name**

User that is used for login to the Publisher export.

- **Password**

Password of the login user.

- **Language-Key**

Value of the **LocaleID** (page 141) key representing the interface language used in the Publisher export.

e.g. **1031** = German, **1033** = English

- **Profile-Hash**

Value of **ph** key representing the profile used in the Publisher export, e.g. **Omhsu6i**.

To determine the values of **Profile-Hash** and **Language-Key** open a model in the Publisher export, right click and select **Copy link**.

`http://publisherserver1:19990/businesspublisher/link.do?login=rkl&password=&localeid=1031&ph=Omhsu6i&modelguid=55165b80-30c6-11de-3712-00167669f3de`



What is the /IDS/AOG_USER transaction used for?

Each of the client's users can use the **/IDS/AOG_USER** transaction to customize the settings specified by the SAP system administrator with the **/IDS/AOG_ADMIN** transaction.

- If you only use the help from ARIS Online Guide, enable the **Use ARIS Online Guide** check box.
- To provide the ARIS Online Guide help in addition to the F1 help that is available in the SAP system by default, enable the **Show additionally default help** check box.
- Enter required information to access the Publisher export providing ARIS Online Guide in the **ARIS Online Guide - User-specific settings** dialog:

- **Publisher URL**

URL to access the published database:

`http://<servername>:<port number>/businesspublisher/link.do`

e.g. **`http://aris1:19990/businesspublisher/link.do`**

Users can change the URL only if the administrator has enabled the **Publisher URL overwritable** check box in the **ARIS Online Guide - Administration settings** dialog.

- **User name**

User that is used for login to the Publisher export.

- **Password**

Password of the login user.

- **Language-Key**

Value of the **LocaleID** key representing the interface language used in the Publisher export.

e.g. **1031** = German, **1033** = English

- **Profile-Hash**

Value of **ph** key representing the profile used in the Publisher export, e.g. **Omhsu6i**.

To determine the values of **Profile-Hash** and **Language-Key** open a model in the Publisher export, right click and select **Copy link**.

`http://publisherserver1:19990/businesspublisher/link.do?login=rkl&password=&localeid=1031&ph=Omhsu6i&modelguid=55165b80-30c6-11de-3712-00167669f3de`

If you have changed the default settings that the system administrator specified and want to reactivate them, click on **Restore default**.



What is the ZEXTHLP transaction used for?

Each of the client's users can use the **ZEXTHLP** transaction to activate the ARIS Online Guide the next time F1 help is called.

If a user has executed this transaction and presses the **F1** key, the ARIS Online Guide help is displayed with the settings specified via the **/IDS/AOG_ADMIN** and **/IDS/AOG_USER** transactions. If the user presses the **F1** key again, the standard F1 help of the SAP system is displayed again.

5.7.7.3.4 System language and locale IDs

The locale ID (LCID (<http://msdn.microsoft.com/en-us/goglobal/bb964662.aspx>)) designates a language within a language group.

Language groups and code page are also represented by a number, e.g., code page=1252. The language group is preceded by a minus sign (-), e.g., -1252.

The table shows a few examples. You can find more information at:

[http://msdn.microsoft.com/en-us/library/0h88fahh\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/0h88fahh(VS.85).aspx)

([http://msdn.microsoft.com/en-us/library/0h88fahh\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/0h88fahh(VS.85).aspx)).

System language	LCID
Afrikaans - South Africa	1078
Albanian - Albania	1052
Arabic - Algeria	5121
Arabic - Bahrain	15361
Arabic - Egypt	3073
Arabic - Iraq	2049
Arabic - Jordan	11265
Arabic - Kuwait	13313
Arabic - Lebanon	12289
Arabic - Libya	4097
Arabic - Morocco	6145
Arabic - Oman	8193
Arabic - Qatar	16385
Arabic - Saudi Arabia	1025
Arabic - Syria	10241
Arabic - Tunisia	7169
Arabic - U.A.E.	14337
Arabic - Yemen	9217
Basque - Spain	1069



