



# ARIS Server Installation and Administration Guide

**ARIS**

**Version 9.8 – Service Release 1**

**June 2015**

This document applies to ARIS Version 9.8 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 ARIS Cloud Controller (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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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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 (Page 215). 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 215).

To avoid redundancies this document does not re-iterate information available in other documents. For more details please review the following documents. All documents are available on the installation media. If you have installed ARIS some documents can be opened using the start menu. All documents can be downloaded (<https://empower.softwareag.com>).

- 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.
- For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document.
- For an overview on the product and software architecture of ARIS and non-functional and provisioning aspects of typical ARIS installations, please refer to the **Technical Whitepaper**.
- The client installation is described in the **ARIS Client Installation Guide**.
- For an overview on features and functionalities, please refer to the **Functional Product Matrix** document
- For an overview on supported interfaces, methods, languages, and compatibilities, please refer to the **Technical Product Matrix** document

Additional documents give an overview of ARIS Collaterals (<https://wiki.eur.ad.sag/display/PUBLIC/ARIS9+Collaterals>) which are not part of the official product documentation on Empower (<https://empower.softwareag.com>).

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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 **setup.exe** file as an administrator.

If you have copied a **setup.exe** from the installation media please make sure to copy the folder **Setup\_Data** too. It must be copied to the parent folder where the **setup.exe** is located.

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 19). For local installations under Windows ARIS Agent will be installed automatically. To perform remote installations (Page 18) please first run the ARIS Agent setup on the remote servers.



Please refer to the chapter Administration (Page 58) to obtain information on additional settings required for using **ARIS**.

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up and requires additional disk space. This process takes additional time while the setup is running but enables you to roll back a failed update or uninstallation. If the update process fails all ARIS components will be restored automatically.





## 2.1 Available Setups

To make the remote repository available (Page 95), an http server is installed temporarily during the setup process. Therefore, ARIS Server setups require a minimum of 15 GB free space on the hard drive.

### ARIS Connect Server Setup (Page 6)

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 6) or a Linux operating system (Page 19). If you use your Oracle database system or your Microsoft SQL database system please make sure to customize your operational database system (Page 30) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (Page 118).

### ARIS Design Server Setup (standalone) (Page 10)

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 10) or a Linux operating system (Page 19). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operational database system (Page 30) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (Page 118).

### ARIS Risk & Compliance Manager Server Setup

This installation procedure is described in the ARIS Risk & Compliance Manager Installation Guide. You can download it from Empower (<https://empower.softwareag.com>).



## ARIS Publisher Server Setup (Page 15)

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

The installation procedure is available for a Windows operating system (Page 15) or a Linux operating system (Page 19).

The standard setup installs ARIS Publisher Server and **Tomcat 7.x** Web Application Server in a single procedure. As the used **Tomcat** version cannot be the most recent version a denial of service (DoS) vulnerability can occur. This vulnerability is not critical for intranet use. For internet use please make sure to use the most recent web application server version that matches your security requirements and deploy ARIS Publisher Server as **WAR** file.

The **Derby** database system and Apache Tomcat Web Application Server can only be installed as demo version. This test system only allows one user to 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 demonstration reasons (laptop) we also recommend the ARIS client installation including the server **LOCAL** (see Client Installation Guide).

For a productive ARIS Publisher system and an installation on a Linux operating system you must select the **small** or **large** installation option. For these installation options an **Oracle** database system or a **Microsoft SQL** database system is required. These systems must be configured for ARIS Publisher Server (Page 38) before starting the ARIS setup. The **Oracle** database system or **Microsoft SQL** database system are not included in the package. Depending on the ARIS Publisher Server license purchased (Page 153), these systems enable all users to simultaneously work on exports.

## Installing ARIS on a Linux Operating System (Page 19)

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, Ubuntu, Red Hat, SUSE or CentOS system. To allow customizing activities additionally provide **ARIS Cloud Controller** (ACC). Use the **\*.deb** files for Debian or Ubuntu systems and **\*.rpm** files for Red Hat, SUSE or CentOS systems. After you have copied and installed the files start the remote installation from a Windows system.



### 2.1.1 ARIS Connect Server Installation

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (Page 18) 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 6) or a Linux operating system (Page 19). If you use your Oracle database system or your Microsoft SQL database system please make sure to customize your operational database system (Page 30) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (Page 118).

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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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#### Prerequisites

- If you would like to import the license file right now please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (Page 75) after the installation.
- If you are about to use an Oracle or Microsoft SQL database please make sure the database system has been customized (Page 30) before running this setup.

#### Procedure

1. Start the ARIS Connect Server installation.
2. Install ARIS Connect Server on the active computer.
3. In case of port conflicts (Page 211) please specify the port numbers to be used. If you change the default port numbers you must add **:<this port number>** to the URL (see below).



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. For a productive system it is recommended to select the **Small number of users** or **Medium number of users** option.  
For demonstration reasons (laptop) we recommend the option **Demo scenario**. (Page 89)
5. Select the database system. If you do not check **Standard** please make sure the database system has been customized (Page 30) 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 33)

Please enter exactly the values, e. g. **database name** that you have entered when customizing (Page 32) the Oracle server. Enter the **default** and **master** schema name that have been created (Page 33).

**Enter all database connection parameters**  
Please enter all required parameters that you have entered when customizing the Oracle database server (see ARIS Server Installation and Administration Guide).

Server:	arisapp122srv.eu.ab.company
Port:	1521
Database/Service name:	CIP
Application user:	ARIS9
Password:	•••••
Default schema:	default
Master schema:	master

If you are about to use an Oracle cluster you must change the format string in the next dialog (syntax:jdbc:oracle:thin:@<ORACLE\_SERVER>:<ORACLE\_PORT>:<ORACLE\_SID>). After the setup process is completed you need to update the external service (Page 87).



### Microsoft SQL (Page 36)

Please enter exactly the values, e. g. **database name** that you have entered when customizing the **Microsoft SQL server** (Page 35). Enter the **default** and **master** schema name that have been created (Page 36).

**Enter all database connection parameters**

Please enter all required parameters that you have entered when customizing the Microsoft SQL server.

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 87) any time. Some parameters can also be edited in the ARIS Administration (Page 58) of this server. Please refer to the ARIS 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 ARIS Administration (Page 58) of this server. Please refer to the ARIS Administration online help.
11. Start the installation process.
12. Once after the installation process is completed configure the system (Page 58). Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command to change settings.
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** or **<IP address or fully-qualified host name>:<port number other than standard port 80>>**. 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>:<port number other than standard port 80>>** 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**.

To prevent unauthorized actions the administrator must take care that the passwords of the system user and the **superuser** user have been changed on all tenants.

on all tenants. If you did not change the **ARIS Agent** user's credentials during the setup process please at least change the **ARIS Agent** user's password (Page 73) manually. Then administrator must create users and user groups and assign privileges and licenses (Page 43) for the **default** tenant. If you have created additional tenants (Page 42) users and licenses must be managed for each additional tenant. If the machine having the ARIS server installed is very powerful and has a lot of available RAM you can take the load of running ARIS reports (Page 92) from your modeling component (abs\_<s, m or l>). 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 22). Components will be stopped. After the system has been updated all components will be started automatically.



## 2.1.2 ARIS Design Server Standalone Installation

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (Page 18) 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 10) or a Linux operating system (Page 19). If you would like to use your Oracle database system or your Microsoft SQL database system you need to configure your operational database system (Page 30) before starting the ARIS setup.

Please install an ARIS Client if you would like to manage server data using ARIS Server Administrator (Page 118).

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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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### Prerequisites

- If you would like to import the license file right now please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (Page 75) after the installation.
- If you are about to use an Oracle or Microsoft SQL database please make sure the database system has been customized (Page 30) before running this setup.

### Procedure

1. Start the ARIS Design Server installation.
2. Install ARIS Design Server on the active computer.
3. In case of port conflicts (Page 211) please specify the port numbers to be used. If you change the default port numbers you must add **<this port number>** to the URL (see below).
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. For a productive system it is recommended to select the **Small number of users** or **Medium number of users** option.

For demonstration reasons (laptop) we recommend the option **Demo scenario**. (Page 89)

5. Select the database system. If you do not check **Standard** please make sure the database system has been customized (Page 30) 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 33)

Please enter exactly the values, e. g. **database name** that you have entered when customizing (Page 32) the Oracle server. Enter the **default** and **master** schema name that have been created (Page 33).

**Enter all database connection parameters**  
Please enter all required parameters that you have entered when customizing the Oracle database server (see ARIS Server Installation and Administration Guide).

Server:	<input type="text" value="arisapp122srv.eu.ab.company"/>
Port:	<input type="text" value="1521"/>
Database/Service 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"/>

If you are about to use an Oracle cluster you must change the format string in the next dialog (syntax: jdbc:oracle:thin:@<ORACLE\_SERVER>:<ORACLE\_PORT>:<ORACLE\_SID>). After the setup process is completed you need to update the external service (Page 87).





### Microsoft SQL (Page 36)

Please enter exactly the values, e. g. **database name** that you have entered when customizing the **Microsoft SQL server** (Page 35). Enter the **default** and **master** schema name that have been created (Page 36).

**Enter all database connection parameters**

Please enter all required parameters that you have entered when customizing the Microsoft SQL server.

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 87) any time. Some parameters can also be edited in the ARIS Administration (Page 58) of this server. Please refer to the ARIS 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 ARIS Administration (Page 58) of this server. Please refer to the ARIS Administration online help.
11. Start the installation process.
12. Once after the installation process is completed configure the system (Page 58). Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command to change settings.
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 **<IP address or fully-qualified host name>:<port number other than standard port 80>>**. 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>:<port number other than standard port 80>>** 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**.



To prevent unauthorized actions the administrator must take care that the passwords of the the **system** user and the **superuser** user have been changed on all tenants.

If you did not change the **ARIS Agent** user's credentials during the setup process please at least change the **ARIS Agent** user's password (Page 73) manually. Then administrator must create users and user groups and assign privileges and licenses (Page 43) for the **default** tenant. If you have created additional tenants (Page 42) users and licenses must be manages for each additional tenant. If the machine having the ARIS server installed is very powerful and has la lot of available RAM you can take the load of running ARIS reports (Page 92) from your modeling component (abs\_<s, m or l>).

Update installations are available (Page 22). Components will be stopped. After the system has been updated all components will be started automatically.



### 2.1.3 ARIS Publisher Server Installation

This procedure describes the installation that can be performed under a Windows operating system. To perform remote installations (Page 18) 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 15) or a Linux operating system (Page 19).

The standard setup installs ARIS Publisher Server and **Tomcat 7.x** Web Application Server in a single procedure. As the used **Tomcat** version cannot be the most recent version a denial of service (DoS) vulnerability can occur. This vulnerability is not critical for intranet use. For internet use please make sure to use the most recent web application server version that matches your security requirements and deploy ARIS Publisher Server as **WAR** file.

The **Derby** database system and Apache Tomcat Web Application Server can only be installed as demo version. This test system only allows one user to 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 demonstration reasons (laptop) we also recommend the ARIS client installation including the server **LOCAL** (see Client Installation Guide).

For a productive ARIS Publisher system and an installation on a Linux operating system you must select the **small** or **large** installation option. For these installation options an **Oracle** database system or a **Microsoft SQL** database system is required. These systems must be configured for ARIS Publisher Server (Page 38) before starting the ARIS setup. The **Oracle** database system or **Microsoft SQL** database system are not included in the package. Depending on the ARIS Publisher Server license purchased (Page 153), these systems enable all users to simultaneously work on exports. If you are about to use your Oracle database system or your Microsoft SQL database system you need to configure your operational database system (Page 38) 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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If you require different installations, please refer to your local Software AG sales organization (Page 215). 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 ARIS Publisher Server license zip file saved on this computer. Otherwise licenses must be imported (Page 75) after the installation.
- If you are about to use an external database system please make sure to have it configured for ARIS Publisher Server (Page 38) before executing this setup.

### 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 **Demo scenario** is recommended for an installation for demonstration purposes only e. g. on a laptop (1-5 users; 32-bit VM; 1 GB for the application, 256MB for Derby).

The option **Medium** (5-100 users) reserves 3 GB for the application and 512MB for the database system. The use of Oracle or Microsoft SQL Server is required.

The option **Large** (100-250 users) reserves 8 GB for the application and 1 GB for the database system. The use of Oracle or Microsoft SQL Server is required.

6. If you use Process Governance please specify the IP address or fully-qualified ARIS Server name and the port number.

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. To use the ARIS Administration of a different ARIS server please check **Use the ARIS Administration of an existing ARIS server**.

8. Enter the URL to that ARIS server's ARIS Administration:

`<IP address or fully-qualified host name>:<port number other than standard port 80>>/umc`

9. Enter the ARIS Administration user's name **superuser** and the corresponding password.
10. If you are about to manage documents using ARIS document storage of another ARIS Connect Server or ARIS Design Server, please enter the required parameters.
11. Select the database system. If you do not check **Standard** please make sure to have the database system customized (Page 38) before running this setup.
12. Start the installation process.



13. Once after the installation process is completed configure the system (Page 58). Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command to change settings.
14. Click **Start > All Programs > ARIS > Start ARIS Publisher Server**.
15. 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`
16. Start the ARIS Administration (Page 44) of the ARIS Connect Server or ARIS Design Server and import the ARIS Publisher Server license file. To prevent unauthorized actions the administrator must take care that the passwords of the the system user and the superuser user have been changed on all tenants. If you did not change the ARIS Agent user's credentials during the setup process please at least change the ARIS Agent user's password (Page 73) manually. Then administrator must create users and user groups and assign privileges and licenses (Page 43) for the **default** tenant. If you have created additional tenants (Page 42) users and licenses must be managed for each additional tenant.  
If the machine having the ARIS server installed is very powerful and has a lot of available RAM you can take the load of running ARIS reports (Page 92) from your modeling component (abs\_<s, m or l>).

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 ARIS Administration of your productive ARIS Connect Server or ARIS Design Server (Page 144) installation. Only in this case ARIS document storage will be available if customized (Page 149).

You may change the standard database connection parameters (Page 41). You can adjust (Page 142) all parameters that have been entered during the setup process.

Update installations are available (Page 22). Components will be stopped. After the system has been updated all components will be started automatically.



## 2.1.4 ARIS Remote Installations

Before installing servers remotely on a Windows operating system or a Linux operating system you must provide the 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 69) 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 73) 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 58).
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>**. 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>:<port number other than standard port 80>>** to the ARIS administrator.

The Server is installed, customized and running.

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

To prevent unauthorized actions the administrator must take care that the passwords of the **system** user and the **superuser** user have been changed on all tenants.

If you did not change the **ARIS Agent** user's credentials during the setup process please at least change the **ARIS Agent** user's password (Page 73) manually. Then administrator must create users and user groups and assign privileges and licenses (Page 43) for the **default** tenant. If you have created additional tenants (Page 42) users and licenses must be managed for each additional tenant. If the machine having the ARIS server installed is very powerful and has a lot of available RAM you can take the load of running ARIS reports (Page 92) from your modeling component (abs\_<s, m or l>).

Update installations are available (Page 22). Components will be stopped. After the system has been updated all components will be started automatically.



## 2.1.5 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, Ubuntu, Red Hat, SUSE or CentOS system. To allow customizing activities additionally provide **ARIS Cloud Controller** (ACC). Use the **\*.deb** files for Debian or Ubuntu systems and **\*.rpm** files for Red Hat, SUSE or CentOS 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 78).

### Procedure

1. Copy the file **aris-cloud-agent-<number>\_amd64.deb**, **aris-cloud-agent-<number>-1.x86\_64.rpm** or **aris-cloud-agent-SLES-<number>-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 server installation.
2. Copy the file **aris-acc-<number>\_amd64.deb** or **aris-acc-<number>-1.x86\_64.rpm** from the installation media to the hard drive of your Linux system.  
This file provides ARIS Cloud Controller (ACC) (Page 69).
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 or Ubuntu system.  
**dpkg -i aris-acc\_1.0.0-SNAPSHOT\_amd64.deb**  
This command installs ARIS Cloud Controller (/bin/acc.sh) to your Debian or Ubuntu system.





### **rpm -i aris-cloud-agent-1.0.0-1.x86\_64.rpm**

This command installs ARIS Agent to your Red Hat and SUSE 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 and SUSE 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 30) 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. Run the desired setup program to start the remote installation of ARIS Connect Server (Page 6), ARIS Design Server (Page 10) or ARIS Publisher Server (Page 15) 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 73) 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 58).
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 **<IP address or fully-qualified host name<:<port number other than standard port 80>>**. 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<:<port number other than standard port 80>>** 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.

To prevent unauthorized actions the administrator must take care that the passwords of the **system** user and the **superuser** user have been changed on all tenants.

If you did not change the **ARIS Agent** user's credentials during the setup process please at least change the **ARIS Agent** user's password (Page 73) manually. Then administrator must create users and user groups and assign privileges and licenses (Page 43) for the **default** tenant. If you have created additional tenants (Page 42) users and licenses must be manages for each additional tenant. If the machine having the ARIS server installed is very powerful and has la lot of available RAM you can take the load of running ARIS reports (Page 92) from your modeling component (abs\_<s, m or l>).



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

Update installations are available (Page 22). Components will be stopped. After the system has been updated all components will be started automatically.



## 2.2 Update Installation

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 84).

To update customized installations e.g. multi-node systems please contact your local Software AG sales organization (Page 215).

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up and requires additional disk space. This process takes additional time while the setup is running but enables you to roll back a failed update or uninstallation. If the update process fails all ARIS components will be restored automatically.

If you use an external database management system please backup these systems before running an update setup. In case of a failed update you will be able to restore the external database systems too.

Before updating please read the **readme** file.

### Restrictions

- Please always use the **reconfigure** ACC command to change settings.  
If you have customized your ARIS Publisher Server manually by modifying **XML** and **CFG** files these modifications will be lost.  
Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
- Please make sure that no file in the installation directory is locked.
- Please make sure to exit ACC before running the update setup.
- If you update ARIS **9.5** to ARIS **9.7**, please make sure to start ARIS Cloud Controller (ACC), enter **Set autostart.mode=off**; enter **stopall** and exit ACC before running the update setup.
- The update from ARIS **9.5** to higher ARIS versions using a Microsoft SQL database system is not possible. A new installation and database migration is recommended.
- Updating ARIS using Oracle as database management system:

If you are about to update your ARIS 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 your installation medium under **Add-ons\DatabaseScripts\Oracle\Design&ConnectServer**. Base requirement for this configuration is a correctly 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.



Please consider that **in any case** you have to update the default and the master tenant and all other tenants used.

`cip_update_schema_for_tenant.bat <master tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_master`**

`cip_update_schema_for_tenant.bat <default tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_default`**

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 aris_default`**

or

**`cip_update_schema_for_tenant.bat myprojecttenant.`**

- Updating ARIS Connect Server version **9.0.2** using the setup is not possible if MashZone content is used. Please call our support (Page 215). If no MashZone content is used in version **9.0.2**, you can use the update setup.
- If the help link doesn't work anymore (404 error) after the update of a custom configuration, it can easily be fixed by modifying the **useraction\_default.xml** file. In the help url e.g.:

`/static/help/{locale}/handling/ca/index.htm#52910.htm`

The **connect** directory is missing. Please add this folder, e.g.:

`/static/help/{locale}/handling/connect/ca/index.htm#52910.htm.`

- During the update (Page 22) process of ARIS Connect using the standard database system or Microsoft SQL all databases are re-indexed automatically. If you are using an Oracle database system you must re-index all databases manually. Using large databases this may take some time.




## 2.2.1 Back up and Restore Data

Before you perform an update installation (Page 22), 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 80) will save all data of that tenant at once. Tenants can easily be restored using the **restore tenant** (Page 81) command.

If you use an external database management system please backup these systems before running an update setup. If the update process fails all ARIS components will be restored automatically. In case of a failed update you will be able to restore the external database systems too.


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.

### 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



## 2.2.2 Using the Standard or Microsoft SQL Database System

To update the installed version please run the current ARIS installation program.

