



ARIS

SERVER INSTALLATION AND ADMINISTRATION GUIDE

Version 9.8 – Service Release 5

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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 Disclaimer

ARIS products are intended and developed for use by persons. Automated processes, such as the generation of content and the import of objects/artifacts via interfaces, can lead to an outsized amount of data, and their execution may exceed processing capacities and physical limits. For example, processing capacities are exceeded if models and diagrams transcend the size of the modeling area or an extremely high number of processing operations is started simultaneously. Physical limits may be exceeded if the memory available is not sufficient for the execution of operations or the storage of data.

Proper operation of ARIS products requires the availability of a reliable and fast network connection. Networks with insufficient response time will reduce system performance and may cause timeouts.

If ARIS products are used in a virtual environment, sufficient resources must be available there in order to avoid the risk of overbooking.

The system was tested using scenarios that included 100,000 groups (folders), 100,000 users, and 1,000,000 modeling artifacts. It supports a modeling area of 25 square meters.

If projects or repositories are larger than the maximum size allowed, a powerful functionality is available to break them down into smaller, more manageable parts.

2 General notices

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

- Each setup program will install one specific server type. If you need different server types, each ARIS server must be installed on a single machine. For advanced ARIS server installations Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative (page 295). This is of particular importance when you intend to install ARIS across several computers/VMs (distributed installation). Such a specific scenario requires profound knowledge of the technical ARIS infrastructure and environment. This cannot be provided in the product documentation. The required know-how can be acquired only by attending the training course **ARIS Server Installation**, available via Global Education Services. Get more details on <http://softwareag.com/training>.
- In general, it is advisable to use up-to-date hardware taking into account the number of users who will be accessing the ARIS.
- 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 295). 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.
- Please consider the legal notices <http://softwareag.com/licenses/>.

3 Text conventions

Menu items, file names, etc. are indicated in texts as follows:

- Menu items, key combinations, dialogs, file names, entries, etc. are displayed in **bold**.
- User-defined entries are shown **<in bold and in angle brackets>**.
- Single-line example texts (e.g., a long directory path that covers several lines due to a lack of space) are separated by ↵ at the end of the line.
- File extracts are shown in this font format:

`This paragraph contains a file extract.`

- Warnings have a colored background:

Warning

This paragraph contains a warning.

4 Installation

This chapter describes all ARIS server installation procedures using the setup programs.

Each setup program will install one specific server type. If you need different server types, each ARIS server must be installed on a single machine. For advanced ARIS server installations Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative (page 295). This is of particular importance when you intend to install ARIS across several computers/VMs (distributed installation). Such a specific scenario requires profound knowledge of the technical ARIS infrastructure and environment. This cannot be provided in the product documentation. The required know-how can be acquired only by attending the training course **ARIS Server Installation**, available via Global Education Services. Get more details on <http://softwareag.com/training>.

SETUPS

Please make sure to have at least 15 GB free disk space to run the setup.

Each setup will install ARIS on one machine. 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.

Setup activities are logged in the file `%temp%\ARIS_install_log`.

REMOTE INSTALLATION

To perform remote installations on Microsoft Windows (page 48), please first run the ARIS Agent setup on the remote servers. Then you can install remotely from your machine. For local installations under Windows, on the active machine, ARIS Agent will be installed automatically.

On Linux systems ARIS Agent must be provided (page 50) as described in the different procedures.

UPDATE

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up. This process takes additional time and requires additional disk space while the setup is running. Make sure that the size of the free disk space is at least 15 GB larger than the folder size of the working directories **<ARIS installation path>\server\bin\work** (Microsoft® Windows®) or **/home/ARIS/cloudagent/work** (Linux®). The update will fail if there is insufficient free disk space. If the update process fails, all ARIS components will be rolled back automatically.

To update customized installations e.g. multi-node systems, when an ARIS installations spans across several computers, please contact your local Software AG sales organization (page 295).

APPLICABLE DOCUMENTS

For more details please review the following documents. To avoid redundancies this document does not re-iterate information available in other 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 from Empower (<https://empower.softwareag.com/>), where a login is required, or from the ARIS Download Center (aris.softwareag.com).