System language	LCID
Belarusian - Belarus	1059
Bulgarian - Bulgaria	1026
Catalan - Spain	1027
Chinese - Hong Kong	3076
Chinese - PRC	2052
Chinese - Singapore	4100
Chinese - Taiwan	1028
Croatian - Croatia	1050
Czech - Czech Republic	1029
Danish - Denmark	1030
Dutch - Belgium	2067
Dutch - Netherlands	1043
English - Australia	3081
English - Belize	10249
English - Canada	4105
English - Caribbean	9225
English - Ireland	6153
English - Jamaica	8201
English - New Zealand	5129
English - South Africa	7177
English - Trinidad	11273
English - United Kingdom	2057
English - United States	1033
Estonian - Estonia	1061
Faeroese - Faeroe Islands	1080
Farsi - Iran	1065
Finnish - Finland	1035
French - Belgium	2060
French - Canada	3084
French - France	1036
French - Luxembourg	5132
French - Switzerland	4108
German - Austria	3079
German - Germany	1031
German - Liechtenstein	5127



System language	LCID
German - Luxembourg	4103
German - Switzerland	2055
Greek - Greece	1032
Hebrew - Israel	1037
Hungarian - Hungary	1038
Icelandic - Iceland	1039
Indonesian - Indonesia	1057
Italian - Italy	1040
Italian - Switzerland	2064
Japanese - Japan	1041
Korean - Korea	1042
Latvian - Latvia	1062
Lithuanian - Lithuania	1063
Norwegian - Norway (Bokmal)	1044
Norwegian - Norway (Nynorsk)	2068
Polish - Poland	1045
Portuguese - Brazil	1046
Portuguese - Portugal	2070
Romanian - Romania	1048
Russian - Russia	1049
Serbian - Serbia (Cyrillic)	3098
Serbian - Serbia (Latin)	2074
Slovak - Slovakia	1051
Slovene - Slovenia	1060
Spanish - Argentina	11274
Spanish - Bolivia	16394
Spanish - Chile	13322
Spanish - Colombia	9226
Spanish - Costa Rica	5130
Spanish - Dominican Republic	7178
Spanish - Ecuador	12298
Spanish - El Salvador	17418
Spanish - Guatemala	4106
Spanish - Honduras	18442
Spanish - Mexico	2058



System language	LCID
Spanish - Nicaragua	19466
Spanish - Panama	6154
Spanish - Paraguay	15370
Spanish - Peru	10250
Spanish - Puerto Rico	20490
Spanish - Spain (Modern Sort)	3082
Spanish - Spain (Traditional Sort)	1034
Spanish - Uruguay	14346
Spanish - Venezuela	8202
Swedish - Finland	2077
Swedish - Sweden	1053
Thai - Thailand	1054
Turkish - Turkey	1055
Ukrainian - Ukraine	1058
Vietnamese - Vietnam	1066



5.7.7.4 BI Modeler

To enable data exchange between **ARIS** and SAP NetWeaver® Business Warehouse, you must import the current transport requests into the SAP system.

The files of the workbench transport request and the files of the customizing transport request are located on the installation media.

If you re-import the transport request in order to update it, you should first delete the contents of the following tables:

- YARIS_OBJ_ZUO
- YARIS_OBJCHILDBZ
- YARIS_OBJOBJ_NM
- YARIS_OBJ_ATTR

Procedure

1. Import the workbench transport requests in the SAP system before importing the customizing transport requests. To do this, perform the following steps:
2. Copy the file **K<number>.<SAP system SID>** to the directory `\sapmnt\trans\cofiles`.
3. Copy the file **R<number>.<SAP system SID>** to the directory `\sapmnt\trans\data`. The directory `sapmnt` normally corresponds to the directory `\usr\sap`. If you cannot find the **cofiles** and **data** directories under the specified paths, you can determine the correct path using the **DIR_TRANS** variable. To do this, log on to the relevant SAP system, and run transaction **AL11**.

To transfer the transport request to the SAP system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

- a. **TP addtobuffer <SAP system SID>K<number> [target system SID]**
- b. **TP import <SAP system SID>K<number> [client on target system]**

The transport request has been transferred.