### Restrictions

- The update from ARIS **9.5** to higher ARIS versions using a Microsoft SQL database system is not possible. A new installation and database migration is recommended.
- If you update ARIS please make sure to exit ACC before running the update setup.

### Procedure

1. Backup your Microsoft SQL database system.
2. Back up all tenants (Page 24).
3. Stop ACC.
4. Start the update setup.
5. Enter the agent user's credentials.
6. Update the system databases for all other tenants (Page 84).

ARIS is up to date.

If the update process has failed all ARIS components will be restored automatically. Please restore your Microsoft SQL Database System using the backup performed in step 1.

Please make sure to update locally installed clients too.



## 2.2.3 Using Oracle as Database System

To update the installed version please run the current ARIS installation program.

### Prerequisites

- If you update ARIS please make sure to exit ACC before running the update setup.
- If you update ARIS **9.5** to ARIS **9.7**, please make sure to start ARIS Cloud Controller (ACC), enter **Set autostart.mode=off**; enter **stopall** and exit ACC before running the update setup.

### Procedure

1. Back up all tenants (Page 24).
2. Backup (dump) your Oracle Database.
3. Start the ARIS Server setup.
4. Enter the agent user's credentials.
5. Customize the Oracle system.

### Warning

If you are about to update your ARIS 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 correctly 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.

Please consider that **in any case** you have to update the default and the master tenant and all other tenants used.

`cip_update_schema_for_tenant.bat <master tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_master`**

`cip_update_schema_for_tenant.bat <default tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_default`**

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.

or

**`cip_update_schema_for_tenant.bat myprojecttenant`**.

6. Re-index databases (Page 84).
7. Update the system databases of all tenants (Page 84). The default tenant's system database will not be updated automatically.

ARIS is up to date.

Please make sure to update locally installed clients too.





## 2.2.4 Update ARIS Publisher Server

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

For later versions please use the update setup.

Before updating please read the **readme** file and the update restrictions notes (Page 213).

### Procedure

1. Save modified configuration files locally, if you have customized your ARIS Publisher Server manually by modifying **XML** and **CFG** files. These modifications will be lost after the update. If you have not saved the affected locally your modified files will not be lost. When you update ARIS Publisher Server by an ARIS setup, the current installation will automatically be backed up.
2. Start the **setup.exe** to update ARIS Publisher Server. Components will be stopped. After the system has been updated all components will be started automatically.
3. If you have customized your system in a way that these modifications have been lost after the update please compare the affected **CFG** and **XML** files and copy the modified lines into the updated files.

After you have updated the ARIS Publisher Server you must import the ARIS Publisher Server license again. The user authentication must be handled by the administration (Page 144).

You may change the standard database connection parameters (Page 41). You can adjust (Page 142) all parameters that have been entered during the setup process.



## 2.2.5 Update Linux Installation

To update one ARIS version to the next you will have to update the agent. The exact procedure depends on the distribution (RPM or DPKG-based).

### Prerequisites

Make sure to copy the new installer package to the Linux system's hard drive that fit to your system:

#### Red Hat

- aris-cloud-agent-<version>.x86\_64.rpm
- aris-acc-<version>-1.x86\_64.rpm

#### SUSE

- aris-cloud-agent-SLES<version>.x86\_64.rpm
- aris-acc-<version>-1.x86\_64.rpm

#### Ubuntu

- aris-cloud-agent-<version>\_amd64.deb
- aris-acc-<version>\_amd64.deb

### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. Stop all components (Page 72).
3. To update, run the command:

#### **for Red Hat, SUSE or CentOS**

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

#### **for Debian or Ubuntu**

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

4. Start all components.



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

Install the Oracle database with the Oracle installation program or the Microsoft® SQL Server database with the corresponding installation programs. Follow the instructions in the installation program, as well as the documentation provided by the manufacturers. During this step of the procedure, note the SID or the database names of the new database instance and also the account, i.e., the user name and the password of the system user.

Please customize the Oracle (Page 31) or the Microsoft SQL Server (Page 34) database management system before starting one of the following server setups:

- ARIS Connect Server setup (Page 6)
- ARIS Design Server setup (Page 10)
- ARIS Risk & Compliance Manager Server setup
- Update setup (Page 22)

Before performing an ARIS Publisher Server setup please customize the Oracle (Page 39) or the Microsoft SQL Server (Page 40) database management system for ARIS Publisher Server.



### 2.3.1 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 33) and create an empty schema for each tenant (Page 33) 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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

To customize the system you need the following components:

- An operational Oracle database.
- The **ojdbc6.jar** or **ojdbc7.jar** driver. You can download the most current file 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](http://aris.softwareag.com/ARISDownloadCenter/ARISDownloadCenter?language=en)).
- Ensure that SQL\*PLUS is available.  
Therefore an ORACLE client or an ORACL server must be installed on the machine where the scripts are run.

#### Warning

If you are about to update your ARIS 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 correctly 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.

Please consider that **in any case** you have to update the default and the master tenant and all other tenants used.



`cip_update_schema_for_tenant.bat <master tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_master`**

`cip_update_schema_for_tenant.bat <default tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_default`**

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 aris_default`**

or

**`cip_update_schema_for_tenant.bat myprojecttenant.`**

### 2.3.1.1 Configure envset.bat

Before you create an application user (Page 33) and create an empty schema (Page 33) to store the data of one tenant each you have to adjust the settings used by all scripts.

1. Edit the file **envset.bat** to specify the connection data of the Oracle instance. Find the following lines in the file and replace the parts specified in angled brackets with the settings appropriate for your environment:

```
REM The path to where sqlplus.exe can be found.
SET CIP_ORA_BIN_PATH=<path to sqlplus.exe>
REM hostname, port and service name
SET TARGET_HOST=<target_host> (fully qualified name or IP address)
SET TARGET_PORT=<target_port> (e.g. 1521)
SET TARGET_SERVICE_NAME=<OracleServiceName> (e.g. the database name ARIS)
```

2. Edit the following lines to change the credentials of the application user:

```
REM credentials of the user that is used by the application.
SET CIP_APP_USER=ARIS9
SET CIP_APP_PWD=*ARIS!1dm9n#
REM password of the tenant schemas.
SET CIP_TENANT_SCHEMA_PWD=*ARIS!1dm9n#yy
```

3. With the next two lines you specify the DBA user you intend to use to create the application user and this DBA user's password:

```
REM credentials of the Oracle user that will be used to create the application
schema.
REM Note that this user must be endowed with DBA privileges such as user SYSTEM.
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, you will also need to modify these lines accordingly:

```
REM tablespace name of the tablespace in which the data of the application schema
should be stored.
SET CIP_TS_DATA=ARISDATA
REM name of the temporary tablespace.
SET CIP_TS_TEMP=TEMP
```

After you have saved the changes you can create the application user (Page 33).



### 2.3.1.2 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 32) 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 be must be entered during the ARIS Server setup (Page 2) process.

### 2.3.1.3 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. This names must be entered later during the ARIS Server setup (Page 2) process. If you need additional tenants (Page 42) 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 85) to additionally created schemes only.



## 2.3.2 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 35) and install the database (Page 35) using the script files before starting the ARIS Server setup (Page 2). You can also setup the database (Page 36) and create an empty schema for each tenant (Page 36) 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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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](http://aris.softwareag.com/ARISDownloadCenter/ARISDownloadCenter?language=en)).



### 2.3.2.1 Configure envset.bat

Before you install the database (Page 35) to store the data of one tenant each you have to adjust the settings used by all scripts.

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

```
@ECHO OFF
REM
REM You may edit this section for customizing purposes.
REM
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 that is used to execute this script
SET MSSQL_SAG_MSSQL_LOGIN_NAME=localhost\username
REM name of database that will be created by the script.
SET MSSQL_SAG_DATABASE_NAME=ARIS9DB
REM folder in which the database files should be stored.
SET MSSQL_SAG_FILEGROUP_FILE_DIR=F:\msqldata\ARIS9DB
REM credentials of the login that is used by the application.
SET MSSQL_SAG_APP_USER=ARIS9
SET MSSQL_SAG_APP_PWD=*ARIS!1dm9n#
REM schema names for the default and master tenants
SET MSSQL_SAG_TENANT_DEFAULT=ARIS_DEFAULT
SET MSSQL_SAG_TENANT_MASTER=ARIS_MASTER
REM
REM The remainder of this script is not intended to get customized.
REM
...
```

After you have saved the changes, please install the database (Page 35).

### 2.3.2.2 Install the Database Automatically

After you have configured the **envset.bat** file (Page 35) 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 85) to additionally created schemes only.

If you do not use the scripts you can also setup the database (Page 36) and create an empty schema for each tenant manually (Page 36).





### 2.3.2.3 Setup Database Manually

Only if you did not use the **envset.bat** (Page 35) and **inst.bat** (Page 35) 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
```

### 2.3.2.4 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. This 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 85) to additionally created schemes.



## **2.4 Using Oracle or Microsoft SQL Server for ARIS Publisher Server**

Install the Oracle database with the Oracle installation program or the Microsoft® SQL Server database with the corresponding installation programs. Follow the instructions in the installation program, as well as the documentation provided by the manufacturers. During this step of the procedure, note the SID or the database names of the new database instance and also the account, i.e., the user name and the password of the system user.

Before performing an ARIS Publisher Server setup please customize the Oracle (Page 39) or the Microsoft SQL Server (Page 40) 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 215). Please consider the legal notices <http://softwareag.com/licenses/>.

You may change the database connection parameters (Page 41).



### 2.4.1 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). Enter these names or existing table spaces later during the Setup process. 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 - later during the ARIS Publisher Server setup process. 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 118) command **encrypt**.

#### Procedure

Start the ARIS Publisher Server setup (Page 15).

You may change the database connection parameters (Page 41) after the setup is completed.



## 2.4.2 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 118) 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.

Note the database name, user name, and password. You must enter these values later during the setup process.
    - c. Ensure that **Latin1\_General\_CI\_AI** sorting is selected for the COLLATE statement.

The script creates the specified data groups. Note these values. You must enter the values later during the setup process.

**ARISBPDATA:** contains all database objects

**ARISBPINDEX:** contains all index data
  4. Start the ARIS Publisher Server setup (Page 15).
- You may change the database connection parameters (Page 41).



### 2.4.3 Change Database Connection Parameters

After the installation of ARIS Publisher Server you might adjust the database connection parameters. Please always use the **reconfigure** ACC command to change settings. When performing an update setup all modifications made manually in CFG or XML files will be lost. 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**
- <SERVIC -NAME>=**ARIS**
- <DBMS-USERNAME> (and Schema)=**ARISBP95**
- <DBMS-PASSWORD>=**ARISBP**
- <DATA-TABLESPACE>=**ARISBP9DATA**
- <INDEX-TABLESPACE>=**ARISBP9INDEX**

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

1. Start ARIS Cloud Controller (ACC) (Page 69) 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.



### 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 33) or Microsoft SQL database management system (Page 36) and you have assigned the tenants (Page 85) to these schemes.

Administrators can manage tenants in different ways:

- Create tenants using ACC (Page 79)
- Backup tenants using ACC (Page 80)
- Restore tenants using ACC (Page 81)
- Copy tenants using ACC (Page 82)
- Delete tenants using ACC (Page 83)
- Update a tenant using ACC (Page 84)
- Advanced tenant management using ACC (Page 116)
- Tenant management using command line tools (Page 61)

Please make sure to manage (Page 43) users and licenses for all tenants.



## 4 User and License Management

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

### User management within the ARIS Administration

The ARIS Administration is a tool managing users, user groups, privileges, licenses, documents, and configurations for each tenant (Page 42) affecting all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be imported from an LDAP system. ARIS Administration is available for users holding the **User management** and **License management** function privilege. Initially only the administrative users **superuser** and **system** are available. These users are able to manage users for all tenants of your system (Page 43). Users can also be managed using the ARIS Administration's command line tools (Page 59).

If you are about to manage users within the ARIS Administration please make sure to have the ARIS Risk & Compliance Manager Server reconfigured (Page 88) and that you have forced ARIS Publisher Server to use the specific ARIS Administration (Page 144).

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 45)
2. Import the license if it has not been imported during the setup process. (Page 45)

#### Create users (Page 46) or import (Page 47) them from the LDAP system.

1. Create user groups (Page 47) or import (Page 47) them from the LDAP system.
2. Assign users to user groups. (Page 48)
3. Assign privileges. (Page 48)

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

All users and user groups managed in the ARIS Administration are available in every existing or future database of this tenant. In each database product specific privileges must be assigned in ARIS Architect (Page 50). To do so, please also refer to the ARIS Architect online help chapter **Manage users**.





## User management within ARIS Architect

While creating a database all users and user groups are imported from the ARIS 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 Architect.

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

1. Create databases (Page 49).
2. Assign database specific privileges and filters. (Page 50)
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 ARIS Administration as superuser

The ARIS Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (Page 42) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system (Page 65). ARIS Administration and the online help are available for users holding the **User management** and **License management** function privilege. After the installation only the administrative users **superuser** or **system** can login. For detailed information please refer to the ARIS Administration's online help.

ARIS also provides a set of command-line tools (Page 59) 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 ARIS Administration opens.
2. Enter the user name **superuser** and the password **superuser**.
3. Select the tenant.
4. Click **Log in**.

The ARIS Administration opens.



## 4.2 Change passwords



Change the **superuser** user's the **system** user's and the guest user's passwords. This will prevent 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 ARIS Administration of the ARIS Server as superuser (Page 44).
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 are 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 managed using the ARIS Administration's command line tools (Page 59).








1. Log into the ARIS Administration of the ARIS Server as superuser (Page 44).
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 be 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 47). Users can also be managed using the ARIS Administration's command line tools (Page 59).








1. Log into the ARIS Administration of the ARIS Server as superuser (Page 44).
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 47). Users can also be managed using the ARIS Administration's command line tools (Page 59).

1. Log into the ARIS Administration of the ARIS Server as superuser (Page 44).
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 ARIS Administration. Users can also be managed using the ARIS Administration's command line tools (Page 59).




1. Log into the ARIS Administration of the ARIS Server as superuser (Page 44).
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 ARIS Administration of the ARIS Server as superuser (Page 44).
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 54) define the role of a user or a user group as they control the actions a user can perform. License privileges (Page 51) define the set of ARIS products and views a user can.

1. Log into the ARIS Administration of the ARIS Server as superuser (Page 44).
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. Please make sure there is an ARIS Architect license assigned to the **system** user.
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 56) must be assigned for each database (Page 50).



## 4.9 Start ARIS Architect








After ARIS Connect or ARIS Design Server is installed ARIS is available as download client. Please make sure there is an ARIS Architect license assigned (Page 48) to the **system** user.

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 45).
3. Click **Log in**.
4. Click the user name **system > Download clients**. The product page opens.
5. Start an ARIS download client.
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 Architect. (Page 49)
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 ARIS 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 ARIS 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. Additional privileges can be assigned in each ARIS product at the database level.

- **ARCM Contribute**

Perform tasks in ARIS Risk & Compliance Manager that do not require GRC-specific knowledge.

- **ARCM Operate**

Perform all administrative and operative GRC-specific tasks in ARIS Risk & Compliance Manager.

- **ARIS Architect**

Develop, model, analyze, control, and manage the corporate process architecture.

- **ARIS Access**

Access ARIS data and ARIS Repository content via external applications.

- **Business Strategy**

Define, analyze, and control corporate strategies, business models, and KPIs.

- **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 process implementation, and by connecting ARIS with 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**

Develop, model, and improve business processes, and make them available for implementation by IT via an automated process.





- **ARIS Optimizer**

Calculate meaningful business process data and plan your 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**

View ARIS Connect content.

- **ARIS Designer**

Provide models for business process management representing aspects such as business processes, business organization, data modeling, IT landscapes, or workflows.

- **Business Strategy**

- Define, analyze, and control corporate strategies, business models, and KPIs.

- **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 process implementation, and by connecting ARIS with SAP® Solution Manager and SAP NetWeaver® Business Warehouse.

- **Test Design**

- Create end-to-end test paths based on business processes.

- **MashZone User**

Create, edit, and display dashboards and data feeds.

- **MashZone Viewer**

Display dashboards and data feeds.

- **MashZone Free User**

- Create, edit, and display dashboards and data feeds.

- **MashZone Free Viewer**

- Display dashboards and data feeds.

- **ARIS Smart Input**

Record data to be processed using 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 supply high-quality software.

- **ARIS Access**

- Access ARIS UML data and UML Repository content via external applications.



- **ARIS Viewer**  
View published process content in ARIS Publisher, participate in Process Governance workflows using the Web-based ARIS Process Board, and edit content in IT Inventory.
- **ARIS Cloud Advanced Administration**  
Manage databases.
- **ARIS Cloud Basic Viewer**  
Check models.
- **ARIS Cloud Basic Designer**  
Create models.
- **ARIS Cloud Advanced Designer**  
Create models.
- **ARIS Cloud Advanced Viewer**  
Check models.
- **ARIS Access Full**  
View and edit ARIS data and ARIS Repository content using external applications.
- **ARIS Access Read-Only**  
View ARIS data and ARIS Repository content using external applications.
- **ARIS Access Mobile**  
ARIS Mobile
- **webMethods integration (for Software AG Designer)**  
Make business processes available for implementation and optimization by IT via an automated process.



### 4.12.2 Function Privileges within the ARIS Administration

Function privileges provide users with specific functions and control their privileges. You can assign the following function privileges to users or user groups. Additional privileges can be assigned in each ARIS product at the database level.

- **Analysis administrator**  
Back up, restore, and manage a tenant's analysis database. Import and export queries and ad hoc analyses.
- **Analysis publisher**  
Publish and delete analyses and queries for other users. Back up ad hoc analyses and queries.
- **ARCM administrator**  
Run ARIS Risk & Compliance Manager-related semantic check reports or export/import scripts in ARIS, and manage ARIS Risk & Compliance Manager.
- **ARIS Cloud Controller configuration administrator**  
Edit the ARIS Cloud Controller server configuration including registered nodes and application types.
- **ARIS Connect administrator**  
Specify which version of which database is to be published in the portal, and manage the corporate design.
- **User administrator**  
Manage users, user groups, and privileges in ARIS Administration/User Management.
- **Collaboration administrator**  
Manage private groups, and be the moderator for posts users flagged as inappropriate.
- **Dashboard administrator**  
Manage server settings, dashboards, data feeds, and data sources of MashZone.
- **Database administrator**  
Manage tenant databases. System user in all databases.
- **Document administrator**  
Manage documents, document versions, folders, and access privileges in ARIS document storage.
- **Component administrator**  
Add, start, stop, and remove components on the ARIS Cloud Controller server.
- **Configuration administrator**  
Configure ARIS Design Server or ARIS Connect server, export and import a tenant's configuration files, e.g., ARIS filters, templates, and XML structures.
- **License administrator**  
Use ARIS Administration/User Management to import, export, or delete licenses.



- **Tenant administrator**  
Create, back up, restore, and delete tenants on the ARIS Cloud Controller server.
- **Portal administrator**  
Manage the portal's corporate design.
- **PPM user**  
Use PPM.
- **Process Governance administrator**  
Manage Process Governance processes.
- **Publisher administrator**  
Generate, update, and delete ARIS Publisher exports.
- **Publishing administrator**  
Specify which version of which database is to be published in the portal.
- **Server administrator**  
Query and terminate sessions on ARIS Design Server or ARIS Connect Server. Back up and update the system database, and display database statistics and all databases.
- **Service administrator**  
Register external systems and services (e.g., external database systems, mail servers, or proxy servers) on the ARIS Cloud Controller server.
- **Script administrator**  
Manage report scripts and macros of ARIS Design Server or ARIS Connect Server.
- **Technical configuration administrator**  
Configure systems, such as LDAP or SMTP, use ARIS Administration/User Management to import or export configuration files, and manage documents.

---

### ARIS video tutorial

ARIS Architect 'Administration' tab versus ARIS Administration

(<http://www.ariscommunity.com/videos/aris-architect-administration-tab-versus-aris-administration>)



### 4.12.3 Function Privileges within ARIS Architect

You can use function privileges to provide users with specific functionality and thus control their authorizations across a database in ARIS Architect. Function privileges are assigned on the properties pages of users or user groups. In ARIS Administration, administrators manage users, user groups, cross-database and cross-product privileges and licenses for all ARIS products.