- **Readme**
File for last-minute information which couldn't be included in this document anymore.
- **ARIS Platform Matrix**
Provides information about hardware and software requirements.
- **Technical Whitepaper**
Gives an overview on the product and software architecture of ARIS and non-functional and provisioning aspects of typical ARIS installations.
- **ARIS Update Cookbook**
This document is meant for ARIS administrators who are experienced in manually installing ARIS only. Knowing just how to install ARIS by using the provided ARIS standard setups is insufficient.
- **ARIS Client Installation Guide**
Describes how to install ARIS Clients and ARIS Administrator Tools locally.
- **Functional Product Matrix**
Gives an overview on features and functionalities.
- **Technical Product Matrix**
For an overview on supported interfaces, methods, languages, and compatibilities.
- **Release notes**
Provides detailed information on new or changed features in this ARIS version.

4.1 Setup scenarios

In this chapter you find the installation processes of ARIS server types using different database management systems. Servers can be installed on Microsoft Windows operating systems (page 9) and Linux operating systems (page 50). 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.

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

You find all setup programs within the **ARIS Connect_Server** folder, the **ARIS_Design_Server** folder or the **ARIS_Publisher_Server** folder on the installation media. If you do not use the installation media to setup ARIS, please copy the whole content to a directory of your choice. This will make available all documents needed to setup ARIS as well as the database scripts. These scripts are needed to setup your external database management system for the use of ARIS.

If you only copy one ARIS server setup, please make sure to copy the content of the folder containing the **setup.exe** file as well as the **Setup_Data** folder. The **Setup_Data** folder must be copied to the parent folder where the **setup.exe** is located.

DVD FOLDERS

Folder	Content
Add-ons	Required files needed to connect third-party tools, e. g. Microsoft SQL server, Oracle databases or SAP tools.
Content	ARIS databases, method filters and templates, the system database and queries, report scripts and macros that can be imported.
Documents	ARIS Interactive Guides and documents (pdf) in different languages. All documents can be downloaded from Empower (https://empower.softwareag.com/) (login required) or from the ARIS Download Center (aris.softwareag.com).
Setups	All required setup files.
Linux <system>	Required files to install ARIS Agent and ARIS Cloud Controller on different Linux systems Please refer to the Linux installation procedures (page 50).
ARIS_Agent	Provides ARIS Agent on Linux systems. After ARIS Agent is provided, you can install an ARIS server remotely (page 50) from a Windows machine.
ARIS_Cloud_Controller	Provides ARIS Cloud Controller on a Linux system.
Windows	All setup programs to be run on Windows machines.
ARIS_Agent	Installs ARIS_Agent. ARIS_Agent will be installed on all Windows machines that will have an ARIS server. It provides basic components, e.g. ARIS Cloud Controller (ACC) (page 212) and handles internal communication processes. If you are about to install an ARIS server remotely (page 48), please make sure to first install ARIS Agent locally on that machine.
ARIS_Client	Installs an ARIS client.

Folder	Content
ARIS_Connect_Server	<p>Installs ARIS Connect Server.</p> <p>This setup will install ARIS Agent, ARIS Connect Server comprises of 100% of ARIS Design Server, standard database system (optional), ARIS Connect Viewer, ARIS Connect Designer and ARIS download clients and provides the default tenant for all user data. 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.</p> <p>This setup can be run on Windows operating systems using the standard database system (page 10), your Microsoft SQL Server (page 13) or your Oracle database (page 18). You can also install it on a Linux operating system.</p>
ARIS_Design_Server	<p>Installs ARIS Design Server.</p> <p>This setup will install ARIS Agent, ARIS Design Server, standard database system (optional) and ARIS download clients and provides the default tenant for all user data.</p> <p>Installation procedures are available for the operating systems Windows and Linux, using different database management systems.</p> <p>You can manage server data using ARIS Server Administrator (page 243) or ARIS Cloud Controller (page 212).</p>
ARIS_Publisher_Server	<p>Installs ARIS Publisher Server or ARIS Publisher Report Server.</p> <p>This setup will install ARIS Agent and ARIS Publisher Server. Installation procedures are available for Windows operating system (page 9) and Linux operating systems (page 50).</p>
Setup_Data	<p>Folder content needed for all setups.</p> <p>If you only copy one ARIS server setup, please make sure to copy the content of the folder containing the setup.exe file as well as the Setup_Data folder. The Setup_Data folder must be copied to the parent folder where the setup.exe is located.</p>