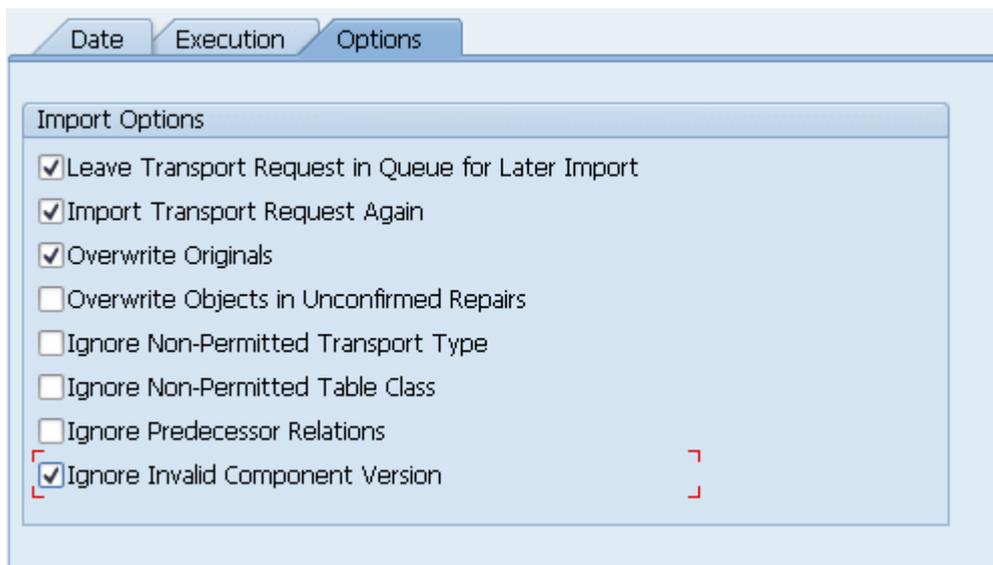
Using STMS transaction

You can also execute the transport request using the transaction **STMS**.

1. Log on to the relevant SAP system as a system administrator.
2. Execute transaction **STMS**. This takes you to the Transport Management System.
3. Click **Import overview**.
4. Double-click the relevant SAP system. This takes you to the import queue.
5. In the menu, select **Add-ons > Other requests > Append**. The **Append transport request to import queue** dialog opens.
6. Enter **<SAP system SID>K<number>** and confirm. You return to the import overview.
7. Select the transport request.
8. In the menu, select **Request > Import**. The **Import request** dialog opens.



9. Activate the **Options** tab and check **Ignore invalid component version**.



10. Enter the relevant target client and confirm via **F8** or **Start import**.

The transport request has been transferred.

5.7.7.5 ARIS Publisher Server

If you use ARIS Publisher please make sure to configure the SAP connection (page 111).

Users accessing Publisher exports require a local SAP GUI for Windows installation (version **7.1** to **7.3**) for the functionality **Run transaction**. Ensure that the file **SAPLOGON.INI** is available for all users. Using the Web service URL, you can open the SAP documentation without SAP GUI installation.



6 Data migration from ARIS version 9.x to ARIS version 9.6

The Process Governance schema migration functionality is available starting from ARIS version 9.6. This data migration keeps the data stored in the database untouched. Only the database schema is updated according to the data model changes in the new ARIS version 9.6.

You have to backup your system, then install (page 2) the new ARIS version and finally restore you data again.

Procedure

1. Create a migration directory on the local hard drive of your server with the ARIS installation, e.g. **migration_data**. Backup and restore actions should be executed directly on the server.
2. Replace **tools** directory in the directory **<ARIS installationdirectory>\server\bin\work\work_apg<number>**, e.g. **C:\Program Files\Aris9.5\server\bin\work\work_apg1** by **tools** directory from your installation medium.
3. Backup your data for all tenants. Type **<ARIS installationdirectory>\server\bin\work\work_apg<number>\tools\bin\y-backup-all.bat** or **<ARIS installationdirectory>\server\bin\work\work_apg<number>\tools\bin\y-backup-all.sh** depending on your operating system, e.g. **C:\Program Files\Aris9.5\server\bin\work\work_apg1\tools\bin\y-backup-all.bat**.
After a backup is finished, the you will find a separate ZIP archive for each tenant in the migration directory. Each ZIP archive contains the data for a specific tenant.
4. Deinstall your old ARIS version and delete all remaining files of your old ARIS installation.
5. Install (page 2) the new ARIS version.
6. Restore the data for all available tenants. In your migration directory, type **<ARIS installationdirectory>\server\bin\work\work_apg<number>\tools\bin\y-restore-all.bat** or **<ARIS installationdirectory>\server\bin\work\work_apg<number>\tools\bin\y-restore-all.sh** depending on your operating system, e.g. **C:\Program Files\Aris9.5\server\bin\work\work_apg1\tools\bin\y-restore-all.bat**.
7. Open the **backup.log** file in the **logs** subdirectory of your migration directory to check whether the restore and migration of the data was successful. This file contains information about each migration command and about the restore process.