#### Show user management

Displays the database items **Users** and **User groups** on the **Administration** tab. Users with this function privilege cannot edit users/user groups.

#### User management

Displays the database items **Users** and **User groups** on the **Administration** tab.

Users with this function privilege can edit user groups and users who are not system users.

- Assign method filters
- Assign function privileges
- Assign access privileges
- Specify default method filter

Users 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 properties
- 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 ARIS Method.

To change ARIS Method you need the **Configuration administrator** function privilege in ARIS Administration.

### Prefix management

Users with the **Prefix management** 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 the **Report automation** 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

After the installation you may need to customize the system.

If you use standard licenses without extension packs the system will work without customization. If you use Oracle or Microsoft SQL Server as database management systems you must provide jdbc drivers (Page 74) after the setup process.

For some functionalities and extension packs, e.g. ARIS Publisher/IT Inventory (Page 140) or Process-Driven Management for SAP® Solutions (Page 163) 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 58).

Please always use the **reconfigure** ACC command to change settings. When performing an update setup all modifications made manually in CFG or XML files will be lost.

After you have customized the system administrators need to create users and user groups in the ARIS Administration and assign privileges and licenses (Page 58).

### 5.1 Administration Tools

For administration please use the tools described in this chapter.

#### 5.1.1 ARIS Administration

The ARIS Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (Page 42) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system (Page 65). ARIS Administration and the online help are available for users holding the **User management** and **License management** function privilege. After the installation only the administrative users **superuser** or **system** can login. For detailed information please refer to the ARIS Administration's online help.

ARIS also provides a set of command-line tools (Page 59) that can be used to perform administrative operations.



### 5.1.2 Command Line Tools for the ARIS Administration

ARIS 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 ARIS 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 96) makes it possible to create a tenant, import a license and migrate or restore a database in one step (Page 116). If you do not use the standard database system, please make sure to create additional schemes in your Oracle (Page 33) or Microsoft SQL database management system (Page 36) and you have assigned the tenants (Page 85) 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) For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used. --arisservicePassword (-arisservicep) <PASSWORD> --superuserPassword (-superuserp) <PASSWORD> --systemPassword (-systemp) <PASSWORD>



Commands	Description	Parameters
listTenants	Lists all existing tenants.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory)
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>



Commands	Description	Parameters
deleteUser	Deletes an existing user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <USERLOGIN> (mandatory)
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 ARIS 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 ARIS 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"> <li>▪ tenant</li> <li>▪ users</li> <li>▪ groups</li> <li>▪ user-group assignments</li> <li>▪ profile pictures (optional)</li> <li>▪ permissions, dependent on the privileges of the user who enters the command</li> <li>▪ licenses, dependent on the privileges of the user who enters the command</li> <li>▪ configuration, dependent on the privileges of the user who enters the command</li> </ul> <p>The data is stored in <b>JSON</b> format and packed into an encrypted <b>ZIP</b> 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"> <li>1. All entities are assigned to <b>default</b>.</li> <li>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.</li> <li>3. User passwords are decrypted and re-hashed using K hashing mechanisms.</li> <li>4. User flag <b>active for process automation</b> is migrated to permissions.</li> <li>5. User flag <b>process administration</b> is migrated to permissions.</li> </ol>
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 96).

To start ACC under a Windows operating system click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the agent user's credentials you must enter the password.

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 19).

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)
postgres_m : STARTED (com.aris.runnables.PostgreSQL-run-prod-1.0.0-RC17)
postgresECP_m : STARTED (com.aris.runnables.PostgreSQLECP-run-prod-1.0.0-RC17)
couchdb_m   : STARTED (com.aris.runnables.couchdb-run-prod-1.1.1-RC17)
cloudsearch_m : STARTED (com.aris.cip.y-cloudsearch-run-prod-3.0.0-RC26)
elastic_m   : STARTED (com.aris.runnables.elasticsearch-run-prod-1.0.0-RC17)
adsadmin_m  : STARTED (com.aris.adsadmin.y-adsadmin-run-prod-12.0.0-RC23)
umcadmin_m  : STARTED (com.aris.umcadmin.y-umcadmin-run-prod-12.0.0-RC23)
loadbalancer_m : STARTED (com.aris.runnables.httpd.httpd-run-prod-1.0.0-RC17)
abs_m       : STARTED (com.aris.modeling.components.y-server-run-prod-9.0.0-RC110)
apg_m       : STARTED (com.aris.age.age-run-prod-9.0.0-RC30)
copernicus_m : STARTED (com.aris.copernicus.copernicus-portal-server-run-prod-9.0.0-RC17)
octopus_m   : STARTED (com.aris.octopus.y-octopus_server-run-prod-2.7.0-RC13)
ecp_m       : STARTED (com.aris.runnables.ecp-run-prod-3.0.0-RC25)
simulation_m : STARTED (com.aris.modeling.components.simusrv.y-simuserver-run-prod-9.0.0-RC110)
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 207).



## 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 and 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 89) to ensure more memory for the system.



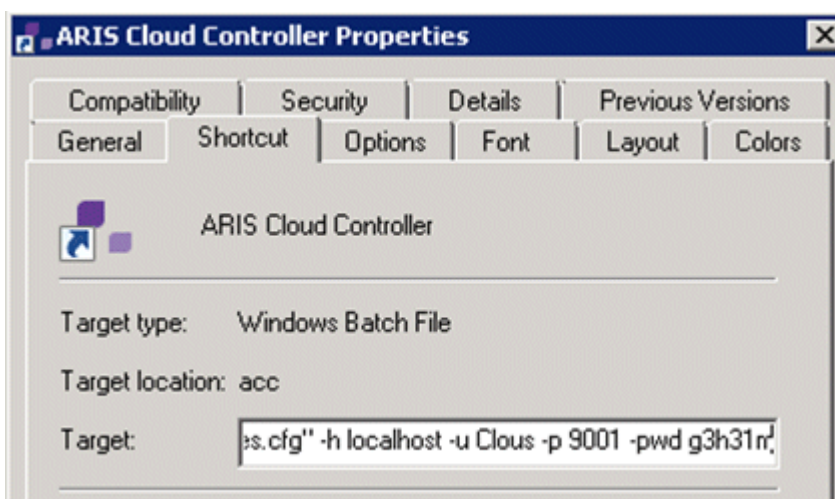
### 5.1.3.2 Change the Default Agent User's Password

The agent user has access to ARIS Cloud Controller (ACC). If you did not change the default password during the setup process you should do so manually to prevent unauthorized access.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. Change the password:  

```
set password = "<enter the new password>"
```
3. Restart the ARIS service. 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 credentials**.



### 5.1.3.3 Provide Jdbc Drivers

If you set up ARIS Design Server, ARIS Connect Server or ARIS Publisher Server using Oracle or Microsoft SQL Server (Page 30) instead of the standard database system you must provide the specific drivers for each server. If you have added HDS runnables (Page 92) you need to add the required JDBC driver to every **HDS** runnable as well.

#### Procedure

1. Download the jdbc driver from the Microsoft and Oracle Web Sites to a directory of your choice.

Save the file, e. g. **d:\ojdbc6-11.2.0.3.jar**.

2. Start ARIS Cloud Controller (ACC) (Page 69).

3. Stop the Server components. Enter stop **<InstanceId>**.

**<InstanceId>** 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** or **businesspublisher\_s**, **businesspublisher\_m** or **businesspublisher\_l**.

4. Provide the jdbc driver for ARIS Design Server/ARIS Connect Server using this command:  
**enhance <InstanceId> with webappsClasspath local file <path to the saved file>**,  
If you have blanks or special characters in the path, you need to put it in quotes and use a double backslash instead of a single backslash

e. g.

```
enhance abs_s with webappsClasspath local file "d:\\ojdbc6-11.2.0.3.jar"
or
```

```
enhance hds_m with commonsClasspath local file "d:\\ojdbc6-11.2.0.3.jar"
```

The file has been made available. The source file can be deleted.

5. Start the Server components. Enter start **<InstanceId>** e. g.:

```
start abs_s
```

or

```
start hds_m.
```

The driver will be available.



### 5.1.3.4 Provide License Files

You can provide license for ARIS Design Server, ARIS Connect Server or ARIS Publisher Server using ACC.

#### Procedure

1. Save the zip file, e. g. **d:/Publisher\_Server\_key.zip**
2. Start ARIS Cloud Controller (ACC) (Page 69).
3. Stop the Server components. Enter stop **<InstanceId>**.  
**<InstanceId>** 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** or **businesspublisher\_s**, **businesspublisher\_m** or **businesspublisher\_l**.
4. Provide the license for the **<InstanceId>** component using this command:  
`enhance <InstanceId> with webappsClasspath local file <path to the saved file>`,  
e. g.  
`enhance businesspublisher_l with webappsClasspath local file "d:/Publisher_Server_key.zip"`
5. Start the Server components. Enter start **<InstanceId>** e. g. **businesspublisher\_s**, **businesspublisher\_m** or **businesspublisher\_l**.

The license is available.





### 5.1.3.5 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 or server **LOCAL**.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
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.



### 5.1.3.6 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 69).
4. Stop (Page 72) 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 72) 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 207).



### 5.1.3.7 Redirect Ports

If you have performed an ARIS installation on a Linux operating system (Page 19) 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 69). Relative to your Linux system you need to redirect different ports one after another.
2. To redirect ports to be accessed from external clients enter the commands using the following syntax:

```
iptables -t nat -A PREROUTING -i <networt interface> -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. To redirect ports to be accessed from internal web browsers enter the commands using the following syntax:

```
iptables -t nat -A OUTPUT -p tcp -d <server IP address> /<bit number netmask> --dport <port number to redirect> -j REDIRECT --to-port <port number>
```

This example redirects port **80** to port **1080** using **127.0.0.1** for **localhost** and **/8** using netmask 255.255.255.0:

```
iptables -t nat -A OUTPUT -p tcp -d 127.0.0.0/8 --dport 80 -j REDIRECT --to-port 1080
```

In order to use personal computer names too please enter this command again using the IP address of the personal computer, e.g.:

```
iptables -t nat -A OUTPUT -p tcp -d 10.128.33.176/8 --dport 80 -j REDIRECT --to-port 1080
```

4. Redirect other ports, e.g. port **443**.
5. Enter **startall**.

ARIS components run using the redirected ports.

If components do not start up properly, please resolve possible port conflicts (Page 211).



### 5.1.3.8 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 ARIS Administration's command line tools (Page 61). Using some advanced ACC commands (Page 96) makes it possible to create a tenant, import a license and migrate or restore a database in one step (Page 116).

#### Prerequisites

If you do not use the standard database system, please make sure to create additional schemes in your Oracle (Page 33) or Microsoft SQL database management system (Page 36) and you have assigned the tenants (Page 85) to these schemes.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. Enter:

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

For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.

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 58) for the **test01** tenant.
4. Start a ARIS client and log in using this tenant. The system database will be created for that tenant.

The tenant is created and can be backed up (Page 80).



### 5.1.3.9 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 Process Governance data

It is recommended to stop the **apg\_<s, m or l>** (Page 72) component before backing up tenants.

- All ad hoc analyses and queries

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

#### Prerequisites

- ARIS Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.
- Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.
- Make sure to have been logged into an ARIS client using this tenant.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. Enter:

```
backup tenant <tenant name> to <pathToBackUpFile> username=<user name of a user
holding the required privileges> password=<this user's password>.
e. g:
backup tenant default to "f:\\backupDefault.acb" username=y1234
password=managery1234.
```

Notice the double backslashes. Alternatively, use a single forward slash.

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

You can restore (Page 81) 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 ARIS Administration's command line tools (Page 61).



### 5.1.3.10 Restore a Tenant

You can restore a tenant or copy the content of this tenant (Page 82) 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 Process Governance data
- All ad hoc analyses and queries

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

#### Warning

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 Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.  
Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. To restore Process Governance data, stop the Process Governance component first. To do so enter  
`stop <Process Governance instance>, e.g. stop apg_m`
3. Enter:  
`restore tenant <tenant name> from <pathToBackUpFile> username=<user name of a user holding the required privileges> password=<this user's password>.`
4. In case you restored Process Governance data, restart the Process Governance component. To do so enter:  
`start <Process Governance instance>, e.g. start apg_m`

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 ARIS Administration's command line tools (Page 61).



### 5.1.3.11 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 Process Governance data
- All ad hoc analyses and queries

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

#### Prerequisites

- You need access to the relevant back-up zip file
- ARIS Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.  
Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.

#### Procedure

1. Create a tenant (Page 79) on the ARIS server where the tenant will be copied to and import the licenses (Page 58).
2. Start ARIS Cloud Controller (ACC) (Page 69).
3. To restore Process Governance data, stop the Process Governance component first. To do so enter  
`stop <<_apg instance>, e.g. stop apg_m`
4. Enter:  
`restore tenant <Tenant name> from <pathToBackUpFile> username=<Superuser of the Administrator> password=<Superuser password>.`
5. In case you restored Process Governance data, restart the Process Governance component.  
To do so enter  
`start <<_apg instance>, e.g. start apg_m`

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 ARIS Administration's command line tools (Page 61).



### 5.1.3.12 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 Process Governance data
- All ad hoc analyses and queries

#### Prerequisites

- ARIS Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.

Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.

#### Procedure

1. Back up (Page 80) the tenant in order to restore (Page 81) data.
2. Start ARIS Cloud Controller (ACC) (Page 69).
3. Enter:

```
delete tenant <Tenant name> 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 ARIS Administration's command line tools (Page 61).





### 5.1.3.13 Update the System Databases

If you have updated (Page 22) your installation you must update all tenant's system databases. The **default** tenant's system database will be updated automatically only if you are using the standard database system or a Microsoft SQL database system. In case of an Oracle database system you must update the **default** tenant's system database manually. If you do not update system databases all updates concerning e.g. reports, macros, semantic checks, will not be available.

#### Prerequisites

- ARIS Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.

Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
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.

### 5.1.3.14 Re-Index Databases

During the update (Page 22) process of ARIS Connect using the standard database system or Microsoft SQL all databases are re-indexed automatically. If you are using an Oracle database system you must re-index all databases manually. Using large databases this may take some time.

#### Prerequisites

- ARIS Design Server or ARIS Connect Server Installation
- Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**, **Document administrator** and **Database administrator**.

Users need either an **ARIS Architect** license or an **ARIS UML Designer** license.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. Enter

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

All tenant's databases will be re-indexed.



### 5.1.3.15 Configure the Database Connection for Additional Schemes

#### Assign Tenant to Database Schema

After you have created an empty Oracle (Page 36) or Microsoft SQL (Page 33) schema for an additional tenant the tenant must be assigned to the database schema.

1. Start ARIS Cloud Controller (ACC) (Page 69).
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>
```

For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.

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 holding administrative privileges and assign the tenant to the **ARIS Administration** service.

1. you must create the technical ARIS user:

```
invoke createUser on umcadmin_<s, m or l> tenant.name="<tenantId>"
tenant.user.name="<UserWithAdminPrivilegesOnTenant>"
tenant.user.pwd="<SafeTechAdminUserPassword>"
affected.user="aris_tech_user_ecp_<tenantId>"
affected.pwd="<SafeTechAdminUserPassword>" as.technical.user="true"
```

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

```
set tenant <tenantId> data for app umc ecpTechnicalUserName
="aris_tech_user_ecp_<tenantId>"
ecpTechnicalUserPassword="<SafeTechAdminUserPassword>"
```

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:

```
validationQuery="select 1 from dual" and testOnBorrow=true
```

### For Microsoft SQL use:

```
validationQuery="select 1" and testOnBorrow=true
```

During registration of external service add parameters (Page 112) e. g. for Oracle:

```
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 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.



### 5.1.3.16 Update External Service (Database Clusters)

If you have performed an installation using an Oracle or Microsoft SQL database cluster you need to reconfigure the external service after the installation process.

This procedure shows an example for an Oracle database.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
2. To connect to an Oracle cluster using a JDBC URL you may use this example:

```
update external service <dbserviceID>
url="jdbc:oracle:thin:@(DESCRIPTION=ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=<virtual-ip-oracle-cluster>)(PORT = <target
port>))) (ONNECT_DATA=(SERVICE_NAME=cluster-database-name))) "
driverClassName="oracle.jdbc.OracleDriver" username="<cip_app_user>"
password="<new_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
```

The ARIS Server can be started using the Oracle cluster.

### 5.1.3.17 Configure SMTP Mail Server Connection

If you did not enter the SMTP server connection parameters (Page 114) during the setup process of a previous ARIS version you need to register your SMTP server manually.

1. Start ARIS Cloud Controller (ACC) (Page 69).
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@YourMailServerAddressWithD
omain>
```

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

```
stopall
```

7. When all components are stopped enter:

```
startall
```

SMTP mail server configuration is set.



### 5.1.3.18 Use existing ARIS document storage and ARIS Administration for ARIS Risk & Compliance Manager

After you have installed ARIS Risk & Compliance Manager this installation uses a separate set of components, e. g. ARIS 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 69) 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 ARIS 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 ARIS Administration of your productive system.

To ensure more memory for the ARIS Risk & Compliance Manager system you can shut down all other components (Page 89) or remove (Page 91) them.



### 5.1.3.19 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 88) you might shut down all other components of your ARIS Risk & Compliance Manager installation.

Instead of turning off components manually (Page 72) 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 to see the current setting:

```
ACC+ n1>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+ n1>
```



### 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_1          property autostart="true"
set postgres_1     property autostart="true"
set postgresECP_1  property autostart="true"
set couchdb_1      property autostart="true"
set cloudsearch_1  property autostart="true"
set elastic_1      property autostart="true"
set adsadmin_1     property autostart="true"
set umcadmin_1     property autostart="true"
set loadbalancer_1 property autostart="true"
set abs_1          property autostart="true"
set apg_1          property autostart="false"
set copernicus_1   property autostart="true"
set octopus_1      property autostart="false"
set ecp_1          property autostart="true"
set simulation_1   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_1          property autostart="true"
set postgres_1     property autostart="true"
set postgresECP_1  property autostart="false"
set couchdb_1      property autostart="true"
set cloudsearch_1  property autostart="true"
set elastic_1      property autostart="true"
set adsadmin_1     property autostart="true"
set umcadmin_1     property autostart="true"
set loadbalancer_1 property autostart="true"
set abs_1          property autostart="true"
set apg_1          property autostart="true"
set copernicus_1   property autostart="true"
set octopus_1      property autostart="true"
set ecp_1          property autostart="false"
set simulation_1   property autostart="true"
```



### 5.1.3.20 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 88) in order to use the ARIS Connect server's or ARIS Design Server's ARIS Administration, you might shut down all other components (Page 89) 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 69) 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.





### 5.1.3.21 Add High Definition

The heavy-duty server (HDS) is an additional component that takes the load of running ARIS reports from your **abs\_<s, m or l>** modeling component. To install HDS, you basically need to add two additional runnables to your installation, the **HDS** runnable itself, and the **CDF** runnable, which is required for communication between the **abs\_<s, m or l>** modeling component and the HDS instances. This documentation assumes that you want to add the HDS to an installation done with the standard setup. Where special handling is required in case of a distributed installation, this will be mentioned as such.

#### Prerequisites

- You have a running ARIS Connect server or ARIS Design Server installation.
- You have access to the remote repository (Page 95).
- You have basic knowledge of how to use the ARIS Cloud Controller (ACC) (Page 69).  
You always run the ACC connected to your ARIS Agent(s), either using the usual command line switches to connect to a single agent (-h, -u, -pwd ) in case of a single node installation, or using a node file (passed to the ACC with a -n switch) or by manually issuing **add node** commands in case of a distributed installation.
- Start ACC using the start menu shortcut that was created with setup. Otherwise make sure to always pass in the proper generated **apptypes.cfg** file to this ACC using the **-c** command line switch. It is important that the generated **apptypes.cfg** file is of the same version as the version of the installation to which you want to add the HDS.