4.1.1 Windows® operating system

In this chapter you find the ARIS server installation processes for a Microsoft® Windows® operating system:

ARIS CONNECT SERVER

- Installing ARIS Connect Server using the standard database (page 10)
- Installing ARIS Connect Server using a Microsoft SQL Server® (page 13)
- Installing ARIS Connect Server using an Oracle® database (page 18)

ARIS DESIGN SERVER

- Installing ARIS Design using the standard database (page 24)
- Installing ARIS Design Server using a Microsoft SQL Server® (page 27)
- Installing ARIS Design Server using an Oracle® database (page 32)

ARIS PUBLISHER SERVER

- Installing ARIS Publisher Server as a Demo System (page 38)
- Installing ARIS Publisher Server using a Microsoft SQL Server® (page 40)
- Installing ARIS Publisher Server using an Oracle® database (page 44)

4.1.1.1 Installing ARIS Connect Server using the standard database

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent, ARIS Connect Server** comprises of 100% of **ARIS Design Server, ARIS Connect Viewer, ARIS Connect Designer** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will use the standard database system that is included in the package.

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.

Prerequisites

If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Start the ARIS Connect Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Connect_Server**).
2. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
3. Select the installation directory.
4. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
5. Change the ARIS Agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

6. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
7. To force secure connections uncheck **ARIS Server port**. If you do so, please make sure to make a valid SSL server certificate (page 226) available.
8. 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 **Medium** or **Large** option.

Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).

9. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
10. Select the **Standard** database system.
11. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

12. Activate **Use TLS/SSL encryption** to prevent password sniffing.
13. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

14. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.
15. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

16. The help system is always installed in English. You can select additional languages. With each additional language, the installation time will increase.
17. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

18. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

19. Click **Start > All Programs > ARIS > Administration > Start ARIS Connect Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

20. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

21. Enter **list** to check the status of the processes.

22. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than**

default>/#<tenant name>/home. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

23. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
24. Click the **Administrator User Management** user (top right).
25. Click **Administration**. The ARIS Administration opens.
26. Click  **Licenses** and check whether the licenses were properly imported during setup.
27. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
28. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

29. Click **Logout**.
30. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.2 Installing ARIS Connect Server using a Microsoft SQL Server®

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent, ARIS Connect Server** comprises of 100% of **ARIS Design Server, ARIS Connect Viewer, ARIS Connect Designer** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will be connected to your Microsoft SQL Server. The Microsoft SQL Server is not included in the package. 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.

If you need help in setting up ARIS using your external 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.

Prerequisites

- An operating Microsoft SQL Server database. If you have not yet installed the Microsoft SQL Server, please follow the instructions in the Microsoft installation program, as well as the documentation provided by the manufacturer.
- The **SQL Server and Windows authentication mode** (mixed mode) option must be selected (Microsoft SQL Console > **Security** tab).
- You need to know the port number, the database name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\mssql) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Adjust the settings used by all configuration scripts.

Edit the **envset.bat** file to specify the connection data of the Microsoft SQL server instance. It's a good idea to write down the credentials. They must be entered later during the ARIS Server setup process.

To specify the connection data of the Microsoft SQL instance, modify the highlighted parameters:

```
@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
...
```

2. 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 234) to additionally created schemes only. Additional tenants require new licenses. License keys must be unique in every tenant.

3. If you do not use the scripts you can also setup the database and create an empty schema for each tenant manually.
4. Start the ARIS Connect Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Connect_Server**).
5. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
6. Select the installation directory.
7. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.

8. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

9. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
10. 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 **Medium** or **Large** option.

Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).

11. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
12. Select **MSSQL**.
13. Select the required JDBC driver for the Microsoft SQL database management system.
14. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Microsoft SQL server is installed.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number used in the **envset.bat** file is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, enter the used named instance name instead.
- **Database name**
Name of the database that was created by the **envset.bat** script. The default value is **ARIS9DB**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_DEFAULT**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_MASTER**.

15. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

16. Activate **Use TLS/SSL encryption** to prevent password sniffing.
17. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

18. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

19. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

20. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

21. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

22. Click **Start > All Programs > ARIS > Administration > Start ARIS Connect Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

23. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

24. Enter **list** to check the status of the processes.

25. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

26. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

27. Click the **Administrator User Management** user (top right).

28. Click **Administration**. The ARIS Administration opens.
29. Click  **Licenses** and check whether the licenses were properly imported during setup.
30. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
31. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

32. Click **Logout**.
33. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.3 Installing ARIS Connect Server using an Oracle® database

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent, ARIS Connect Server** comprises of 100% of **ARIS Design Server, ARIS Connect Viewer, ARIS Connect Designer** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will be connected to your Oracle Database Management System. The Oracle Database Management System is not included in the package.

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.

If you need help in setting up ARIS using your external 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.

Prerequisites

- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- 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.
- You need to know the port number, the database/service name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\oracle) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Adjust the settings used by all configuration scripts.
Edit the file **envset.bat** to specify the connection data of the Oracle instance. It's a good idea to write down values and credentials. They must be entered later during the ARIS Server setup process.
2. Edit the **envset.bat** file and adjust the following lines replacing the **highlighted** parameters with the settings appropriate for your environment:
REM The path to where sqlplus.exe can be found.
SET CIP_ORA_BIN_PATH=**<enter the path>**
REM hostname, port and service name
SET TARGET_HOST=**localhost**
SET TARGET_PORT=**1521**
SET TARGET_SERVICE_NAME=**ARIS**
3. Edit the following lines to change the **highlighted** 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**
4. 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**
5. If your data table space name is different from **ARISDATA** respectively **TEMP** for temp table space, you will also need to modify these highlighted parameters 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**
6. Save the **envset.bat** file. So you can use it for future update setups again (page 97).
7. Run the script **cip_create_app_user.bat**.
This will create the application user. The application user (CIP_APP_USER) is the Oracle user connecting ARIS and the Oracle database. The default user name is **ARIS9**. But you may have changed that name in the **envset.bat** earlier.

8. Create an empty schema for each tenant. Two schemas 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. These names must be entered later during the ARIS Server setup process. If you need additional tenants (page 130) you must create additional schemas.

To 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.

9. After you have set up the schemas you need to assign the tenants (page 234) to additionally created schemas.
10. Start the ARIS Connect Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Connect_Server**).
11. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
12. Select the installation directory.
13. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
14. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
15. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
16. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
17. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
18. Select **Oracle**.
19. Select the required JDBC driver for the Oracle database management system.

20. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the Oracle server.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Oracle server.

Enter exactly the values used by the Oracle server, e. g. **database name**. Use the **default** schema's name and the **master** schema's name that have been created earlier.

- **Server**
Fully qualified name or IP address of the Oracle server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Oracle server is installed.
- **Port**
Port addressing the Oracle server instance running over TCP. The default port number used in the **envset.bat** file is **1521**.
- **Database/Service name**
Oracle SID or Oracle service name. The default value used in the from **envset.bat** file is **ARIS**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_default**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_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 238).

21. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

22. Activate **Use TLS/SSL encryption** to prevent password sniffing.
23. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

24. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

25. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

26. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

27. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

28. Click **Start > All Programs > ARIS > Administration > Start ARIS Connect Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

29. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

30. Enter **list** to check the status of the processes.

31. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

32. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

33. Click the **Administrator User Management** user (top right).

34. Click **Administration**. The ARIS Administration opens.
35. Click  **Licenses** and check whether the licenses were properly imported during setup.
36. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
37. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

38. Click **Logout**.
39. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.4 Installing ARIS Design Server using the standard database

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Design Server** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will use the standard database system that is included in the package.