All data of all tenants are migrated to the new ARIS version.



7 Data Migration from ARIS version 7.2 to ARIS version 9.x

All data of earlier ARIS version have to be migrated to the new version of ARIS 9.6. There are different migration scenarios:

- ARIS was used with a local user administration (page 148) in ARIS 7.2 and no Process Governance was used.
- ARIS was used with LDAP integration (page 149).
- Process Governance was used without the central user management (page 149).
- Process Governance was used with the central user management (page 150).

Procedure

1. Open a command line.
2. Type the following:

```
register global enhancement <a name for enhancement> <enhancement point> path  
"com/dbmsvndor/jdbc/jdbc-driver/<the folder, where the driver is  
located>/<jdbc-driver with version>.jar"
```

Your ARIS installation of version 9.x is now ready for the data migration.

Example

In case the location of the JDBC driver you are currently using with a Postgres database in ARIS version 7.2, type the following:

```
register global enhancement MSSQLEnhancement commonsClasspath path "C:\Program  
Files\ARIS7.2\server\lib\postgresql-jdbc3.jar"
```

7.1 Migration of ARIS with a Local User Administration

The user administration is now web based and users are no longer created directory in ARIS. You have to migrate your local users to the Administration.

Procedure

1. Back up the database in ARIS version 7.2.
2. Restore the database in ARIS version 9.x up to 9.5.

The users are added to the Administration and you can administrate them now there. All passwords are deleted.

All user groups and permissions are transferred as far as the permissions and functional rights are the same as in version 7.2. The user group names are composed of the database name and the user group name.

You have to manually check whether the assignment of user groups and permissions are migrated correctly and correct them manually if not.

In case you have a mixture of users who are administrated in the central user management of ARIS version 7.2 and local users, please first refer to Migration of ARIS with Process Governance with central user management (page 150).



7.2 Migration of ARIS with LDAP Integration

In this case it does not matter whether Process Governance was used or not for the user migration.

You can install the two ARIS versions in parallel and you have to migrate the users to the new version. In ARIS version 9.x, only deploy and start newly created Governance processes.

Precondition

- In case of having used Process Governance, make sure that there are no governance processes running when migrating the databases.
- There will be only one tenant per LDAP server.

Procedure

1. Back up the databases you want to migrate to make sure that you can import the process data later on.
2. Configure your new system with LDAP. Activate the automatic import of users and user groups.
3. Restore the databases.

Check whether the user credentials and assignment to user groups are correct.

You can start working with your new system.

7.3 Migration of ARIS with Process Governance without Central User Management

It is important, that there are no Governance processes running when migrating the databases.

You can install the two ARIS versions in parallel and you have to migrate the users to the new version. In ARIS version 9.x, only deploy and start newly created Governance processes.

Procedure

1. Make sure, that there are no running Governance processes in the affected database.
2. Back up the database in ARIS version 7.2.
3. Restore the database in ARIS version 9.x up to 9.5.

All user groups and permissions are transferred as far as the permissions and functional rights are the same as in version 7.2. The user group names are composed of the database name and the user group name.

You have to manually check whether the assignment of user groups and permissions are migrated correctly and correct them manually if not.



7.4 Migration of ARIS with Process Governance with Central User Management

You can install the two ARIS versions in parallel and you have to migrate the users to the new version. In ARIS version 9.x, only deploy and start newly created Governance processes.

Precondition

- You need to have access to the data of version 7.2 and version 9.x for the data migration. Therefore you have to have installed both ARIS version 7.2 and version 9.x in parallel.
- You have enhanced (page 148) you ARIS version 9.x system with the relevant JDBC driver.