1. Start ACC. Under a Windows operating system click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**.

2. Enter the agent user's password.

3. Make the ARIS Agent use the remote repository (Page 95) for downloading the runnables from. Enter:

```
set remote.repository.url = "<remoteRepositoryURL>"
```

In case of a local repository enter e.g.:

```
set remote.repository.url = "file://d:/arisrepo"
```

In case of a server-based repository enter e.g.:

```
set remote.repository.url = http://internal.mycompany.com/arisrepo
```

4. If you have installed the ARIS server using the setup, the ARIS Agent will be set to only take runnables from its local repository, to change that run the command:

```
set local.repository.only=false
```

The ARIS Agent will use the provided remote repository.

5. To add the **CDF** runnable, enter the command:

```
configure cdf_<s, m, or l> cdf_<s, m, or l>
```

e.g.

```
configure cdf_m cdf_m
```



Note that different from most runnables, the sizing that you choose doesn't matter for the CDF runnable.

You can configure more than one **CDF** runnable into your installation for fail-over, but this only makes sense if you have more than one machine. In case you want to have more than one **CDF** runnable on one node installations, you need to redirect the ports (Page 78) of the additional **CDF** instances to avoid port conflicts.

6. In addition to just configuring multiple **CDF** instances, you also have to set two parameters on each **CDF** instance. The first parameter needs to be set to the number of **CDF** runnables in your installation. Enter:

```
kafka.default.replication.factor=<number>
```

For example, if you use three **CDF** runnables

```
set kafka.default.replication.factor=3
```

7. The second parameter assigns an ID to the **CDF** runnable instance. Each instance in your installation must have a unique ID. Best practice is to just numbering your instances sequentially. For example, if you want to configure three **CDF** runnables on three nodes that you registered as **n1**, **n2** and **n3**, you could configure them like this:

```
on n1 configure cdf_m cdf kafka.default.replication.factor=3 kafka.broker.id=0
```

```
on n2 configure cdf_m cdf kafka.default.replication.factor=3 kafka.broker.id=1
```

```
on n3 configure cdf_m cdf kafka.default.replication.factor=3 kafka.broker.id=2
```

8. To add the **HDS** runnable, issue the command:

```
configure hds_<s, m, or l> hds_<s, m, or l>
```

e.g.:

```
configure hds_m hds_m
```

The only difference between the three sizings is the maximum size of the Java heap. Since you probably want to use the HDS because you have very memory-intensive reports, using the **S** sizing does not make too much sense. The **M** sizing sets the maximum heap size to 8GB, the **L** sizing to 16GB. Your machine needs to have enough physical memory available for the chosen heap size. This memory requirement comes in addition to the memory needed to any already existing runnables on that node. You can always change this memory setting (Page 76) later using the **reconfigure** command. If you are not sure what to choose, the best bet is to use the same sizing that have been selected during the ARIS Server's setup process.

You can configure more than one **HDS** runnable into your installation, both for fail-over and for distributing the load of reports across several instances and machines. In case you want to have more than one HDS on a one node installation, you need to change the ports of the additional HDS instances to be free of conflicts. Using multiple HDS on one node will only make sense if this single machine is very powerful and has a lot of RAM available.

By default, an HDS uses four ports, one for HTTP traffic, one for AJP, one for JMX, and one for remote debugging.



9. To change them, use the parameters:

```
CATALINA_PORT=<HTTP_PORT> CATALINA_AJP_PORT=<AJP_PORT>
JAVA-Dcom.sun.management.jmxremote.port=<JMX_PORT> JAVA_OPTS="-server
-Xrunjdwp:transport=dt_socket,address=<REMOTE_DEBUGGING_PORT>,server=y,suspend=n"
```

Replace the placeholders in angled brackets with ports that are not used by and other runnable or third party software (Page 211) on that machine, for example:

```
configure hds_m hds2 CATALINA_PORT=10099 CATALINA_AJP_PORT=11099
JAVA-Dcom.sun.management.jmxremote.port="9619" JAVA_OPTS="-server
-Xrunjdwp:transport=dt_socket,address=9719,server=y,suspend=n"
```

or

```
reconfigure hds2 CATALINA_PORT=10099 CATALINA_AJP_PORT=11099
JAVA-Dcom.sun.management.jmxremote.port="9619" JAVA_OPTS="-server
-Xrunjdwp:transport=dt_socket,address=9719,server=y,suspend=n"
```

10. If you use an external database management system (DBMS) like Oracle or Microsoft SQL with your ARIS installation, you need to add the proper JDBC driver to every **HDS** runnable (Page 74).
11. For the changes to become effective, you need to stop and restart your entire installation. Enter **stopall**. After the command completes, restart all components with **startall**.
- All reports are be handled by the HDS.



### 5.1.3.22 Making an ARIS remote repository available

A remote repository is an actual server holding the runnables, but it can also be a local directory in case you don't have a server available. During the setup process the remote ARIS repository is been made available. Therefore an http server is installed temporarily.

To add runnables (Page 92) into an ARIS Agent that has not yet installed an instance of this particular type, you need to make the ARIS Agent use the remote repository again that contains the runnables in question.

#### File-based repository

The simplest approach is to simply copy the contents of the folder **<DVD\_Root>\Setups\Windows\Setup\_Data** from the installation media to a physical drive on the machine to which you want to add the runnables, for example **d:\arisrepo**. In this example, the URL to your remote repository would be **"file://d:/arisrepo"**.

#### Server-based remote repository

If you have a distributed installation, you might want to use a remote repository, which can be any HTTP or FTP server that is reachable from the machine to which you want to add runnables. In that case, simply copy the contents of the folder **<DVD\_Root>\Setups\Windows\Setup\_Data** to your HTTP or FTP server into a suitable location.

#### Example

Assuming that you use an HTTP server whose URL is **http://internal.mycompany.com** and you copy the files into the **arisrepo** subfolder into the document root of that HTTP server. The URL to your ARIS repository would be **http://internal.mycompany.com/arisrepo**.



### 5.1.3.23 Advanced Configuration using ACC

#### Warning

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.



### 5.1.3.23.1 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 <b>register app type</b> and <b>set acc cfg</b> commands. If no configuration file is specified, ACC will look for a file named <b>acc.cfg</b> 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 <b>add node</b> command using the given host name followed by a <b>set current node</b> 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 <b>-h</b> switch.



Switch	Value	Description
-u, --username	The user name to use when connecting directly to an agent with the <b>-h</b> option.	Used to specify the user name to use when connecting directly to an agent with enabled authentication using the <b>-h</b> command-line option <b>*.*</b>
-pwd, --password	The password to use when connecting directly to an agent with the <b>-h</b> option.	Used to specify the password to use when connecting directly to an agent with enabled authentication using the <b>-h</b> command-line option <b>*.*</b> If a user name is specified (with <b>-u</b> ) 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 information (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 <b>&lt;nodeName&gt;=&lt;ipOrHostName&gt; ['@' &lt;agentPort&gt;]</b> or the new format, where the file only contains <b>add node</b> commands.
-ssl, --use-ssl	true/false or on/off  Default=false/off	Specify a value of <b>true</b> or <b>on</b> 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 to send them to a node other than the current node.set current node. Optional ARIS Cloud Controller (ACC) command parameters are highlighted in **(round brackets followed by)?**.

Command and Syntax	Description
<b>list nodes</b> <code>list nodes</code>	Lists the currently registered cloud nodes.
<b>show nodes</b> <code>show node &lt;nodeName&gt;</code>	Shows details of the specified node.
<b>Add node</b> <code>Add node &lt;nodeName&gt;          &lt;ipOrHostName&gt; (@          &lt;agentPort&gt;)? (&lt;username&gt;          &lt;password&gt;)?</code>	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.
<b>remove node</b> <code>remove node &lt;nodeName&gt;</code>	Deregisters the cloud node with the given logical node name.
<b>add zk instance</b> <code>&lt;nodeSpec&gt;? add (zk           zookeeper) (master           observer)? instance? (using          instanceId? &lt;instanceId&gt;)?</code>	<p>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.</p> <p>Note that the change is not submitted directly, but only with the separate <b>commit zk changes</b> command.</p>



Command and Syntax	Description
<b>remove zk instance</b> <code>&lt;nodeSpec&gt;? remove (zk   zookeeper) instance? (instanceId? &lt;instanceId&gt;)?   \t remove (zk   zookeeper) instance? (myId? &lt;myId&gt;)</code>	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.
<b>show zk changes</b> <code>show pending? (zk   zookeeper) (change   changes)</code>	Shows the currently pending changes of the zookeeper ensemble that will happen when using the <b>commit zk changes</b> command.
<b>commit zk changes</b> <code>commit pending? (zk   zookeeper) (change   changes) force?</code>	Commits all currently pending changes of the zookeeper ensemble.
<b>validate zk changes</b> <code>validate pending? (zk   zookeeper) (change   changes)</code>	Validates the currently pending changes of the zookeeper ensemble.
<b>discard zk changes</b> <code>discard pending? (zk   zookeeper) (change   changes)</code>	Discards all currently pending changes of the Zookeeper ensemble.
<b>list zk instance</b> <code>list (zk   zookeeper) instances</code>	Lists all Zookeeper instances of the ensemble with their configuration.
<b>list runnables</b> <code>list (instances   runnables)</code>	Lists all runnables that are configured on the specified node or the current node, if no node name is specified.
<b>configure</b> <code>&lt;nodeSpec&gt;? configure &lt;groupId&gt;.&lt;artifactId&gt; &lt;version&gt; &lt;instInstancId&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)* (enhance with &lt;enhancement&gt; (, &lt;enhancement&gt;)*)?</code>	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.
<b>start</b> <code>&lt;nodeSpec&gt;? start &lt;instanceId&gt;</code>	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
<b>stop</b> <code>&lt;nodeSpec&gt;? stop  &lt;instanceId&gt;</code>	Stops the runnable with the given instance ID on the specified node or the current node, if no node name is specified.
<b>kill</b> <code>&lt;nodeSpec&gt;? kill  &lt;instanceId&gt;</code>	Kills the runnable with the given instance ID on the specified node or the current node, if no node name is specified.
<b>reconfigure</b> <code>&lt;nodeSpec&gt;? reconfigure  &lt;instanceId&gt; (+? &lt;key&gt;  &lt;value&gt; (, &lt;value&gt;)*   -  &lt;key&gt;)*</code>	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.
<b>deconfigure</b> <code>&lt;nodeSpec&gt;? deconfigure  &lt;instanceId&gt;</code>	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>WARNING: You will lose all persistent data stored by this runnable!</div>
<b>show instance</b> <code>&lt;nodeSpec&gt;? show (runnable    instance) &lt;instanceId&gt; (cfg    config   configuration)</code>	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
<b>update</b> <code>&lt;nodeSpec&gt;? update (force   check only)? &lt;instanceId&gt; (to? &lt;version&gt;)?</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>
<b>startall</b> <code>&lt;nodeSpec&gt;? 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 <b>STARTED</b> or <b>STARTING</b> state.</p>
<b>stopall</b> <code>&lt;nodeSpec&gt;? stopall</code>	<p>Stops all runnables on the specified node (or the current node, if no node name is specified) that are currently in <b>STARTED</b> state.</p>
<b>killall</b> <code>&lt;nodeSpec&gt;? 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 <b>STOPPED</b> or <b>DOWN</b> state.</p>
<b>deconfigureall</b> <code>&lt;nodeSpec&gt;? 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 <b>STOPPED</b> or <b>DOWN</b> state.</p> <p><b>WARNING:</b> You will lose any persistent data stored by any of the deconfigured runnables!</p>
<b>updateall</b> <code>&lt;nodeSpec&gt;? 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
<b>reset node</b> <code>&lt;nodeSpec&gt;? reset   reset node &lt;nodeName&gt;</code>	<p>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.</p> <p><b>WARNING:</b> You will lose all persistent data stored by all runnables on the node!</p>
<b>restart agent</b> <code>&lt;nodeSpec&gt;? restart agent</code>	<p>Restarts the agent on the specified node (or the current node, if no node name is specified).</p>
<b>show agent</b> <code>&lt;nodeSpec&gt;? show agent (cfg   config   configuration)</code>	<p>Shows the configuration parameters of the cloud agent on the specified node (or the current node, if no node name is specified).</p>
<b>set agent</b> <code>&lt;nodeSpec&gt;? set &lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*</code>	<p>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 ('')).</p>
<b>get agent param</b> <code>&lt;nodeSpec&gt;? get &lt;key&gt;</code>	<p>Gets the specified configuration parameter of the cloud agent on the specified node (or the current node, if no node name is specified).</p>
<b>set current node</b> <code>set current node &lt;nodeName&gt;</code>	<p>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.</p>
<code>on [node] &lt;nodeName&gt;</code>	<p>Commands can optionally be prefixed with a node specification referred to as &lt;nodeSpec&gt; in the syntax description of the commands to send them to a node other than the current node.</p>
<b>help</b> <code>help (&lt;command&gt;   &lt;nonTerminal&gt;)?</code>	<p>Shows the list of available commands or detailed information of the specified command.</p>
<b>exit</b> <code>exit</code>	<p>Exits the ACC.</p>



Command and Syntax	Description
<b>wait for</b> <code>&lt;nodeSpec&gt;? wait for (&lt;state&gt; ((,   or) &lt;state&gt;*) of &lt;instanceId&gt; (timeout &lt;INT&gt;)?</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.
<b>register app type</b> <code>register (app   application ) type &lt;appId&gt; &lt;groupId&gt;.&lt;artifactId&gt; &lt;version&gt; &lt;portSpec&gt;* (defaults (&lt;key&gt; &lt;value&gt; ( , &lt;value&gt;*)+ ) ?</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.
<b>deregister app type</b> <code>deregister (app   application ) type &lt;appId&gt;?</code>	Removes the registered application type with the given application type ID.
<b>list app instances</b> <code>list (app   application) type &lt;appId&gt; instances?</code>	Lists all instances of the specified application type across all nodes.
<b>list app types</b> <code>list (app   application) types</code>	Lists all registered application types.
<b>show controller</b> <code>show (acc   controller) (cfg   config)</code>	Shows the current value of all ACC configuration parameters.
<b>set controller</b> <code>set (acc   controller) (cfg   config) &lt;key&gt; &lt;value&gt; ( , &lt;value&gt;)*</code>	Sets the ACC configuration parameter <key> to the given <value>.
<b>get controller cfg parameters</b> <code>get (acc   controller) (cfg   config) &lt;key&gt;</code>	Gets the value of the ACC configuration parameter <key>.



Command and Syntax	Description
<b>create tenant</b> <pre>create tenant &lt;tenantId&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</pre>	<p>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 <b>master.tenant.user.name</b> and <b>master.tenant.user.pwd</b>, respectively. An initial password of the new tenant's system user can be specified with the parameter <b>tenant.user.pwd</b>. If it is not specified, the password will be manager.</p> <p>For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.</p>
<b>backup tenant</b> <pre>backup tenant &lt;tenantId&gt; (to &lt;path&gt;)? (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</pre>	<p>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 <b>username</b> and <b>password</b>, 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.</p>
<b>restore tenant</b> <pre>restore tenant &lt;tenantId&gt; from &lt;path&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</pre>	<p>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 <b>user name</b> and <b>password</b>, respectively.</p>
<b>delete tenant</b> <pre>delete tenant &lt;tenantId&gt;</pre>	<p>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 <b>master.tenant.user.name</b> and <b>master.tenant.user.pwd</b>, respectively.</p> <p>Warning: If the optional force keyword is used, the security question <b>Are you sure?</b> is overridden, i.e., the tenant and its data is deleted without further notice. force?</p>
<b>list tenants</b> <pre>list tenants</pre>	<p>Lists all currently registered tenants.</p>



Command and Syntax	Description
<b>list</b> <code>list services for (tenants   tenant &lt;tenantId&gt;)</code>	<p>Lists the current assignments of services to tenants.</p> <p>Optionally, a &lt;tenantId&gt; can be specified to show only the assignments for this tenant.</p>
<b>assign tenant to service</b> <code>assign tenant? &lt;tenantId&gt; to service? &lt;serviceId&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</code>	<p>Assigns the service instance with the specified &lt;serviceId&gt; to the tenant with the given &lt;tenantId&gt;. Optionally, parameters relevant for this tenant-2-service mapping can be specified.</p>
<b>unassign tenant from service</b> <code>unassign tenant? &lt;tenantId&gt; from service? &lt;serviceId&gt;</code>	<p>Removes the existing service-to-tenant assignment between the service with the specified &lt;serviceId&gt; and the tenant with the given &lt;tenantId&gt;.</p>
<b>set tenant data</b> <code>set tenant &lt;tenantId&gt; data (for (app   application   services) (&lt;serviceType&gt;   &lt;appType&gt;))? (+? &lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*   - &lt;key&gt;)*</code>	<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>
<b>get tenant data</b> <code>get tenant &lt;tenantId&gt; data (for (app   application   services) (&lt;serviceType&gt;   &lt;appType&gt;))? &lt;key&gt;</code>	<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>
<b>show tenant data</b> <code>show tenant &lt;tenantId&gt; data (for (app   application   services) (&lt;serviceType&gt;   &lt;appType&gt;))?</code>	<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
<b>set system config</b> <pre>set system (config   cfg   configuration) (+? &lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*   - &lt;key&gt;)*</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 <b>set system config</b> 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.
<b>get system config</b> <pre>get system (config   cfg   configuration) &lt;key&gt;</pre>	Allows to get the system configuration value with the specified key.
<b>show system config</b> <pre>show system (config   cfg   configuration)</pre>	Displays all system configuration data values that are currently configured.
<b>register external service</b> <pre>register external? service &lt;serviceType&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</pre>	Registers an external service of a given service type (e.g. external DBMS (Page 85), SMTP server (Page 87), HTTP proxy (Page 115)) with its configuration parameters within the system.
<b>list external service</b> <pre>list external? services</pre>	Lists all external (or non-managed) services currently registered with the system.
<b>show external service</b> <pre>show external? service &lt;serviceId&gt;</pre>	Displays the details of an external service currently registered with the system.
<b>deregister external service</b> <pre>deregister external? service &lt;serviceId&gt;</pre>	Removes a registered external service from the system.
<b>update external service</b> <pre>update external? service &lt;serviceId&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</pre>	Updates the configuration parameters of an already registered external service.
<b>list tenants for services</b> <pre>list tenants for (services   service &lt;serviceId&gt;)</pre>	Lists the current assignments of tenants to services. Optionally, a <serviceId> can be specified to show only the assignments for this service.
<b>get runnable property</b> <pre>&lt;nodeSpec&gt;? get (runnable   instance)? &lt;instanceId&gt; property &lt;key&gt;</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
<b>set runnable property</b> <code>&lt;nodeSpec&gt;? set (runnable   instance)? &lt;instanceId&gt; property (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*)*</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.
<b>enhance runnable</b> <code>&lt;nodeSpec&gt;? enhance &lt;instanceId&gt; with &lt;enhancement&gt; (, &lt;enhancement&gt;)*</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.
<b>enhance any instance</b> <code>enhance any (&lt;state&gt; ((,   or) &lt;state&gt;)*)? &lt;appTypeId&gt; instance with &lt;enhancement&gt; (, &lt;enhancement&gt;)*</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.
<b>invoke</b> <code>&lt;nodeSpec&gt;? invoke &lt;operation&gt; on &lt;instanceId&gt; (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*   &lt;invocationFile&gt;)*</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) configured for the respective agent or can be local files on the machine where the ACC is executed.
<b>invoke any</b> <code>invoke &lt;operation&gt; on any (&lt;state&gt; ((,   or) &lt;state&gt;)*)? &lt;appTypeId&gt; instance (&lt;key&gt; &lt;value&gt; (, &lt;value&gt;)*   &lt;invocationFile&gt;)*</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) configured for the respective agent or can be local files on the machine where the ACC is executed. Optionally, the desired state(s) the runnable on which the invocation should be done can be specified.
<b>register global enhancement</b> <code>register global? enhancement &lt;ID&gt; &lt;enhancement&gt;</code>	Registers a new global enhancement with <ID>, i.e., an enhancement that will be added to all runnables configured afterwards.
<b>deregister global enhancement</b> <code>deregister global? enhancement &lt;ID&gt;</code>	Deregisters the existing global enhancement with ID <ID>.
<b>list global enhancement</b> <code>list global? enhancements</code>	Lists all global enhancements currently registered with the cloud controller.