Prerequisites

If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Start the ARIS Design Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Design_Server**).
2. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
3. Select the installation directory.
4. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
5. Change the ARIS Agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

6. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
7. To force secure connections uncheck **ARIS Server port**. If you do so, please make sure to make a valid SSL server certificate (page 226) available.
8. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
9. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
10. Select the **Standard** database system.

11. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

12. Activate **Use TLS/SSL encryption** to prevent password sniffing.
13. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

14. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

15. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

16. The help system is always installed in English. You can select additional languages. With each additional language, the installation time will increase.

17. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

18. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

19. Click **Start > All Programs > ARIS > Administration > Start ARIS Design Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

20. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

21. Enter **list** to check the status of the processes.

22. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

23. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
24. Click the **Administrator User Management** user (top right).
25. Click **Administration**. The ARIS Administration opens.
26. Click  **Licenses** and check whether the licenses were properly imported during setup.
27. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
28. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

29. Click **Logout**.
30. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.5 Installing ARIS Design Server using a Microsoft SQL Server®

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Design Server** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will be connected to your Microsoft SQL Server. The Microsoft SQL Server is not included in the package.

If you need help in setting up ARIS using your external 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.

Prerequisites

- An operating Microsoft SQL Server database. If you have not yet installed the Microsoft SQL Server, please follow the instructions in the Microsoft installation program, as well as the documentation provided by the manufacturer.
- The **SQL Server and Windows authentication mode** (mixed mode) option must be selected (Microsoft SQL Console > **Security** tab).
- You need to know the port number, the database name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\mssql) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Adjust the settings used by all configuration scripts.

Edit the **envset.bat** file to specify the connection data of the Microsoft SQL server instance. It's a good idea to write down the credentials. They must be entered later during the ARIS Server setup process.

To specify the connection data of the Microsoft SQL instance, modify the highlighted parameters:

```
@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
...
```

2. 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 234) to additionally created schemes only. Additional tenants require new licenses. License keys must be unique in every tenant.

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

3. Start the ARIS Design Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Design_Server**).
4. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
5. Select the installation directory.
6. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.

7. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

8. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
9. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
10. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
11. Select **MSSQL**.
12. Select the required JDBC driver for the Microsoft SQL database management system.
13. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script **from** the machine where the Microsoft SQL server is installed.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number used in the **envset.bat** file is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, enter the used named instance name instead.
- **Database name**
Name of the database that was created by the **envset.bat** script. The default value is **ARIS9DB**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_DEFAULT**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_MASTER**.

14. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

15. Activate **Use TLS/SSL encryption** to prevent password sniffing.
16. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

17. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

18. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

19. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

20. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

21. Click **Start > All Programs > ARIS > Administration > Start ARIS Design Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

22. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

23. Enter **list** to check the status of the processes.

24. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
25. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
26. Click the **Administrator User Management** user (top right).
27. Click **Administration**. The ARIS Administration opens.
28. Click  **Licenses** and check whether the licenses were properly imported during setup.
29. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
30. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

31. Click **Logout**.
32. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.6 Installing ARIS Design Server using an Oracle® database

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent**, **ARIS Design Server** and **ARIS download clients** and provides the **default** tenant for all user data. ARIS will be connected to your Oracle database. The Oracle database is not included in the package.

If you need help in setting up ARIS using your external 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.