Procedure

1. Back up the database in ARIS version 7.2.
2. Copy the JDBC driver in the ARIS 9.x installation folder under **ARIS9.5/server/bin/work/work_umcadmin/base/webapps/umc/WEB-INF/lib**. You find this file in the ARIS 7.2 installation folder under **ARISGE1.0\tomcat\lib**.
3. Migrate the users from the central user management to the Administration using the batch file **y-datadump.bat**.
4. Migrate the users from the central user management to the Administration using the batch file **y-datadump.bat** (page 59).
5. Restore the database in ARIS version 9.x up to 9.5.

All user groups and permissions are transferred as far as the permissions and functional rights are the same as in version 7.2. The user group names are composed of the database name and the user group name.

You have to manually check whether the assignment of user groups and permissions are migrated correctly and correct them manually if not.

7.5 Migration of ARIS document storage Data

You can migrate the ARIS document storage contents of version 7.2 to version 9.x.

Precondition

- You need to have access to the data of version 7.2 and version 9.x for the data migration. Therefore you have to have installed both ARIS version 7.2 and version 9.x in parallel.
- You have enhanced (page 148) you ARIS version 9.x system with the relevant JDBC driver.

Procedure

1. Install (page 2) the ARIS version 9.x in parallel to your version 7.2.
2. Open a command prompt (**Start > Run > cmd**).
3. Navigate to the **\\<ARIS installation folder>\server\bin\work\work_<application instance name>\tools\bin** folder, e.g **D:\ARIS9.x\server\bin\work\work_ads_m\tools\bin**.



4. Type **y-migration.bat** <source folder> <target folder>.

The first parameter is the folder where the data of version 7.2 are located, the second parameter is the folder for the version 9.x data.

Example

```
y-migration.bat C:\program files\ARISGE10\data D:\program files\ARIS9.x\server\bin\work\work_ads_m\tools\bin.
```

The ARIS document storage data are migrated.

7.6 Migration of Databases, Configuration Elements and Scripts

With ARIS 9.x, you can easily migrate all your data from ARIS 7.2. It's possible to import filters, templates, reports, macros and databases with all users. User defined method extensions or changes can be migrated via **Export filter** in 7.2 and **Import filter** in ARIS 9.x.

In ARIS 7.2 all users are managed inside a database. In ARIS 9.x all users, high level permissions and licenses are managed centrally in the administration. With migration of a 7.2 database, all users will be added into this administration. If there are users with the same name in different databases, these conflicts must be solved in the administration after the migration. User groups represent authorization within a database, therefore they are not consolidated via names like users. User groups are identified via Database name and user groups name.

Procedure

1. Back up the database in ARIS version 7.2.
In ARIS, using the **backup** functionality in the pop-up menu of a database. If the size of the backup file (ADB) exceeds 2 GB, errors may occur during restoration.
2. Restore the database in ARIS version 9.x up to 9.5.
3. Export filters, templates and script files in ARIS version 7.2.
In ARIS, using the **Export** functionality in the pop-up menu for a filter (individual back up).
4. Import all files to ARIS version 9.x.

All data will be converted while restoring and importing.



8 Notes on Data Security Observance

We do all we can to protect your data. Please ensure that ARIS is integrated correctly in your IT environment.

In order for communication between ARIS servers and ARIS clients to proceed safely and reliably, protect your system from unauthorized access with a firewall.

Certain topics pertain to server administrators. You need the relevant privileges for the installation directory, in order to install and adjust the server configuration.

Other adjustments are carried out by system users or administrators in the Administration.

8.1 Server Administrator

Please consider all of the topics in the check list and make sure, that they are considered after the installation.

- Block the access to the ARIS installation with a firewall.
- Allow users to only access via HTTP/HTTPS (default ports 80 and 443).
- Use a secure remote access mechanism (SSH, RDP) to work locally with ACC.
- Use the appropriate hardware and adhere to the system requirements.
- Start ARIS Agent 9.x under your own user account/user.
- Under Windows
 - Create a new user account in the operating system and start the ARIS Agent 9.x service. This user account has only limited privileges to operating system services, e.g., the file system (see table) and user management.
 - Remove this user from all user groups.
 - Allow the login as a service.
 - Enter your user name and password to login as a service.
 - Assign access privileges as specified in the table.
- Under Unix/Linux please consider the same topics as mentioned for Windows. Start ARIS Agent via shell. You might redirect ports (page 66).