Command and Syntax	Description
<b>zk create</b> <code>(zk   zookeeper) create  &lt;absoluteZookeeperPath&gt;  (payload &lt;STRING&gt; )?</code>	Creates a new <b>zookeeper</b> 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.
<b>zk ls</b> <code>(zk   zookeeper) ls  &lt;absoluteZookeeperPath&gt;</code>	Lists the children of the <b>zookeeper</b> node with the given path.
<b>zk get</b> <code>(zk   zookeeper) get  &lt;absoluteZookeeperPath&gt;</code>	Retrieves the payload of the <b>zookeeper</b> node with the given path. The payload is displayed as a string, which makes this method unsuitable for binary payloads.
<b>zk delete</b> <code>(zk   zookeeper) force?  delete  &lt;absoluteZookeeperPath&gt;</code>	Deletes the <b>zookeeper</b> 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 sub trees.
<b>zk update</b> <code>(zk   zookeeper) (set    update)  &lt;absoluteZookeeperPath&gt;  (payload &lt;STRING&gt; )?</code>	Changes the payload of the <b>zookeeper</b> node with the given path to the specified string. It is not possible to set binary payloads with this command.
<b>zk dump</b> <code>(zk   zookeeper) dump</code>	Prints the entire zookeeper content to screen.
<b>list backups</b> <code>&lt;nodeSpecWithAllNodes&gt;? list  (instance   runnable)?  backups &lt;instanceId&gt;?</code>	Lists all available backups for the current node, a specified node or for all nodes. If an instanceId is specified, only the backups for this instanceId are listed. For each instance all available backups are listed, with a backupId (temporary created id for a backup), the date and time and the version of the backup.
<b>restore backups</b> <code>&lt;nodeSpecWithAllNodes&gt;?  restore (instance    runnable)? (backups   backup)  ( &lt;instanceId&gt; &lt;backupId&gt;? )?</code>	Restores runnable backups, if available, of the current node, a specified node or for all nodes. If only an instanceId is specified the last backup of this instance gets restored, if additionally a <backupId> is entered the backup with this Id will be restored. If no instanceId is specified for all configured runnables the last available will be restored.



Command and Syntax	Description
<b>delete backups</b> <code>&lt;nodeSpecWithAllNodes&gt;? delete (instance   runnable) (backups   backup) &lt;instanceId&gt; &lt;backupId&gt;?</code>	Deletes runnable backups on the current node, a specified node or on all nodes. If only an instanceId is specified the oldest backup of this instance gets deleted, if additionally a <backupId> is entered the backup with this Id will be deleted.



### 5.1.3.23.1.1 Database Management System Configuration Parameters

If you are about to register an external database management system (DBMS) using the **register external service** (Page 98) command, please use the following parameters. Parameters in **bold** are mandatory.

Parameter/Key	Type	Default value	Description
<b>Host</b> host	String		(qualified) hostname or IP of the database server.
<b>Port</b> port	Integer		Port of the database server.
<b>User name</b> username	String		User of the DBMS.
<b>Password</b> password	String		Password of the DBMS's user.
<b>Driver class name</b> driverClassName	String		e.g. "com.microsoft.sqlserver.jdbc.SQLServerDriver"
<b>URL</b> url	String		Database URL, e.g. "jdbc:sqlserver://mssqlserver01:1433;DatabaseName=CUSTOMER"
Remove abandoned removeAbandoned	Boolean	false	Flag to remove abandoned connections if they exceed the removeAbandonedTimeout. If set to <b>true</b> a connection is considered abandoned and eligible for removal if it has been in use longer than the <b>removeAbandonedTimeout</b> . Setting this to <b>true</b> can recover db connections from applications that fail to close a connection.
jmxEnabled jmxEnabled	Boolean	true	Register the pool with JMX or not.
rollbackOnReturn rollbackOnReturn	Boolean	false	If autoCommit==false the pool can terminate the transaction by calling rollback on the connection as it is returned to the pool.



Parameter/Key	Type	Default value	Description
Maximum idle maxIdle	Integer	100	The maximum number of connections that should be kept in the pool at all times.
Maximum active maxActive	Integer	100	The maximum number of active connections that can be allocated from this pool at the same time.
Maximum wait maxWait	Integer	30000	The maximum number of milliseconds that the pool will wait for a connection to be returned before throwing an exception.



### 5.1.3.23.1.2 SMTP Configuration Parameters

If you are about to configure email notifications (Page 87) using the **register external service** (Page 98) command, please use the following parameters. Parameters in **bold** are mandatory.

Parameter/Key	Type	Default value	Description
<b>Host</b> host	String		(qualified) hostname or IP of the database server.
Port port	Integer	25	Port of the SMTP server.
User name username	String		User name on the SMTP server. If this parameter is set, the applications will implicitly enable SMTP authentication. There is NO dedicated parameter to explicitly enable SMTP authentication.
Password password	String		Password for the user on the SMTP server.
Sender address sender.address	String		Sender's E mail address.
TLS use.tls	Boolean	false	Specifies if SMTP server is TLS enabled.
TLS mode tls.mode	String	STARTTLS	Specifies the method used to secure the connection. Accepted values are <b>STARTTLS</b> and <b>SSL</b> . STARTTLS upgrades an initially insecure connection to an encrypted one without requiring a dedicated port for secure communication, whereas SSL immediately establishes a secured connection on a dedicated port.



### 5.1.3.23.1.3 Proxy Configuration Parameters

If you are about to register an external proxy server using the **register external service** (Page 98) command, please use the following parameters. Parameters in **bold** are mandatory.

Parameter/Key	Type	Default value	Description
<b>Host</b> host	String		(qualified) hostname or IP of the proxy server.
Port port	Integer	8080	Port of the proxy server.
User name username	String		User of the proxy server.
Password password	String		Password of the proxy server's user.
Non proxy hosts non.proxy.hosts	String		Indicates which hosts should be accessed directly and not through proxy server.





### 5.1.3.23.2 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 96) 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 ARIS Administration's command line tools (Page 61).

In this example the tenant **test01** will be created and the license file **U:/license.zip** will be imported. The ARIS Architect user license (product code **YAA**) will be assigned to the **system** user. Also 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 33) or Microsoft SQL database management system (Page 36) and you have assigned the tenants (Page 85) to these schemes.

#### Procedure

1. Start ARIS Cloud Controller (ACC) (Page 69).
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 ARIS Administration forcing the tenant enhancement points **createTenant**, **importLicense**, **assignLicense** and **createTenant**. Additionally we need the 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>
```

For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.

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 Architect user license (product code **YAA**) is assigned to the **system** user. Also 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 58) 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 9.8** 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.

Use the console application **ARIS Server Administrator** to manage the ARIS databases of a client, for example. The individual commands are transferred 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 computer on which the ARIS Client is installed either in the interactive mode or the command-line mode. In command-line mode you can perform actions automatically as there are no prompts in this mode. If you log in with a system user that at least has the **Database management** function privilege, you can manage all of the server's databases.

You start the **interactive mode** by clicking **Start > Programs > ARIS > Administration > ARIS Server Administrator 9.8**.

You start the **command-line mode** by opening the command prompt from the directory **<ARIS installation directory>\tools\ArisAdm**.

You can use the following commands and options for the syntax of the command-line mode:

**<\_arisadm><version> [<option>] <command> [<command argument 1>]**

or for the syntax of the interactive mode:

**<command> [<command argument 1>]**

- If you use values with special characters (e.g., '&' in the password), you need to enclose the value in quotes. For additional information, please refer to the help and support center for your operating system.
- On the server, system messages in ARIS Server Administrator are always output in the ARIS installation language.



- For example, if you use scripts for daily backups, we strongly recommend that you protect these scripts at the operating system level, or enter passwords encrypted.

Option	Description
-s <server[:<port>]>	Server on which the command should be carried out.
-u <user> <password>	User name and password of a system user with the required privileges.
-l <file name>	Enables the logging of all program operations in the specified log file. The file indicates which operation was performed at what time and with what result.
-cf <command file>	Starts a command file containing executable commands.
-sc <schema context>	Context the schema uses. ARIS is set as the default.
-t< tenant>	Tenant for which the command should be carried out. The default is <b>No tenant</b> .
-ssl	The SSL connection used.

The parts of the command that are surrounded by [brackets] are optional, i.e., you can use them if necessary.

Command	Description and syntax
<b>backup</b>	<p>Backs up a database <b>&lt;dbname&gt;</b> as an adb file in a directory <b>&lt;archivedir&gt;</b>.</p> <p><b>Syntax</b></p> <pre>backup &lt;dbname&gt; all &lt;archivedir&gt; [-p &lt;password for encryption&gt;] [&lt;alternatename&gt;]</pre>
<b>backupasn</b>	<p>Extracts from a versioned database <b>&lt;dbname&gt;</b> the state of the specified change list number <b>&lt;asn&gt;</b> in an adb file of the directory <b>&lt;archivedir&gt;</b>. <b>head</b> or <b>work</b> can be used instead of <b>&lt;asn&gt;</b>. While <b>head</b> represents the last versioned state, <b>work</b> represents the current state that is not versioned yet.</p> <p><b>Syntax</b></p> <pre>backupasn &lt;dbname&gt; all &lt;archivedir&gt; &lt;asn&gt; head work [-p &lt;password for encryption&gt;] [&lt;alternatename&gt;]</pre>
<b>backupsystemdb</b>	<p>Saves the central system database that contains data such as filters, model templates and scripts in an adb file in a directory <b>&lt;archivedir&gt;</b>.</p> <p><b>Syntax</b></p> <pre>backupsystemdb &lt;archivedir&gt; [&lt;alternatename&gt;]</pre>



Command	Description and syntax
<b>copy</b>	<p>Copies a database from <b>&lt;fromdbname&gt;</b> to <b>&lt;toddbname&gt;</b>.</p> <p><b>Syntax</b></p> <pre>copy &lt;fromdbname&gt; &lt;toddbname&gt;</pre>
<b>createdb</b>	<p>Generates a new ARIS database with the name <b>&lt;dbname&gt;</b>.</p> <p><b>Syntax</b></p> <pre>createdb &lt;dbname&gt; [versioned]</pre>
<b>delete</b>	<p>Deletes the database <b>&lt;dbname&gt;</b>. When using the <b>force</b> option the database is also deleted when users are logged in.</p> <p><b>Syntax</b></p> <pre>delete &lt;dbname&gt; all [force]</pre>
<b>download</b>	<p>Downloads files from ARIS to the specified directory <b>&lt;dir&gt;</b>.</p> <p><b>Syntax</b></p> <pre>download &lt;dir&gt;</pre>
<b>encrypt</b>	<p>Encrypts passwords <b>&lt;password&gt;</b> for use in batch files.</p> <p><b>Syntax</b></p> <pre>encrypt &lt;password&gt;</pre>
<b>exit</b>	Leaves the interactive mode.
<b>exportscript</b>	<p>Exports a script of the type <b>&lt;REPORT REPORTTEMPLATE SEMCHECK MACRO&gt;</b> with the identifier <b>&lt;scriptid&gt;</b> to an export directory <b>&lt;exportdirectory&gt;</b>.</p> <p><b>Syntax</b></p> <pre>&lt;REPORT REPORTTEMPLATE SEMCHECK MACRO&gt; &lt;scriptid&gt; &lt;exportdirectory&gt;</pre>
<b>help</b>	<p>Provides as help an overview of all commands with syntax descriptions and possible parameters. <b>help &lt;command&gt;</b> provides this help for the command specified.</p> <p><b>Syntax</b></p> <pre>help [&lt;command&gt;]</pre>



Command	Description and syntax
<b>importscript</b>	<p>Imports a script <b>&lt;importfile&gt;</b> of the type <b>&lt;REPORT REPORTTEMPLATE SEMCHECK MACRO&gt;</b> in the specified category <b>&lt;categoryname&gt;</b>.</p> <p><b>Syntax</b></p> <pre>importscript &lt;REPORT REPORTTEMPLATE SEMCHECK MACRO&gt; &lt;importfile&gt; &lt;categoryname&gt;</pre>
<b>interactive</b>	Starts the program in interactive mode.
<b>kill</b>	<p>Terminates the connection <b>&lt;sessionid&gt;</b> of the current server.</p> <p><b>Syntax</b></p> <pre>kill &lt;sessionid&gt; all</pre>
<b>list</b>	<p>Lists all of the server's registered databases. By default, only the databases of the current schema context are listed. When using the <b>all</b> option, all databases will be listed (including BO databases, for example).</p> <p><b>Syntax</b></p> <pre>list [all]</pre>
<b>maintain</b>	<p>Starts the maintenance of the specified database. Maintenance is specified according to the database system, i.e., a fixed set of maintenance tasks will be performed depending on the database system.</p> <p><b>Syntax</b></p> <pre>maintain &lt;dbname&gt; all</pre>
<b>migrate</b>	<p>Migrates a database <b>&lt;dbname&gt;</b> from an adb file <b>&lt;archive&gt;</b>, or migrates all adb files in a directory <b>&lt;archivedir&gt;</b>. You need the password of the system user <b>system</b> to migrate an individual database. To migrate multiple databases the passwords must be supplied to every single database in command-line mode.</p> <p><b>Syntax</b></p> <pre>migrate [&lt;archive&gt; &lt;archivedir&gt;] &lt;systempassword&gt;</pre>
<b>monitor</b>	Displays all running server activities, such as backup, XML export etc.



Command	Description and syntax
<b>rename</b>	<p>Renames the database from <b>&lt;olddbname&gt;</b> to <b>&lt;newdbname&gt;</b>. If you use the <b>force</b> option, the database is also renamed while users are still logged in.</p> <p><b>Syntax</b></p> <pre>rename &lt;olddbname&gt; &lt;newdbname&gt; [force]</pre>
<b>reorg</b>	<p>Reorganizes the database <b>&lt;dbname&gt;</b> semantically, i.e. deletes all object and connection definitions that do not have occurrences in any model.</p> <p><b>Syntax</b></p> <pre>reorg &lt;dbname&gt; all</pre>
<b>restore</b>	<p>Restores the state of a database <b>&lt;dbname&gt;</b> from a adb file <b>&lt;archive&gt;</b> resp. all adb/bdb files from a directory (restore).</p> <p><b>Syntax</b></p> <pre>restore &lt;archive&gt; &lt;archivedir&gt; [&lt;dbname&gt;] [-p &lt;password for decryption&gt;] [noconfirm]</pre>
<b>restoreasn</b>	<p>Generates a versionable database <b>&lt;dbname&gt;</b> from a particular version of an adb file <b>&lt;archive&gt;</b>. You can select either a change list number <b>&lt;asn&gt;</b> or <b>head</b> as a state. <b>head</b> stands for the last versioned state. In addition, it can restore all of the adb/bdb files of a directory.</p> <p><b>Syntax</b></p> <pre>restoreasn &lt;archive&gt; &lt;archivedir&gt; &lt;asn&gt; head [&lt;dbname&gt;] [-p &lt;password for decryption&gt;]</pre>
<b>restoresystemdb</b>	<p>Restores the central system database that contains data such as filters, model templates and scripts from an adb file <b>&lt;archive&gt;</b>. You can also update the system database with the command <b>updatesystemdb</b> based on an adb file.</p> <p>Updates the server configuration (filter, templates and scripts) based on a ADB file <b>&lt;archive&gt;</b>.</p> <p><b>Syntax</b></p> <pre>updatesystemdb &lt;archive&gt;</pre> <p><b>Syntax</b></p> <pre>restoresystemdb &lt;archive&gt;</pre>



Command	Description and syntax
<b>restoreversioned</b>	<p>Generates a versioned database <b>&lt;dbname&gt;</b> from an adb file <b>&lt;archive&gt;</b> of a non-versioned database. Also restores databases on the basis of several adb/bdb files in a directory.</p> <p><b>Syntax</b></p> <pre>restoreversioned &lt;archive&gt; &lt;archivedir&gt; [&lt;dbname&gt;] [-p &lt;password for decryption&gt;]</pre>
<b>schemacontext</b>	<p>Changes the schema context of the current server. This allows you to also backup ARIS Optimizer databases. Possible values are <b>aris</b> and <b>bo</b>.</p> <p><b>Syntax</b></p> <pre>schemacontext &lt;new schema context&gt;</pre>
<b>server</b>	<p>Changes the current server.</p> <p><b>Syntax</b></p> <pre>server &lt;server[:&lt;port&gt;]&gt; &lt;tenant&gt; &lt;user&gt; [&lt;password&gt;] [-ssl]</pre>
<b>sessions</b>	<p>Displays all database connections of the current server.</p> <p><b>Syntax</b></p> <pre>sessions [byuser bydatabase]</pre>
<b>set</b>	<p>Displays the server settings or changes them. If no parameters are specified, all settings are displayed. If only <b>&lt;key&gt;</b> is entered, all settings are deleted. If <b>&lt;key&gt;</b> is entered together with <b>&lt;value&gt;</b>, the settings are changed accordingly.</p> <p><b>Syntax</b></p> <pre>set [&lt;key&gt;] [&lt;value&gt;]</pre>
<b>statistic</b>	<p>Outputs the number of all database objects.</p> <p><b>Syntax</b></p> <pre>statistic &lt;dbname&gt; all</pre>
<b>status</b>	<p>Displays the status of the client-server connection to the connected server.</p>





Command	Description and syntax
<b>updatesystemdb</b>	<p>Updates the server configuration (filter, templates and scripts) based on a ADB file <b>&lt;archive&gt;</b>.</p> <p><b>Syntax</b></p> <pre>updatesystemdb &lt;archive&gt;</pre>
<b>version</b>	Display of the versions of the programs and libraries used.

In the following example, a database is reorganized, whereby all of the objects and connections in the database that do not have an occurrence are deleted.

If you are using an object library, you should not reorganize databases. Items could have been created for later use but do not yet occur in any model. These objects are deleted.

### Reorganization in interactive mode

1. Click **Start > Programs > ARIS > Administration > ARIS Server Administrator 9.8**. The MS DOS input window opens and ARIS Server Administrator is launched in interactive mode.

2. Use the **server** command to connect to the relevant ARIS Design Server:

#### Syntax

```
server <server name>[:<port number>] <tenant> <user name>
```

The parts of the command that are surrounded by brackets are optional, i. e., you can use them if necessary.

#### Example

```
server arissrv.eur.ag:80 default system
```

The password is requested.

3. Enter the user's password. In this example, **manager**. The connection is established.
4. Enter the command for the reorganization of the United Motor Group database:

```
reorg "United Motor Group"
```

The database is reorganized. The deleted items are listed.



### Reorganization in command-line mode

1. Open the command prompt from the directory **<ARIS installation directory>\tools\ArisAdm**.
2. Enter the command line parameters:

#### Syntax

```
arisadm<version> -s <server name> -t <tenant> -u <user name> <password> reorg  
<database name>
```

#### Example

```
arisadm95 -s arissrv.eur.ag -t default -u systemmanager reorg "United Motor Group"
```

The database is reorganized. The deleted items are listed.

To obtain information on the ARIS Server administrator commands, enter **help** or **help <command>**.



## 5.2 Configure Single Sign-On

You can configure single sign-on (SSO) using Kerberos (Page 126) or SAML (Page 134). This provides access to all ARIS components as soon as a user has logged in to the domain.

### 5.2.1 Configure Single Sign-On using Kerberos

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. Kerberos is a network authentication protocol that allows nodes to communicate over a none-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 ARIS 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 ARIS 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 ARIS Administration

You need to configure SSO for the servers.

### Prerequisite

You have the **Technical configuration** function privilege.

### Procedure

1. Log in to the ARIS Administration.
2. Click the arrow next to your name.
3. Click **Administration**.
4. Click **Configuration**.
5. Switch to **User management**.
6. Select **Kerberos/SPNEGO**.
7. To activate SSO, find the string  
`com.aris.umc.kerberos.active`  
Set this configuration key to **true**.



## 8. 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
```