Prerequisites

- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- 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.
- You need to know the port number, the database/service name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\oracle) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Adjust the settings used by all configuration scripts.
Edit the file **envset.bat** to specify the connection data of the Oracle instance. It's a good idea to write down values and credentials. They must be entered later during the ARIS Server setup process.
2. Edit the **envset.bat** file and adjust the following lines replacing the **highlighted** parameters with the settings appropriate for your environment:
REM The path to where sqlplus.exe can be found.
SET CIP_ORA_BIN_PATH=**<enter the path>**
REM hostname, port and service name
SET TARGET_HOST=**localhost**
SET TARGET_PORT=**1521**
SET TARGET_SERVICE_NAME=**ARIS**
3. Edit the following lines to change the **highlighted** 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**
4. 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**
5. If your data table space name is different from **ARISDATA** respectively **TEMP** for temp table space, you will also need to modify these highlighted parameters 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**
6. Save the **envset.bat** file. So you can use it for future update setups again (page 97).
7. Run the script **cip_create_app_user.bat**.
This will create the application user. The application user (CIP_APP_USER) is the Oracle user connecting ARIS and the Oracle database. The default user name is **ARIS9**. But you may have changed that name in the **envset.bat** earlier.

8. Create an empty schema for each tenant. Two schemas 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. These names must be entered later during the ARIS Server setup process. If you need additional tenants (page 130) you must create additional schemas.

To 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.

After you have set up the schemas you need to assign the tenants (page 234) to additionally created schemas.

9. Start the ARIS Design Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Design_Server**).
10. Install the ARIS server on the active computer and use the default agent user's credentials. You will change them in one of the following steps. This is to prevent unauthorized access to your ARIS system.
11. Select the installation directory.
12. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
13. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
14. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
15. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
16. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
17. Select **Oracle**.
18. Select the required JDBC driver for the Oracle database management system.

19. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the Oracle server.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Oracle server.

Enter exactly the values used by the Oracle server, e. g. **database name**. Use the **default** schema's name and the **master** schema's name that have been created earlier.

- **Server**
Fully qualified name or IP address of the Oracle server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Oracle server is installed.
- **Port**
Port addressing the Oracle server instance running over TCP. The default port number used in the **envset.bat** file is **1521**.
- **Database/Service name**
Oracle SID or Oracle service name. The default value used in the **envset.bat** file is **ARIS**.
- **Application user**
Login user name that is used by the application. The default value used in the **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_default**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_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 238).

20. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

21. Activate **Use TLS/SSL encryption** to prevent password sniffing.
22. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

23. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

24. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

25. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

26. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

27. Click **Start > All Programs > ARIS > Administration > Start ARIS Design Server**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

The start process will take a while.

28. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

29. Enter **list** to check the status of the processes.

30. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

31. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

32. Click the **Administrator User Management** user (top right).

33. Click **Administration**. The ARIS Administration opens.
34. Click  **Licenses** and check whether the licenses were properly imported during setup.
35. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
36. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

37. Click **Logout**.
38. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

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**.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.7 Installing ARIS Publisher Server as a demo system

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

This setup will install **ARIS Agent** and **ARIS Publisher Server** for demonstration purposes only, e. g. on a laptop. The standard setup installs ARIS Publisher Server and **Tomcat** 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.

The standard database **Derby** used by Apache Tomcat Web Application Server can only be used as demo version. It is only available for Microsoft Windows operating systems. This test system only allows a small number of users to access a Publisher export. Swim lane models cannot be exported using a **Derby** database.

Prerequisites

If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Start the ARIS Publisher Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
2. Install the ARIS server on the active computer and use the default agent user's credentials. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.
3. Select the installation directory.
4. To import the ARIS license file right now, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
5. Select the ARIS Publisher Server to be installed. A Report Server can only be installed on another machine. This is to optimize system performance when running reports.
6. If you retain the settings of the installation program, the context path and the default port **19990** to the web server are entered automatically. Either make sure that the default port is not used by other programs, or enter another free port number.
7. If you use Process Governance as part of your ARIS Connect/ARIS Design Server installation, please specify the IP address or fully-qualified ARIS server name. Enter the port number only if it is another than the standard port.

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.

8. To use the user and license management of another ARIS server, select **Use the ARIS Administration of an existing ARIS server**.

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

http://<IP address or fully-qualified host name>:<port number other than default port>/umc

You must enter the port number only if you have changed or redirected (page 227) the standard port **19990**.

Enter the ARIS Administration user's name **superuser** and the corresponding password.