Make sure that the used OS user account can access only the specified directories.

The path data corresponds with Windows conventions. Slashes (/) are used as separators in UNIX.

Directory/File	Privilege
%TEMP%	Read (r), execute (x), write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\	Read (r) (pass on to files and folders recursively)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\logs	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\temp	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\work	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\webapps\abs\log	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\fonts	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\temp	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\postgres_[s,m,l]\pgworkdata	Write (w) (pass on to files and folders)
<ARIS installation directory>\server\bin\work\work_cloudsearch_[s,m,l]\defaultLog	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_cloudsearch_[s,m,l]\rsindex	Write (w) (pass on to files and folders)
<ARIS installation directory>\server\bin\work\work_cop_[s,m,l]\base\logs	Write (w) (pass on to files)



Directory/File	Privilege
<ARIS installation directory>\server\bin\work\work_octopus_[s,m,l]\base\temp	Write (w) (pass on to files and folders) Create (c) (pass on to folders) Read (r) (pass on to files) Delete (d) (pass on to folders and files)
<ARIS installation directory>\server\bin\work\work_octopus_[s,m,l]\base\logs <ARIS installation directory>\server\bin\work\work_octopus_[s,m,l]\base\webapps\octopus\log	Create (c) (pass on to folders) Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_simulation_[s,m,l]\base	Write (w) (pass on to files and folders) Create (c) (pass on to folders) Read (r) (pass on to files) Delete (d) (pass on to folders and files)
<ARIS installation directory>\server\bin\work\work_simulation_[s,m,l]\base\logs	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_mashzone_[s,m,l]	Write (w) (pass on to files)

- **Enable SSL encryption** (page 65)
 Encrypt data transmission between ARIS Design Server and the ARIS clients.
- **Use an LDAP system for user management**
 This ensures that your internal company password security guidelines are complied with.
- **Pass on passwords in encrypted form only.**
 To encrypt passwords use the ARIS Server Administrator (page 101) command **encrypt**.



8.2 ARIS Administrator

Please consider all of the topics in the check list and make sure, that they are considered after the installation and creation of new databases.

- **Change the remote access user's password**

The remote access user has access to ARIS Cloud Controller (ACC) (page 61). Change the password (page 67).

- **Change the system user's and the superuser's passwords 'manager' and 'superuser'**

The system user has all access and function privileges for all database and is automatically created with every database. The superuser has all privileges in the Administration. Change the passwords in the user's profiles in the Administration.

- **Create additional system users**

System users have all function and access privileges in a database. To be on the safe side, create additional system users besides the **system** system user. This way you can maintain the database even if you forget the password for the **system** user (see help page **Create system user**).

- **Back up your data (page 35) regularly**

Administrators can back up (page 69) all tenant data to a zip file.

Administrators have various options for backing up the data managed on a ARIS Connect Server or an ARIS Design Server using ARIS Server Administrator (page 101).

Currently, Java can only process files of up to a maximum of 2 GB safely. Thus, errors may occur with larger backup files (ADB) and during database recovery. If errors occur during backup or while restoring please use the backup mechanism in your database management system (DBMS).

- **Version your database content**

Versioning is used for versioning models. The benefit and purpose of archiving versions of models is to allow different versions to be accessed.



9 Basic Troubleshooting

If you face problems starting ARIS please read the following pages.

9.1 No Access to ARIS

Problem

You cannot access ARIS, even when using a browser on the same machine.

Solution

Use the **Start ARIS Connect Server/Start ARIS Design Server** link in the start menu. Be patient, once the command completes, try accessing ARIS again.

9.2 ARIS clients Cannot Perform Connections to Servers Using SSL

Problem

A SSL certificate is available (page 65) but ARIS clients cannot be started using SSL certification. This may happen due to ARIS clients using Java trust store having trouble verifying the certificate chain.

Solution

An additional certificate needs to be made available for the load balancer.