## 9. Upload this file.

10. In the ARIS Administration, upload the generated Kerberos key tab file by clicking into the field

`com.aris.umc.kerberos.keyTab`

11. In the ARIS Administration, find the following string 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.

12. In the ARIS Administration, find the following string 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**.

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

`com.aris.umc.kerberos.kdc`

14. **Optional:** In the ARIS 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
*.*.*.*
```



15. **Optional:** In the ARIS 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 ARIS 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 (for 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 for JDK/JRE 8** <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 Architect/ARIS Designer)

Please note that this is only necessary if Single Sign-On is not working in ARIS Architect/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 (Windows 2003, Vista, 7), see Java Bug 6576422:

- `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).





## 5.2.2 Kerberos keys

Key	Description	Valid input	Example
com.aris.umc.kerberos.active	Specifies whether a Kerberos-based login is allowed.	true, false	
com.aris.umc.kerberos.config	Storage location of the configuration file for Kerberos. The file can be uploaded directly.	String	./config/Kerberos/krb5.conf
com.aris.umc.kerberos.debug	Specifies whether a debug output of the Kerberos operations is allowed.	true, false	
com.aris.umc.kerberos.kdc	Fully qualified name of the central <b>Key Distribution Center (KDC)</b> . This is usually the fully qualified host name of the LDAP server.	String	049bfs01.me.corp.softwareag.com
com.aris.umc.kerberos.keyTab	Storage location of the keytab file that is used for Kerberos tickets. The file can be uploaded directly.	String	C:/safePlace/krb-umc.keytab
com.aris.umc.kerberos.realm	Realm of the Kerberos ticket. Fully qualified domain name in uppercase letters.	String	MY.CORP.SOFTWAREAG.COM
com.aris.umc.kerberos.servicePrincipalName	If Kerberos is used, each user, computer or service provided by a server must be defined as principal. User name of the user used for the verification of Kerberos tickets.	String	MyLogin



Key	Description	Valid input	Example
com.aris.umc.kerberos.tenant	Default tenant for a Kerberos-based login.	String	
com.aris.umc.kerberos.whitelist	Storage location of the whitelist that is used to use Kerberos SSO on an IP-basis. An asterisk can be used as a placeholder.	String	./config/Kerberos/krb-ip-whitelist.conf



### 5.2.3 Configure Single Sign-On using SAML

Single Sign-On with SAML can be used with applications running in a browser.

SAML is a standard for exchanging authentication data between security domains. SAML is an XML-based protocol that uses security tokens containing assertions to pass information about a user between an identity provider and a service provider and enables web-based authentication scenarios including single sign-on across all ARIS components.

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 related Directory Service (LDAP).
- The users exist in the ARIS Administration.
- ARIS Administration is configured against an LDAP server.
- The SAML identity provider supports the HTTP POST binding as specified by the SAML 2.0 specification.

##### Client

Web browser supports JavaScript.

The following steps must be taken to use SSO:

1. The Single Sign-On configuration options must be set in the ARIS Administration.
2. ARIS must be registered as a trusted service provider at the SAML identity provider.

#### Configuration options in ARIS Administration

You need to configure SSO for the servers.

#### Prerequisite

You have the **Technical configuration** function privilege.

#### Procedure

1. Log in to the ARIS Administration.
2. Click the arrow next to your name.
3. Click **Administration**.
4. Click **Configuration**.
5. Switch to **User management**.
6. Select SAML.
7. To activate SSO, find the string  
`com.aris.umc.saml.active`  
Set this configuration key to true.
8. Define the ID of the service provider, e.g.



```
com.aris.umc.saml.service.provider.id=UMC@myhost
```

9. Define the SSO POST binding endpoint of the identity provider, e.g.

```
com.aris.umc.saml.identity.provider.sso.url=https://myidp/openam/SSOPOST/meta  
Alis/mytrust/idp
```

You activated Single Sign-On using SAML.

To configure SAML in detail please configure all SAML keys (Page 136) in the ARIS Administration.

### Register ARIS as a trusted service provider

Establish a circle of trust between the identity provider and the service provider.

#### Procedure

1. Open a browser.
2. Enter the following URL in the address bar:  

```
https://<SERVERNAME>/umc/rest/saml/metadata.xml?tenant=<TENANTID>
```
3. Download the service provider meta-data used to register ARIS by downloading the relevant XML file by
4. Upload the file into your SAML identity provider.

Your system is configured to be used with Single Sign-On and SAML.

### Troubleshooting

Detailed information on SAML authentication issues can be found in the log files of ARIS Administration located in

<Your installation folder>\ARIS\server\bin\work\work\_umcadmin\_m\base\logs

#### Example

C:\SoftwareAG\ARIS\server\bin\work\work\_umcadmin\_m\base\logs



## 5.2.4 SAML keys

Key	Description	Valid input
com.aris.umc.saml.active	Specifies if SAML-based login is allowed.	true, false
com.aris.umc.saml.identity.provider.id	ID of the identity provider.	String
com.aris.umc.saml.identity.provider.sso.url	SSO POST binding endpoint of the identity provider	String
com.aris.umc.saml.service.provider.id	ID of the service provider.	String
com.aris.umc.saml.signature.assertion.active	Specifies if SAML assertions must be signed.	true, false
com.aris.umc.saml.signature.provider	Name of the provider class used to sign assertions.	String
com.aris.umc.saml.signature.request.active	Specifies if SAML authentication requests must be signed.	true, false
com.aris.umc.saml.signature.response.active	Specifies if SAML responses must be signed.	true, false
com.aris.umc.saml.truststore.location	Location of trust store file used to validate SAML assertions	File
com.aris.umc.saml.truststore.alias	Alias used to access the trust store	String
com.aris.umc.saml.truststore.password	Password used to access the trust store.	String
com.aris.umc.saml.truststore.type	Type of the trust store.	String
com.aris.umc.saml.login.mode.dn.active	Try login with full distinguished name instead of plain username.	true, false
com.aris.umc.saml.login.mode.keyword.active	Fallback to single keyword from distinguished name if login with full distinguished name fails.	true, false



Key	Description	Valid input
com.aris.umc.saml.login.mode.keyword.name	.	String
com.aris.umc.saml.tenant	Default tenant used for SAML-based login.	String



## 5.3 Logging

If problems occur during operation, please stop all components (Page 72), 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\<instanceid>\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 **%homepath%\ARIS9.8\log**.

Setup activities are logged using the file **%temp%\ARIS\_install\_log**.



### 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/IT Inventory

This chapter describes the system configuration. For information about hardware and software requirements, please refer to the **ARIS Platform Matrix** document on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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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 ARIS Administration (Page 144) 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 ARIS Administration.
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 ARIS Administration.
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.

Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command to change settings.

Additional modification is required for Process-driven Management for SAP® Solutions (Page 193).



### 5.5.2.1 Reconfigure Settings

Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command to change settings. When performing an update setup all modifications made manually in CFG or XML files will be lost.

In this example the oracle connection parameters will be modified and the user management of another ARIS server will be used. Also the connection parameters to Process Governance can be adjusted.

#### Procedure

1. Start ARIS Cloud Controller (Page 69) on your ARIS Publisher Server.
2. To stop the component enter:  
`stop businesspublisher_<s,m or l>`
3. Reconfigure **businesspublisher\_<s,m or l>** and force that component to use the ARIS Administration of your ARIS Connect Server or ARIS Design Server installation.

Please ensure that all values used in the **reconfigure** command, e. g. for the keys **username** or **password** actually match to the values used in the `..<ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg` file and the **umconfig.cfg** file. If typing errors happened during the setup process the affected values must be adjusted.

For a better overview the parameters of the reconfigure command are shown with line-wraps. For execution you must enter a single-line command.

```
#Database connection parameters (in this example an Oracle database system is used)
+bp.ado.database="com.idsscheer.aris.businesspublisher.application.dao.database.AOracleDAO"
+bp.db.driver="oracle.jdbc.OracleDriver"
+bp.db.url="jdbc:oracle:thin:@oracle-srv.domain.tld:1521/ORACLE_SID"
+bp.db.validation.query="select 1 from dual"
+bp.db.username="ARISBP"
+bp.db.passwd="ARISBP"
+bp.arisbpdata="ARISBPDATA"
+bp.arisbpindex="ARISBPINDEX"
#ARIS Administration connection parameters
+bp.login.module="UMCLogin"
#"UMCLogin" can be found in the webappserver.cfg file. It switches the ARIS
Publisher Server's user management to the User Management of the defined ARIS
server's ARIS Administration.
+bp.umc.server.url="http://<aris-design-or-connect-srv>.domain.tld:<port
number>/umc"
#This URL can be found in the umconfig.cfg file. It directs to the user management
of the ARIS server's ARIS Administration. Please enter the port number that has
been used during the setup process. The standard port number is 80 (Windows operating
systems) or 1080 (Page 78) (Linux operating systems).
+bp.umc.admin.login="superuser"
+bp.umc.admin.passwd="<superuser's password>"
#The ARIS Administration user's user name and password can be found in the
umconfig.cfg file. By default the superuser user has access to the user management
and holds all required permissions.
```



#### # APG

```
+bp.age.host="<aris-design-or-connect-srv>.domain.tld"
+bp.age.port=80
```

4. For execution you must enter a single-line command.

```
e.g.:reconfigure businesspublisher_<s,m or l>
+bp.ado.database="com.idsscheer.aris.businesspublisher.application.dao.database.AOracleDAO" +bp.db.driver="oracle.jdbc.OracleDriver"
+bp.db.url="jdbc:oracle:thin:@oracle-srv.domain.tld:1521/ORACLE_SID"
+bp.db.validation.query="select 1 from dual" +bp.db.username="ARISBP"
+bp.db.passwd="ARISBP" +bp.arisbpdata="ARISBPDATA"
+bp.arisbpindex="ARISBPINDEX" +bp.login.module="UMCLogin"
+bp.umc.server.url="http://<aris-design-srv>.domain.tld:<port number>/umc"
+bp.umc.admin.login="superuser" +bp.umc.admin.passwd="<superuser's password>"
+bp.age.host="<aris-design-srv>.domain.tld" +bp.age.port=80
```

5. To start the **businesspublisher\_<s, m or l>** component again, enter:

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

This **businesspublisher\_<s, m or l>** component is reconfigured. Publisher users are authenticated via ARIS Administration and ARIS document storage will be available if it has been connected to the ARIS Publisher Server (Page 149).

These modifications will not be affected by update setups. When performing an update setup all modifications made manually in CFG or XML files will be lost.



### 5.5.2.2 Use ARIS Administration for User Management

While setting up ARIS Publisher Server you can switch this server's user management to the ARIS Administration of another operative ARIS Server. If you did not do so ARIS Publisher Server uses a different user management as other ARIS Servers using the ARIS 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 you can force ARIS Publisher Server manually to use the ARIS Administration (Page 58) of your productive ARIS Connect Server or ARIS Design Server installation. Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command to change settings.

#### Prerequisite

You have checked the URL of the ARIS Connect Server or ARIS Design Server to connect to the ARIS Administration (syntax: **http://<aris-design-or-connect-srv>.domain.tld<port number>/umc**).

#### Procedure

1. Start ARIS Cloud Controller (Page 69) on your ARIS Publisher Server.
2. To stop the component enter:  
`stop businesspublisher_<s,m or l>`
3. Reconfigure **businesspublisher\_<s,m or l>** and force that component to use the ARIS Administration of your ARIS Connect Server or ARIS Design Server installation.

Please ensure that all values used in the **reconfigure** command, e. g. for the keys **username** or **password** actually match to the values used in the `..<ARIS installation path>\server\bin\work\work_businesspublisher_<s, m or l>\base\webapps\businesspublisher\config\webappserver.cfg` file and the **umcconfig.cfg** file. If typing errors happened during the setup process the affected values must be adjusted.

For a better overview the parameters of the reconfigure command are shown with line-wraps. For execution you must enter a single-line command.

```
+bp.login.module="UMCLogin"
#"UMCLogin" can be found in the webappserver.cfg file. It switches the ARIS
Publisher Server's user management to the User Management of the defined ARIS
server's ARIS Administration.
+bp.umc.server.url="http://<aris-design-or-connect-srv>.domain.tld:<port
number>/umc"
#This URL can be found in the umcconfig.cfg file. It directs to the user management
of the ARIS server's ARIS Administration. Please enter the port number that has
been used during the setup process. The standard port number is 80 (Windows operating
systems) or 1080 (Page 78) (Linux operating systems).
+bp.umc.admin.login="superuser"
+bp.umc.admin.passwd="<superuser's password>"
#The ARIS Administration user's user name and password can be found in the
umcconfig.cfg file. By default the superuser user has access to the user management
and holds all required permissions.
```



4. For execution you must enter a single-line command.

```
e.g.:
reconfigure businesspublisher_<s,m or l> +bp.login.module="UMCLogin"
+bp.umc.server.url="http://<aris-design-srv>.domain.tld:<port number>/umc"
+bp.umc.admin.login="superuser" +bp.umc.admin.passwd="<superuser's password>"
```

5. To start the **businesspublisher\_<s, m or l>** component again, enter:

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

This component is reconfigured. Publisher users are authenticated via ARIS Administration and ARIS document storage will be available if it has been connected to the ARIS Publisher Server (Page 149).



### 5.5.2.3 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.

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.

#### 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 165).

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.

#### Warning

When performing an update setup all modifications made manually in CFG or XML files will be lost.

#### Procedure

1. Open the file in the ARIS Publisher Server installation directory <ARIS installation path>\ARIS9.8\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**"/>.
4. Save the changes and restart ARIS Publisher Server.

After you exported the database content, users can use the pop-up menus **Run transaction** and **Solution Manager documentation**.

Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.



### 5.5.2.4 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.

Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command to change settings.

#### Procedure

1. Start ARIS Cloud Controller (Page 69) on your ARIS Publisher Server.

2. To stop the component enter:

```
stop businesspublisher_<s,m or l>
```

3. Reconfigure **businesspublisher\_<s,m or l>** and change the values .

Please ensure that all values used in the **reconfigure** command actually match to the values used in the **<governance>** section of the ..<ARIS installation

path>\server\bin\work\work\_businesspublisher\_<s, m

or l>\base\webapps\businesspublisher\config\webappserver.cfg file.

4. Enter:

```
reconfigure businesspublisher_<s,m or l>  
+bp.age.host="<aris-design-srv>.domain.tld" +bp.age.port=80
```

5. To start the **businesspublisher\_<s, m or l>** component again, enter:

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

All entered Process Governance connection parameters have been changed..





### 5.5.2.5 Activate/deactivate Rocket Search

The Rocket Search is available. If you modify the configuration file the changes will be lost after an update setup.

#### 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**.

### 5.5.2.6 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"/>
```

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Restart ARIS Publisher Server.



### 5.5.2.7 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>**.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Restart ARIS Publisher Server.

### 5.5.2.8 Check document management systems parameters

If you have set up ARIS document storage within the ARIS Administration of the connected ARIS Connect Server or ARIS Design Server and manage ARIS Publisher users within the ARIS Administration (Page 144) of this server you will find all ARIS document storage connection parameters that have been entered during the ARIS Publisher Server setup process within the **SpringCRModule.xml** configuration file.

You can also adjust (Page 142) parameters that have been entered during the setup process.



### 5.5.2.9 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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Restart ARIS Publisher Server.



### 5.5.2.10 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**.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. 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).



### 5.5.2.11 LDAP user management

If you do not use the ARIS Administration of your productive system (Page 144) you still can manage user authentication via LDAP. To map LDAP user groups to ARIS user groups, you need to customize the configuration file.

#### 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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

#### 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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Restart ARIS Publisher Server.

### 5.5.2.12 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.



### 5.5.2.13 Update license

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

If the license was not imported during the setup process your administrator must import (Page 75) it into the ARIS Connect Server's ARIS Administration (Page 58) the ARIS Publisher Server is connected to and the ARIS Publisher Server.

### 5.5.2.14 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 153) 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 <b>connectionTypeFamilies.xml</b> .

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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Exit and then restart ARIS Publisher Server.



### 5.5.2.15 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 154) 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

1. 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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.

You can also offer the navigation carousel without a structuring model. ARIS Customized Solutions will be pleased to help you with the implementation.



### 5.5.2.16 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

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 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">"
    proxyAddress="<Your proxy address, e.g. "hades.company.com">"
    proxyPort="<Your proxy port>"
    refresh="600"/>
</news>
```

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.

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.

### 5.5.2.17 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.

When performing an update setup all modifications made manually in CFG or XML files will be lost.

2. Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
3. Exit and then restart ARIS Publisher Server.





### 5.5.2.18 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 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>/ARIS9.8/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 Connect Server or ARIS Design Server instance.

`<ARIS installation directory>\server\bin\work\work_apg<number>\base\model`

All the tenants of this ARIS Connect Server or ARIS Design Server can now use the deployed governance process.

If you are using several ARIS Connect Server or ARIS Design 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).



## 5.6.2.1 Customize ARIS Process Board

### Customize the look and feel

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 69) 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 **styledclarations active** to **true**: **<styledclarations 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.

### Allow access via HTTP instead of HTTPS

You can allow that users can access ARIS Process Board via HTTP instead of HTTPS.

#### Procedure

1. Start the ACC (Page 69).
2. Stop (Page 72) the relevant loadbalancer, e.g. **loadbalancer\_m**
3. Type **reconfigure loadbalancer\_<character>**  
**+HTTPD.zookeeper.application.instance.port="80"**  
**+zookeeper.application.instance.scheme=http**

#### Example

```
reconfigure loadbalancer_m +HTTPD.zookeeper.application.instance.port="80"
+zookeeper.application.instance.scheme=http
```

4. Start (Page 72) the relevant loadbalancer, e.g. **loadbalancer\_m**.

You can now use HTTP links instead of HTTPS.



### 5.6.2.2 Configure selectable languages for ARIS Process Board

It is possible to specify which locales are displayed in the list of selectable languages.

#### Remove a language

You can remove unnecessary languages from the language list. To do so proceed as follows.

##### Procedure

1. Start (Page 69) 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).

#### Add an additional language to the language list and localize ARIS Process Board

You can add any language to the language list. To do so proceed as follows.

##### Procedure

1. Start (Page 69) 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).

4. Go to the configuration file's languages section.

5. Add the locale you want to use additionally - e.g. add

```
<locale language="iw" country="IL" name="Hebrew"/>
```

for Hebrew.

6. Copy the file that contains a localization of ARIS Process Board (e.g. <ARIS9.x installation directory>\server\bin\work\work\_apg\_m\base\webapps\processboard\WEB-INF\classes\com\softwareag\tasklist\server\IConstants\_en.properties).



7. Rename the copy to **IConstants\_<new language>.properties** - e.g. **IConstants\_iw.properties** for Hebrew.
8. Translate the strings contained in this file.
9. Start the relevant runnable, type e.g. start apg\_m.

You added a new language with the relevant localizations to ARIS Process Board.



### 5.6.2.3 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 69) 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>
```

### 5.6.2.4 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 164).
- You need SAP® Java Connector (SAP® JCo) (Page 168). 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 configure the connection to SAP systems (Page 146).
- When using installed clients, you must provide SAP JCo (Page 170).

Depending on the features you provide, you must customize the system.

- Use SAP synchronization (Page 172)
- Use customizing transactions/views (Page 175)
- Use ARIS Online Guide (Page 179)
- Use BI Modeling (Page 191)
- Use Publisher exports (Page 193)
- Ensure that the users have been created in the SAP® system and have RFC privileges (Page 165).

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 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 7.4
- SAP R/3 4.6 c or d, 4.7
- ECC 5.0/ECC 6.0 (de, en, fr, sp, ja)
- SAP JCo (Page 168) on every client computer ARIS server and download client.
- Transfer the transport requests (synchronization (Page 173) 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.

#### ARIS Online Guide

- Local SAP GUI for Windows installation, version 7.1 to 7.4
- 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 Modeling

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 or SAP BW 7.3 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 7.4)
- The transport request was transferred.