1. Download the zip file of the certificate from a certificate authority, e.g. GlobalSign.
2. Start ARIS Cloud Controller (ACC) (page 61).
3. Stop (page 64) the load balancer component.
4. Enhance the certificate using this command:

```
enhance <instanceID of the load balancer component> with sslCertificate local file  
"<path to the downloaded zip file>"
```

5. Start (page 64) the **load balancer** component again.

The SSL certificate is available.



9.3 Server Started but No Access to ARIS

Problem

After you have started the server (page 156) you still cannot access ARIS.

Solution

Open the ARIS Cloud Controller (ACC) (page 61) using the link in the start menu. Once the prompt appears, type **list**. Check if all components are in state **STARTED**.

If the output of the list command shows one or more components in state **STARTING** please wait a while and type **list** again.

9.4 Components do Not Start

Problem

Components still are in state **STARTING**.

Solution

Kill the component using the **kill** command. For example **kill abs_m**. Try starting it again with the **start** command, e.g. **start abs_m**.

If the output of the **list** command shows one or more components in state **FAILED** or **STOPPED**. Type **startall**. Once the command finishes give the components some time to complete startup and type **list** to see their current state.

9.5 Resolving Port Conflicts

Problem

You have killed and restarted (page 157) a FAILED/STARTING component several times but it still doesn't start up properly.

Solution

Port collisions are a common reason for components not starting up at all or not working properly. Beware of port conflicts, e.g. web servers or programs like **World Wide Web Publishing Service** or **Routing and Remote Access** might use the ports **80** and **443** by default.

1. Check the log files (page 102) for messages indicating port conflicts.
2. Find out the ports used by an ARIS component using the ACC (page 61) command **show instance <instanceId>**,

e.g.

```
ACC+ localhost>show instance abs_m
ID: abs_m state:STARTED
type:com.aris.modeling.components.y-server-run-prod-9.0.
0-RC108-Trunk-SNAPSHOT)
Configuration parameters:
    JAVA_OPTS=-server
-Xrunjdwp:transport=dt_socket,address=9704,server=y,suspend=n
```



```

JAVA-Dcom.sun.management.jmxremote.port=9604
JAVA-Dcom.sun.management.jmxremote.ssl=false
CATALINA_PORT=10080
JAVA-Dcom.sun.management.jmxremote.authenticate=false
JAVA-XX\ :MaxPermSize=256m
JAVA-Dcom.sun.management.jmxremote=/enabled
JAVA-Xmx=8g
zookeeper.connect.retry.time.ms=30000
zookeeper.bundle.type=abs
zookeeper.session.timeout.ms=60000
CATALINA_AJP_PORT=11080

```

```

START command was issued at Jun 5, 2013 8:47:11 AM
Average startup time: 192915msec
Autostart: OFF
Desired state: STARTED
ACC+ localhost>

```

- Use the Windows **netstat** command to find ports used by other programs:

```
netstat -ao |more
```

- Look for lines containing the port number(s) of the component that is not starting up properly and which have the state **listening**.

Sometimes, two programs might startup and use the same port. Only the first program will be reachable via this port.

Proto	Local Address	Foreign Address	State	PID
TCP	0.0.0.0:9701	MCY137201:0	LISTENING	5524
TCP	0.0.0.0:9702	MCY137201:0	LISTENING	4652
TCP	0.0.0.0:9703	MCY137201:0	LISTENING	5968
TCP	0.0.0.0:9704	MCY137201:0	LISTENING	3632
TCP	0.0.0.0:9705	MCY137201:0	LISTENING	9740
TCP	0.0.0.0:9706	MCY137201:0	LISTENING	6464
TCP	0.0.0.0:9707	MCY137201:0	LISTENING	6836
TCP	0.0.0.0:9708	MCY137201:0	LISTENING	6400
TCP	0.0.0.0:9709	MCY137201:0	LISTENING	7156
TCP	0.0.0.0: 10080	MCY137201:0	LISTENING	2992
TCP	0.0.0.0: 10080	MCY137201:0	LISTENING	6836
TCP	0.0.0.0:10081	MCY137201:0	LISTENING	3632
TCP	0.0.0.0:10082	MCY137201:0	LISTENING	7922
TCP	0.0.0.0:10083	MCY137201:0	LISTENING	4094
...				

- Use Windows Task Manager to identify the program that is using that port.

After you have stopped the program causing the conflict or redirected ports (page 66), all ARIS components will start up properly.



10 Known Restrictions

In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document (see installation media or download it <http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

Please consider the legal notices <http://documentation.softwareag.com/legal/>.

Despite the approval of our software for operation with the listed operating system versions and other software and hardware requirements, we cannot exclude the possibility of problems arising from unpredictable incompatibility issues with certain hardware/software combinations.

10.1 Update Setup

If you are about to update your ARIS 9.5 version using an Oracle database you must upgrade your database schema first before starting the server. Otherwise your runtime environment and data might be harmed and the application may not work anymore.

To do so please use the files on you installation medium under

Add-ons\DatabaseScripts\Oracle\Design&ConnectServer. Base requirement for this configuration is a correct configured **envset.bat**.

Execute the **cip_update_schema_for_tenant.bat** file for MS Windows operating system or **cip_update_schema_for_tenant.sh** file for a Unix operating system.

or

cip_update_schema_for_tenant.bat myprojecttenant.

- Updating ARIS Connect Server version **9.0** using the setup is not possible.
- Scheduled reports must be recreated after the update. During the update setup, existing scheduled reports will be deleted and must be recreated.
- If after the update of a custom configuration the help link doesn't work anymore (404 error), it can simply be fixed by modifying the **useraction_default.xml** file. The help url defined there is similar to this:

```
/static/help/{locale}/handling/ca/index.htm#52910.htm
```

and it should be changed to a version like this:

```
/static/help/{locale}/handling/connect/ca/index.htm#52910.htm.
```

The connect directory is missing there. But you also can take a look at a similar, proper configuration in the default configuration.

10.2 Process Governance

You can use Process Governance with up to 1000 process instances running in parallel. But the number may differ depending on the complexity of the running process (e. g. self-created reports).



10.3 Right-to-left (RTL)

Right-to-left, top-to-bottom text is not officially supported. Arabic or Hebrew can be used with ARIS 9.5, but not all functionality support Right-to-left.

10.4 Tenant Names

Please only use ASCII characters. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.



11 Support

If you have any questions on specific installations that you cannot perform yourself, contact your local Software AG sales organization.

By Telephone

If you have a valid support contract, you can contact us internationally at:

+800 ARISHELP

The "+" stands for the prefix required in a given country to dial an international connection.

Example for dialing within Germany with a direct extension line:

00 800 2747 4357

By Web Interface

<https://empower.softwareag.com> (<https://empower.softwareag.com>)



12 Glossary

G

GUID

Globally **U**nique **I**dentifier (GUID).

The GUID is a character set that uniquely identifies elements worldwide.

J

JAAS

Java **A**uthentication and **A**uthorization **S**ervice (**JAAS**).

This is a Java interface, which provides services for the authentication and for the access in Java programs. JAAS supports a user based authentication.

O

OTP

One-**T**ime-**P**ad (**OTP**).

This one-time encryption is a symmetric encryption method to transfer messages. Its characteristic is that the length of the encryption key is at least as long as the message itself.

OTP is considered information technology secure and cannot be broken.

S

SAML

Security **A**ssertion **M**arkup **L**anguage (**SAML**).

XML framework to exchange authentication information. SAML provides features to describe and transfer security based information.

SSL

Secure **S**ocket **L**ayer (**SSL**).

Security software to encrypt data that are exchanged between programs.

SSO

Single **S**ign-**o**n.

Using SSO has the advantage that a user only has to log in once to the network. The user need only one login name and password to access all computers, services and programs whose usage is allowed.



System Database

This database manages the content of the **configuration** and **evaluations** nodes displayed on ARIS' **Administration** tab, e. g. filters, templates and font formats as well as ARIS method content and scripts.

The database is created while the first user logs in using an ARIS client. This content is available in all ARIS databases within this tenant.

T

Tenant

A logical container into which users and groups are placed. It can represent a customer, a department or another group of users. Tenants do not share any data.

Only users of tenant **master** are allowed to create, update or delete other tenants.

TLS

Transport Layer Security (**TLS**).

TLS is known under the name of **Secure Sockets Layer (SSL)**. It is an encryption protocol to ensure a secure data transfer through the Internet.