#### Privileges

The **SAP\_BW\_RFC** object is required in the SAP system. (Page 167)

To download query files in PDF format and make them available in ARIS, please share a directory that ARIS Connect server or 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 Modeling.
- 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\_RFCACL** 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 **IDS/ARIS\_SOLAR\_001**.



In the **RFC\_TYPE** section you must select the **Function group** type.

All maintained    Manually    Authorization Check for RFC Access    T-A897041500

- Activity ACTVT
  - 16 Execute
- Name of RFC to be protected RFC\_NAME
  - /IDS/ARIS\_SOLAR\_001
  - BCOS
  - DNO\*
  - EPSF
  - PROJECT\_TR\_INTERFACES
  - RFC1
  - SCCA
  - SCDT\_BUILD\_BCSET
  - SCDT\_GET\_DATA
  - SCIDM\_ACCESS\_TYPES
  - SCPRAC
  - SCT1
  - SCTM
  - SDIFRUNTIME
  - SDMM
  - STFC
  - STPA
  - SYST
  - TMSC
- Type of RFC object to be prote RFC\_TYPE
  - FUGR Function group

## Values for authorization object S\_RFCACL

The **S\_RFCACL** authorization object requires all privileges.

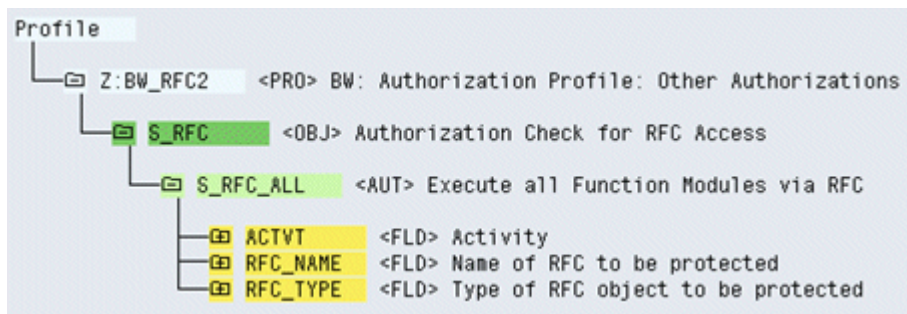
All maintained    Manually    Authorization Check f RFC User (for Example, Trusted System) S\_RFCACL

- All maintained    Manually    Authorization Check f RFC User (for Example, Trusted System) T-A731010200
  - Activity ACTVT
    - 16 Execute
  - RFC client or domain RFC\_CLIENT
    - .
  - RFC same user ID RFC\_EUSER
    - Y Call by the same user is possible
  - RFC information RFC\_INFO
    - .
  - System ID (for SAP and Externa RFC\_SYSID
    - .
  - RFC transaction code RFC\_TCODE
    - .
  - RFC User (SAP or External) RFC\_USER
    - .



### 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 Modeling 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.

The following procedure 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 169) to their local machines. For installed clients (Page 170) and the server **LOCAL** (Page 171) 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 69).
4. Stop ARIS Design Server or ARIS Connect Server or enter stop **<InstanceId for the modeling component>** to stop the modeling component **abs\_s**, **abs\_m** or **abs\_l**.  
**<InstanceId 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. The source file can be deleted.

All users of download clients must to copy **SAP JCo 3.dll (Page 169)**. Please provide SAP® JCo for installed clients (Page 170) or the server **LOCAL** (Page 171) too.

After you have performed an update setup you need to enhance SAP JCo again.

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 Modeling 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 168) all download client's users must copy the **sapjco3.dll** file (Page 169) 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 Modeling 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 **sapjco3** file (Page 171) 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 170), 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>\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 173) has been imported in the SAP® Solution Manager system that you want to use for synchronization.
- Ensure that the Web services (Page 177) 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 173) 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]**

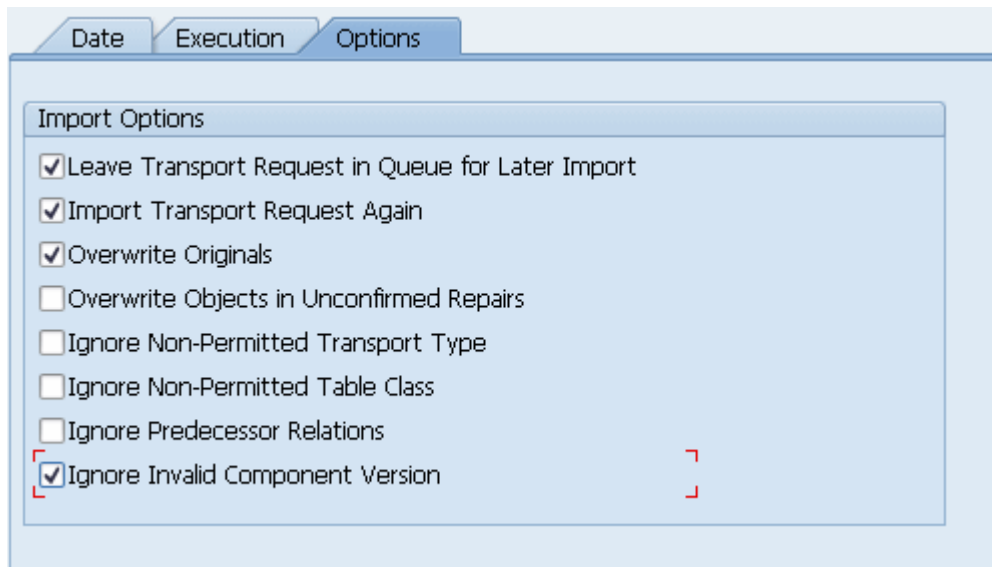
You can also execute the transport request using the transaction **STMS**.

#### 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 Import Transport Request (customizing)

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]**

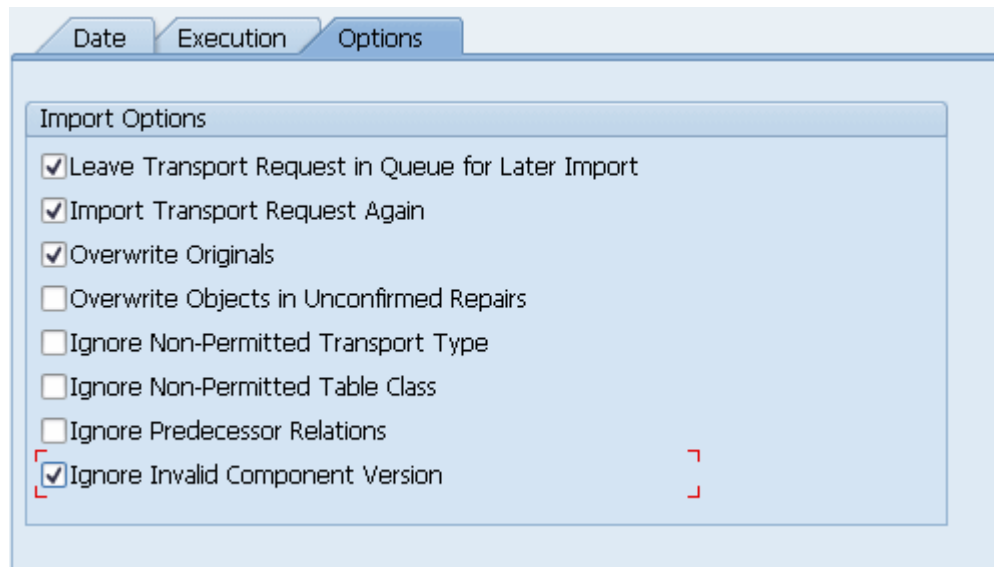
You can also execute the transport request using the transaction **STMS**:

#### 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**.



### 5.7.7.1.3 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 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. You can either provide ARIS Online Guide via ARIS Connect or ARIS Publisher.

- If you plan to use ARIS Online Guide, you must publish your database as a process portal using ARIS Connect (see ARIS Connect online help page **Publish database as a process portal**).
- To provide ARIS Online Guide via ARIS Publisher please publish your database as a publisher export. ARIS Publisher Server must be configured (Page 193).
- 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 **/n/IDS/AOG\_ADMIN**, **/n/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 180).
2. Modify HELP\_START in program **LSHL2U01** (Page 182).
3. Specify settings (Page 183).





### 5.7.7.2.1 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:

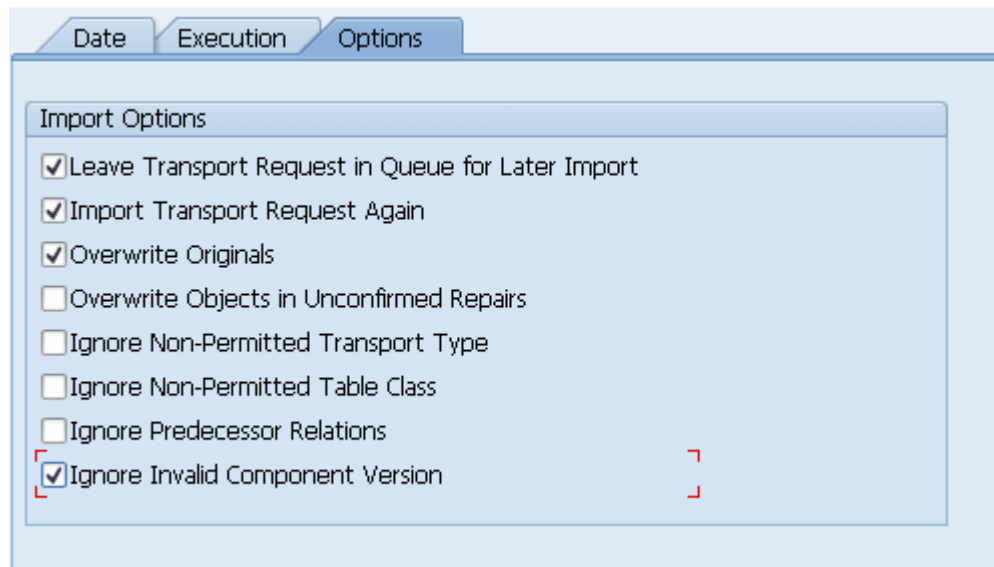
- a. **TP addtobuffer <SAP system SID>K<number> [target system SID]**
- b. **TP import <SAP system SID>K<number> [client on target system]**

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 **/n/IDS/AOG\_ADMIN**, **/n/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.



### 5.7.7.2.2 Modify **HELP\_START** in 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 ierrormsg.    " 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.



### 5.7.7.2.3 Specify settings

Once you have imported the required function modules (Page 180) and modified the SAP standard function **HELP\_START** (Page 182), you can use the transactions **/n/IDS/AOG\_ADMIN** (Page 183) and **/n/IDS/AOG\_USER** (Page 185) to specify various settings for the ARIS Online Guide in the SAP® system.

#### 5.7.7.2.3.1 Specify ARIS Online Guide Administrator Settings

To make ARIS Online Guide available SAP system administrators use the **/n/IDS/AOG\_ADMIN** transaction to specify default settings that all users of the client can adopt. Users can specify their own settings (Page 185) with the **/n/IDS/AOG\_USER** transaction.

1. 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.
2. Select the **ARIS Publisher** option to provide ARIS Online Guide via ARIS Publisher.
3. Select **Connect** to make ARIS Online Guide available via portal in ARIS Connect.



4. 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.

### ARIS Publisher settings

You can edit these properties if you have selected the **ARIS Publisher** option.

1. Enable the **Publisher URL overwritable** check box to authorize users to change the URL to the Publisher export.
2. 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 187) 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. **0mhsu6i**.

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=0mhsu6i&modelguid=55165b80-30c6-11de-3712-00167669f3de`

### ARIS Connect settings

You can edit these properties if you have selected the **ARIS Connect** option.

Enter required information to access the Portal providing ARIS Online Guide. Users can change the URL and tenant.

#### **Base URL for Connect**

URL to access the relevant ARIS Connect server.

#### **Tenant**

Tenant name of the tenant providing the Portal.



### 5.7.7.2.3.2 ARIS Online Guide User Settings

Each of the client's users can use the **/n/IDS/AOG\_USER** transaction to customize the settings specified by the SAP system administrator with the **/n/IDS/AOG\_ADMIN** transaction.

ARIS Online Guide - User specific settings

☒ Use ARIS Online Guide

☐ Businesspublisher

☒ Connect

☐ Show additionally default help

Businesspublisher

---

Publisher URL:

Name:

Password:

Language-Key:

Profile-Hash:

Connect

---

Base URL for Connect:

Tenant:

1. 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.
2. Select the **ARIS Publisher** option to provide ARIS Online Guide via ARIS Publisher.
3. Select **Connect** to make ARIS Online Guide available via Portal in ARIS Connect.
4. 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.



### ARIS Publisher settings

You can edit these properties if you have selected the **ARIS Publisher** option.

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 187) 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. **0mhsu6i**.

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=**0mhsu6i**&modelguid=55165b80-30c6-11de-3712-00167669f3de

### ARIS Connect settings

You can edit these properties if you have selected the **ARIS Connect** option.

Enter required information to access the Portal providing ARIS Online Guide.

#### **Base URL for Connect**

URL to access the relevant ARIS Connect server:

http://<servername>

#### **Tenant**

Tenant name of the tenant providing the Portal.

If you have changed the default settings that the system administrator specified and want to reactivate them, click on **Restore default**.



### 5.7.7.2.3.3 F1 Help Settings

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 **/n/IDS/AOG\_ADMIN** and **/n/IDS/AOG\_USER** transactions. If the user presses the **F1** key again, the standard F1 help of the SAP system is displayed again.

### 5.7.7.2.3.4 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





System language	LCID
Arabic - Yemen	9217
Basque - Spain	1069
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



System language	LCID
French - France	1036
French - Luxembourg	5132
French - Switzerland	4108
German - Austria	3079
German - Germany	1031
German - Liechtenstein	5127
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



System language	LCID
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
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



### 5.7.7.3 BI Modeling

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.

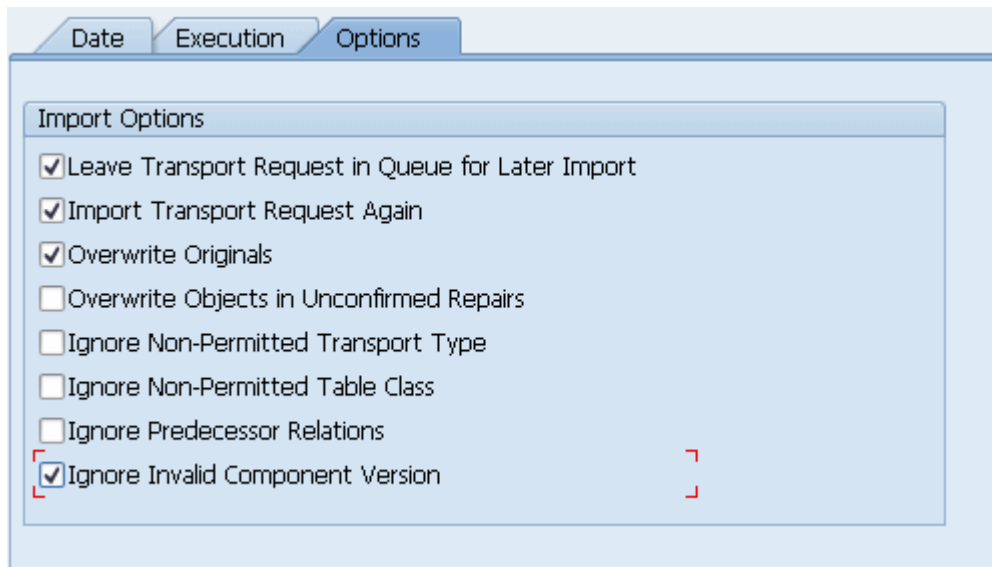
#### Using STMS transaction

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.



### 5.7.7.4 ARIS Publisher Server

If you use ARIS Publisher please make sure to configure the SAP connection (Page 146).

Users accessing Publisher exports require a local SAP GUI for Windows installation (version **7.1** to **7.4**) 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.

### 5.7.7.5 ARIS Connect

If you plan to use ARIS Online Guide (Page 179) to make documents available across the company which were specially created for your business processes in the SAP® system during customizing, please make the database available as a portal using ARIS Connect and define an additional view (Page 194).



### 5.7.7.5.1 Define additional ARIS Connect SAP® Content Portal View

If you plan to use ARIS Online Guide to make documents available across the company which were specially created for your business processes in the SAP® system during customizing, please define an additional view based on the classic or the standard view.

#### Prerequisite

- You own the ARIS Connect Designer license privilege.
- You own the Portal publisher function privilege.
- You need access to the ARIS Connect installation path.

#### Warning

Errors in XML configuration may cause strong impact. You might not be able to start ARIS Connect again.

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.

#### Procedure

1. Open the ARIS installation directory:

```
<ARIS installation path>\server\bin\work
```

2. Copy the directory of the base view to create a new view, e.g. **classic**:

```
\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config\classic
```

3. Paste the directory into the parent directory:

```
\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config
```

4. Rename the copied directory e.g. **classicSAP**. Do not enter spaces.

5. Edit the XML file:

```
\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config\classicSAP\views\item.xml
```

6. Find the following multiple entries:

```
<!--Remove the following comments to enable SAP-Transactions-->
```

7. Delete the comments before and after the SAP related tags:

```
<!--SAP
...
SAP-->
```

8. Save the changes.

9. Copy the base directory used for the search function. Please make sure to use the same name that you have copied before:

```
\work_abs_<s, m or l>\base\webapps\WEB-INF\config\classic
```

10. Paste the directory into the parent directory:

```
\work_abs_<s, m or l>\base\webapps\WEB-INF\config
```



11. Rename the copied directory using the same name as before, e.g. **classicSAP**.

12. Edit the XML file:

```
\work_abs_<s, m or l>\base\webapps\WEB-INF\config\classicSAP\search\search.xml
```

13. Find the following entries:

```
<!--Remove the following comments to enable SAP-Transactions-->
```

14. Delete the comments before and after the SAP related tags:

```
<!--SAP
```

```
...
```

```
SAP-->
```

15. Save the changes.

16. Load the changed content using this external link:

```
http://<server name><port number, if different from standard port  
80>/#<tenant>/custsol
```

17. Click **Load**. The new view will be made available.

18. Activate the **classicSAP** view via external link:

```
http://<server name>/#<tenant>/adminSettings
```

The start transaction, download documents functionalities and ARIS Online Guide are available in all portals of this tenant.

### 5.7.7.5.2 Publish database as a process portal

If you plan to use ARIS Online Guide (Page 179) to make documents available across the company which were specially created for your business processes in the SAP® system during customizing, please make the database available as a portal using ARIS Connect.

#### Prerequisite

- You own the **ARIS Connect Designer** license privilege.
- You own the **Portal publisher** function privilege.

#### Procedure

1. Start ARIS Connect.
2. Click the arrow next to your user name.
3. Click **Administration**.
4. Click **Portal > Publish** on the **Configuration** tab. All available databases are displayed.
5. Enable the check boxes of the databases you want to publish in the portal.
6. For versioned databases, select the version required.
7. Click **Apply**.

The content of the databases is published in the portal in the selected view. As long as the databases are available in the portal they cannot be deleted in ARIS.






### 5.7.7.5.3 Select the View Providing SAP® Content

Select the additionally created view (Page 194) to display portal data.

#### Prerequisite

- You own the **ARIS Connect Designer** license privilege.
- You have created additional views (Page 194).
- You own the **Portal publisher** function privilege.

#### Procedure

1. Start ARIS Connect.
2. Click the arrow next to your user name.
3. Click **Administration**.
4. Click **Portal > Manage views** on the **Configuration** tab. All available views are displayed.  
The current view is marked.
5. Move the mouse pointer over the additionally created view.
6. Click  **Activate**.
7. Click **Apply**.

All of the databases selected for the portal are published in the view.



## 6 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 9.8. There are different migration scenarios:

- ARIS was used with a local user administration (Page 197) in ARIS 7.2 and no Process Governance was used.
- ARIS was used with LDAP integration (Page 198).
- Process Governance was used without the central user management (Page 199).
- Process Governance was used with the central user management (Page 200).

Local user groups in ARIS version 7.2 are renamed during the migration to version 9.x according to the following rule: The old user group name is extended with the database name.

### Example

The database with the name **myDatabase** contains the user groups **myGroup1**, **myGroup2** and **myGrouß3**.

The new names are **myDatabase\_myGroup1**, **myDatabase\_myGroup2** and **myDatabase\_myGrouß3**.

### 6.1 Migration of ARIS with a Local User Administration

The user administration is now web based and users are no longer created directly in ARIS. You have to migrate your local users to the ARIS Administration.

#### Procedure

1. Back up the database in ARIS version 7.2.
2. Restore the database in ARIS version 9.x.

The users are added to the ARIS Administration and you can administrate them here. The passwords of the migrated users are reset to their user names.

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 200).



## 6.2 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.



## 6.3 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.
4. Merge the **Main Group/01 Design of automated processes/02 Libraries/Services** folder from the Governance Automation Models database into the **Services** folder of you restored database.
5. Merge the **Main Group/01 Design of automated processes/02 Libraries/Context** folder from the **Governance Automation Models** database into the **Context** folder of you restored database.
6. Merge the **Main Group/EPC2BPMN** folder from the **Governance Automation Models** database into the **EPC2BPMN** folder of you restored database.

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.

### Local service Retrieve - Link (design)

The **Event (process instance started)** event has a **Current tenant** field since ARIS version 9.0. If you already used the **Determine - Link (design)** service in an earlier ARIS version, you have to adapt all the relevant data flows by mapping the tenant to this specific field.



## 6.4 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 197) your 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 **ARIS9.7/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 ARIS Administration using the batch file **y-datadump.bat** (Page 67).
5. Restore the database in ARIS version 9.x.
6. Merge the **Main Group/01 Design of automated processes/02 Libraries/Services** folder from the Governance Automation Models database into the **Services** folder of your restored database.
7. Merge the **Main Group/01 Design of automated processes/02 Libraries/Context** folder from the **Governance Automation Models** database into the **Context** folder of your restored database.
8. Merge the **Main Group/EPC2BPMN** folder from the **Governance Automation Models** database into the **EPC2BPMN** folder of your restored database.

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.

### Local service Retrieve - Link (design)

The **Event (process instance started)** event has a **Current tenant** field since ARIS version 9.0. If you already used the **Determine - Link (design)** service in an earlier ARIS version, you have to adapt all the relevant data flows by mapping the tenant to this specific field.



## 6.5 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 the **Document administrator** or **Technical configuration administrator** function privilege.

### Procedure

1. Install (Page 2) the ARIS version 9.x in parallel to your version 7.2.
2. Start ARIS Cloud Controller. To do so please proceed as follows. Click **Start > ARIS > Administration > ARIS Cloud Controller**.
3. Type **stopall** to stop all components.
4. Open a command prompt (**Start > Run > cmd**).
5. 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\_adsadmin\_m\tools\bin.**
6. Type **y-admintool.bat migrate -s <source folder> -t <target folder>\server\bin\work\work\_couchdb\_m\data**.

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-admintool.bat migrate -s "C:\program files\ARISGE10\data" -t " D:\program files\ARIS9.x\server\bin\work\work\_couchdb\_m\data".**

7. Start ARIS Cloud Controller. To do so please proceed as follows. Click **Start > ARIS > Administration > ARIS Cloud Controller**.
8. Type **startall** to start all components.
9. Open a command prompt (**Start > Run > cmd**).
10. 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\_adsadmin\_m\tools\bin.**
11. Type **y-admintool.bat -t <TENANT> reindex -u <USER> -p <PASSWORD>**. This triggers a re-index of all documents.

The ARIS document storage data are migrated.



## 6.6 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 Architect, using the **backup** functionality in the pop-up menu of a database.

2. Restore the database in ARIS version 9.x.
3. Export filters, templates and script files in ARIS version 7.2.

In ARIS Architect, 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.



## 7 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 ARIS Administration.

### 7.1 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 Unix/Linux please start ARIS Agent via shell. You might redirect ports (Page 78).

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%	<b>Read (r), execute (x), write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\	<b>Read (r)</b> (pass on to files and folders recursively)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\logs	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\temp	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\work	<b>Write (w)</b> (pass on to files)
<ARIS installation	<b>Write (w)</b>





Directory/File	Privilege
directory>\server\bin\work\work_abs_[s,m,l]\base\webapps\abs\log	(pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\fonts	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\temp	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\postgres_[s,m,l]\pgworkdata	<b>Write (w)</b> (pass on to files and folders)
<ARIS installation directory>\server\bin\work\work_cloudsearch_[s,m,l]\defaultLog	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_cloudsearch_[s,m,l]\rsindex	<b>Write (w)</b> (pass on to files and folders)
<ARIS installation directory>\server\bin\work\work_cop_[s,m,l]\base\logs	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_octopus_[s,m,l]\base\temp	<b>Write (w)</b> (pass on to files and folders) <b>Create (c)</b> (pass on to folders) <b>Read (r)</b> (pass on to files) <b>Delete (d)</b> (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	<b>Create (c)</b> (pass on to folders) <b>Write (w)</b> (pass on to files)



Directory/File	Privilege
<ARIS installation directory>\server\bin\work\work_simulation_[s,m,l]\base	<b>Write (w)</b> (pass on to files and folders) <b>Create (c)</b> (pass on to folders) <b>Read (r)</b> (pass on to files) <b>Delete (d)</b> (pass on to folders and files)
<ARIS installation directory>\server\bin\work\work_simulation_[s,m,l]\base\logs	<b>Write (w)</b> (pass on to files)
<ARIS installation directory>\server\bin\work\work_mashzone_[s,m,l]	<b>Write (w)</b> (pass on to files)

- **Enable SSL encryption** (Page 77)  
 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 118) command **encrypt**.



## 7.2 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 69). Change the password (Page 73).

- **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 ARIS Administration. Change the passwords in the user's profiles in the ARIS 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 24) regularly**

Administrators can back up (Page 80) 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 118).

- **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.



## 8 Basic Troubleshooting

If you face problems starting ARIS please read the following pages.

### 8.1 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.

Please provide a TCP/IP connection and ensure that the DNS name resolution works correctly.

### 8.2 ARIS clients Cannot Perform Connections to Servers Using SSL

#### Problem

A SSL certificate is available (Page 77) 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 69).
3. Stop (Page 72) 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 72) the **load balancer** component again.

The SSL certificate is available.



## 8.3 ARIS clients Using SSL Throw Java Exceptions

### Problem

A SSL certificate is available (Page 77) but ARIS clients throw Java exceptions like:

```
SEVERE: cannot login
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLoginException: cannot
connect to server myARIS.customer.com. Reason:
sun.security.validator.ValidatorException: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid
certification path to requested target
at
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authenticateOnSer
ver(UMCLogin.java:218)
at
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authenticate(UMCL
ogin.java:113)
at
com.aris.modeling.client.container.serveraccess.AServerContext.getUserToken(ASer
verContext.java:842)
at
com.aris.modeling.client.container.serveraccess.AServerContext.connectBLManager(
AServerContext.java:773)
cannot be started using SSL certification.
```

### Reason

While you may have purchased a valid certificate from a reliable CA that was create for the ARIS server, i.e. the server's host & domain name in the certificate are correct, the Java Runtime environment (JRE) does not have certificate of the CA that signed it in its CA certificate store and therefore cannot confirm the certificate's validity.

If you use an internal CA, this is also not known to Java.

### Solution

You need to add the certificate to the JRE's certificate store.

The first step is to figure out which JRE is being used for the ARIS client.

If the client uses the download client, it will use the Java Runtime Environment that is installed on the machine. Usually, the installation directory will be **c:\Programs\java\jre7**. The installed ARIS client ships with its own JRE, it can be found in **<clientInstallDir>client\jre\**. In the following we will refer to this folder as **<jreHomeDir>**.

Next step is to copy the certificate file to a directory on the machine e.g., **c:\temp\mycert.crt**, henceforth we will refer to this as **<pathToCertFile>**.

Inside **<jreHomeDir>\bin** there should be the file **keytool.exe**.

Open a Windows command prompt in this directory and run the command.

```
keytool.exe -importcert -file <pathToCertFile> -alias <certificateAlias> -keystore
<jreHomeDir>\lib\security\cacerts -storepass <keystorePassword>
```

Replace all <placeholders> with the proper value. Aside from those mentioned above:

- **<certificateAlias>**



is a name you give to your certificate, chose it so that you can later easily identify your certificate among those in the cacerts keystore.

- **<keystorePassword>**

is the password to the cacerts keystore, the default value is **changeit**.

Afterwards, you have to restart you client. If you use the download client it is sometimes required to restart the browser as Java is often still active and has not re-read the cacerts keystore.

If you get an error message like this:

```
Jul 01, 2014 7:15:08 AM com.idsscheer.utils.logging.ALogger logException
SEVERE: cannot login
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLoginException:
  cannot connect to server myARIS.customer.com. Reason: Certificate
  for <myARIS.customer.com> doesn't contain CN or DNS
  subjectAlt
  at
  com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authenticateOnSer
  ver(UMCLogin.java:218)
  at
  com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authenticate(UMCL
  ogin.java:113)
  at
  com.aris.modeling.client.container.serveraccess.AServerContext.getUserToken(ASer
  verContext.java:842)
  ...
```

your certificate is signed for the wrong server name. In that case, you need to get yourself a new certificate.



## 8.4 Using SSL or using other port than port 80

### Problem

The local script service **Determine link (design)** is currently not able to handle a changed port (default port is port **80**) or work properly in a system which is set up with SSL.

### Solution

Change the port and SSL-mode manually in the local script. To do so proceed as follows.

### Procedure

1. Start ARIS Architect
2. Log into a database.
3. Navigate to **Governance Resources > Determine link (design)**.
4. Double-click the service **Determine link (design)**. The service opens on a separate tab. You can edit the code.
5. In the `//link="http://` section of the code, add your port and your SSL-mode.
6. Save the changes.

The problem should no longer occur.

## 8.5 Server Started but No Access to ARIS

### Problem

After you have started the server (Page 207) you still cannot access ARIS.

### Solution

Open the ARIS Cloud Controller (ACC) (Page 69) 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.

Please provide a TCP/IP connection and ensure that the DNS name resolution works correctly.



## 8.6 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.

## 8.7 Resolving Port Conflicts

### Problem

You have killed and restarted (Page 211) 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 138) for messages indicating port conflicts.
2. Find out the ports used by an ARIS component using the ACC (Page 69) 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>
```

3. Use the Windows **netstat** command to find ports used by other programs:

**netstat -ao |more**

4. 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: <b>10080</b>	MCY137201:0	LISTENING	<b>2992</b>
TCP	0.0.0.0: <b>10080</b>	MCY137201:0	LISTENING	<b>6836</b>
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

...

5. 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 78), all ARIS components will start up properly.



## 9 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 on the installation media. You can also download it from Empower (<https://empower.softwareag.com>).

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

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.

### 9.1 Update Setup

- Please always use the **reconfigure** ACC command to change settings.  
If you have customized your ARIS Publisher Server manually by modifying **XML** and **CFG** files these modifications will be lost.  
Please save modified configuration files locally and document your modifications. After an update installation you can easily compare your saved file and copy the modified line into the updated configuration file.
- Please make sure that no file in the installation directory is locked.
- Please make sure to exit ACC before running the update setup.
- If you update ARIS **9.5** to ARIS **9.7**, please make sure to start ARIS Cloud Controller (ACC), enter **Set autostart.mode=off**; enter **stopall** and exit ACC before running the update setup.
- The update from ARIS **9.5** to higher ARIS versions using a Microsoft SQL database system is not possible. A new installation and database migration is recommended.
- Updating ARIS using Oracle as database management system:

If you are about to update your ARIS 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 your installation medium under **Add-ons\DatabaseScripts\Oracle\Design&ConnectServer**. Base requirement for this configuration is a correctly 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.

Please consider that **in any case** you have to update the default and the master tenant and all other tenants used.

`cip_update_schema_for_tenant.bat <master tenant schema> (mandatory), e. g.  
cip_update_schema_for_tenant.bat aris_master`



`cip_update_schema_for_tenant.bat <default tenant schema> (mandatory), e. g.`

**`cip_update_schema_for_tenant.bat aris_default`**

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 aris_default`**

or

**`cip_update_schema_for_tenant.bat myprojecttenant.`**

- Updating ARIS Connect Server version **9.0.2** using the setup is not possible if MashZone content is used. Please call our support (Page 215). If no MashZone content is used in version **9.0.2**, you can use the update setup.
- If the help link doesn't work anymore (404 error) after the update of a custom configuration, it can easily be fixed by modifying the **useraction\_default.xml** file. In the help url e.g.:

`/static/help/{locale}/handling/ca/index.htm#52910.htm`

The **connect** directory is missing. Please add this folder, e.g.:

`/static/help/{locale}/handling/connect/ca/index.htm#52910.htm.`

## 9.2 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).

## 9.3 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.

## 9.4 Tenant names

For tenant names please only use up to 30 lowercase ASCII characters and numbers. The name must begin with a character. Special characters and characters e. g. in Chinese, Cyrillic or Arabic cannot be used.



## 10 Support

### Online

A valid support contract allows you to access the solution database.

Click **<https://empower.softwareag.com/>** (**<https://empower.softwareag.com/>**).

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 Global Support ARIS at:

**+800 ARISHELP**

"+" 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



## 11 Glossary

Click a letter to display the related entries.

### A

#### ACC locale file

ACC expression.

`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.

#### Absolute Path

ACC expression.

`('/' | '\ ' | [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, e. g.

**"d:/ojdbc6-11.2.0.3.jar" or "d:\\ojdbc6-11.2.0.3.jar"**

#### <absoluteZookeeperPath>

Free variable parameter used in ACC expressions.

Absolute zookeeper path.

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

A path used in the zookeeper component.

#### <agentPort>

Free variable parameter used in ACC expressions.

Agent's Port number.

#### <appType>

Free variable parameter used in ACC expressions.

Application type.

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

A technical application type as defined by the zookeeper component.

#### <appTypeId>

Free variable parameter used in ACC expressions.

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.

## ARIS Cloud Controller (ACC)

ACC is a command line tool that allows advanced customizing of ARIS Server Components.

### arisservice user

The user **arisservice** is created automatically. By default, this user is assigned the **Database administrator** and **Process Governance administrator** function privileges. This user only uses up a license if a license privilege is activated for this user. The default password is **arisservice**. You should change the default password to prevent unauthorized access. You can change all user data except for the user name.

## Artifact Enhancement

ACC expression.

```
<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.

Free variable parameter used in ACC expressions.

Artifact ID.

```
<ID>
```

The common Maven-esque artifact ID of the runnable.

## B

### <backupId>

Free variable parameter used in ACC expressions.

Backup ID.

```
<ID>
```

An backup ID is used to uniquely identify a runnable backup for an instance within one node. It is only unique for an instance on a node. A backup Id is an integer number and will be generated temporary by the **list backups** command.



## C

### Component

Name of ARIS server's program component (runnable).

Depending on the ARIS server type different components are running in order to provide full functionality. Components can be managed using ARIS Cloud Controller (ACC) (Page 69).

## E

### <enhancement>

Free variable parameter used in ACC expressions.

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.

### Enhancement Point

ACC expression.

```
<ID>
```

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

## G

### 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 (-).

Free variable parameter used in ACC expressions.

Group ID.

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

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

### GUID

Globally **U**nique **I**dentifier (GUID).

The GUID is a character set that uniquely identifies elements worldwide.



## guest user

The user **guest** is created automatically. By default, no function or license privileges are assigned to this user. This user only uses up a license if a license privilege is activated for this user. The default password is **guest**. You should change the default password to prevent unauthorized access. You can change all user data except for the user name.

## I

### integer

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

A positive or negative Integer number.

### <instanceId>

Free variable parameter used in ACC expressions.

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>

Free variable parameter used in ACC expressions.

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>

Free variable parameter used in ACC expressions.

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

## 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.





## K

### <key>

Free variable parameter used in ACC expressions.

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**

## N

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>

Free variable parameter used in ACC expressions.

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.

## O

Free variable parameter used in ACC expressions.

Operation.

`<ID>`

The name of the operation to invoke.

## OTP

**One-Time-Pad (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.



## P

### <password>

Free variable parameter used in ACC expressions.

Required user password. This might be the ARIS Agent user's password (Page 73), a database user, the superuser or a system user.

Free variable parameter used in ACC expressions.

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.

## R

(<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.

### Runnable

InstanceID of ARIS server's program component.

Depending on the ARIS server type different components are running in order to provide full functionality. Components can be managed using ARIS Cloud Controller (ACC) (Page 69).

## S

### SAML

**Security Assertion Markup Language (SAML).**

Standard for exchanging authentication data between security domains. SAML is an XML-based protocol that uses security tokens containing assertions to pass information about a user between an identity provider and a service provider and enables web-based authentication scenarios including single sign-on across all ARIS components.



## <serviceId>

Free variable parameter used in ACC expressions.

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>

Free variable parameter.

Service type

db (Page 85) | smtp (Page 87) | proxy (Page 115) | 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 (Page 98).

This example shows how to register an external service db (Microsoft SOL) and the required configuration parameters (Page 112) (**bold**):

```
url="jdbc:sqlserver://<host name>:<port>;DatabaseName=<DATABASE NAME>"
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
username="<user name>"
password="<password>"
maxIdle=15
maxActive=300
maxWait=10000
removeAbandoned=false
removeAbandonedTimeout=600
logAbandoned=true
defaultAutoCommit=false
rollbackOnReturn=true
host=<host name>
jmxEnabled=true
```

## <s, m or l>

Free variable parameter used in ACC expressions.

Indicator for the three memory sizings **small (s)**, **medium (m)** and **large (l)**. This indicator is part of standard component names (runnables) It indicates the maximum size of the Java heap. The **S** sizing which at the time of this writing has a maximum heap size of 1152MB should be used for demonstration reasons (laptop) only. The **M** sizing sets the maximum heap size to 8GB, the **L** sizing to 16GB. You can always change this memory setting later with a **reconfigure** command.



## <state>

Free variable parameter used in ACC expressions.

State.

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

The possible runnable lifecycle states.

## <string>

Free variable parameter used in ACC expressions.

`'' ( <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.

## superuser user

The user **superuser** is created automatically. By default, this user is assigned the **User management**, **License management**, and **Configuration administrator** function privileges. This user can also activate this function privilege for other users. The **superuser** user does not use up a license. The **superuser** user manages the system administration, but cannot use ARIS products due to license restrictions. The default password is **superuser**. You should change the default password to prevent unauthorized access. You can change all user data except for the user name.

## system user

The **system** user is created automatically. This user can log in to process administration, ARIS Administration, User Management, and ARIS Process Board. In ARIS Architect and ARIS Designer, this user has all access privileges for all database groups of all databases.

To avoid problems, you can create additional system users. Alternatively, an existing **system** user can be copied. This user only uses up a license if a license privilege is activated for this user. The default password is **manager**. You should change the default password to prevent unauthorized access. You can change all user data except for the user name. By default, the **system** user has the following function privileges:

- **User administrator**
- **Analysis administrator**
- **Collaboration administrator**
- **Dashboard administrator**
- **Database administrator**
- **Document administrator**
- **Configuration administrator**
- **License administrator**



- **Portal administrator**
- **PPM user**
- **Process Governance administrator**
- **Publishing administrator**
- **ARCM administrator**
- **Server administrator**
- **Script administrator**
- **Technical configuration administrator**

## 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 Architect' **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. The system database can be backed up and restored.

## 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.

### <tenantId>

Free variable parameter used in ACC expressions.

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.



## 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.

## U

### <username>

Free variable parameter.

Required user name. This might be a remote access user (Page 73), a database user, the superuser or a system user.

## V

### <value>

Free variable parameter used in ACC expressions.

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>

Free variable parameter used in ACC expressions.

Version.

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

The common Maven-esque version of the runnable.