9. 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. Only in this case ARIS document storage will be available if customized (page 193).
10. Select **Derby** as database system.
11. Start the installation process.
12. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command (page 236) to change settings.
13. Click **Start > All Programs > ARIS > Start ARIS Publisher Server**.
14. 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
15. Start the ARIS Administration of the ARIS Connect Server or ARIS Design Server.
16. Log in as a license administrator.
17. Click the user name (top right).
18. Click **Administration**. The ARIS Administration opens.
19. Click Licenses and import the ARIS Publisher Server license file.

ARIS Publisher Server is accessible as a test system. It cannot be used as a productive system. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.8 Installing ARIS Publisher Server using a Microsoft SQL Server®

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

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.

For a productive ARIS Publisher system you must select the **medium** or **large** installation option. For these installation options an external database system is required. The external database system is not included in the package. Depending on the ARIS Publisher Server license purchased (page 196), the system enables all users to simultaneously work on exports.

Prerequisite

- The file **create_db.sql** (<installation media\Add-ons\DatabaseScripts\PublisherServer\mssql) 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. If you install or configure a database yourself, always follow the instructions provided by the respective manufacturer, or contact your local Software AG sales organization (page 295).
- 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 243) command **encrypt**.
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. 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>.
2. Open the Microsoft SQL Console.
3. Open the **Server properties** dialog.
4. On the **Security** tab, select the **SQL Server and Windows authentication mode** option (mixed mode).
5. Create a database using the **bpadduser.sql** script.
6. Note the database name, user name, and password. You must enter these values later during the setup process.

7. 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
8. Close the Microsoft SQL Console.
9. Start the ARIS Publisher Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
10. Install ARIS Publisher Server on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.
11. Select the installation directory.
12. To import the ARIS license file right now, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
13. Select the ARIS Publisher Server to be installed. A Report Server can only be installed on another machine. This is to optimize system performance when running reports.
14. If you retain the settings of the installation program, the context path and the default port **19990** to the web server are entered automatically. Either make sure that the default port is not used by other programs, or enter another free port number.
15. If you use Process Governance please specify the IP address or fully-qualified ARIS Server name. Enter the port number only if it is another than the standard port.
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.
16. To use the user and license management of another ARIS server, select **Use the ARIS Administration of an existing ARIS server**.
Enter the URL to that ARIS server's ARIS Administration:
http://<IP address or fully-qualified host name>:<port number other than default port>/umc
You must enter the port number only if you have changed or redirected (page 227) the standard port **19990**.
Enter the ARIS Administration user's name **superuser** and the corresponding password.
17. 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. Only in this case ARIS document storage will be available if customized (page 193).
18. Select the **Medium** or **Large** installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.
19. Select the **Microsoft SQL Server** as database system.
20. Select the required JDBC driver for the Microsoft SQL database management system.

21. Enter the connection parameters used in the **create_db.sql** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **create_db.sql** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, append a backslash and enter the used instance name instead.
- **Database name**
Name of the database that was created by the **create_db.sql** script. The default value is **ARISBP9**.
- **Application user**
Login user name that is used by the application. The default value used in the from **create_db.sql** file is **ARISBP9**.
- **Password**
The application user's password. The default value used in the from **create_db.sql** file is ***ARISBP!1dm95n#**.
- **Data file group**
Name of the table space for table data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPDATA**.
- **Index file group**
Name of the table space for index data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPINDEX**.

22. Start the installation process.
23. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.
24. Click **Start > All Programs > ARIS > Start ARIS Publisher Server**.
25. 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
26. Start the ARIS Administration (page 105) of the ARIS Connect Server or ARIS Design Server.
27. Log in as a license administrator.
28. Click the user name (top right).
29. Click **Administration**. The ARIS Administration opens.
30. Click  **Licenses** and import the ARIS Publisher Server license file.
31. To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the

infrastructure tenant (page 106). 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 223) manually.

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

You may change the standard database connection parameters (page 199). You can adjust (page 236) all parameters that have been entered during the setup process.

Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.9 Installing ARIS Publisher Server using an Oracle® database

This procedure describes the installation on the active computer. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.

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.

For a productive ARIS Publisher system you must select the **medium** or **large** installation option. For these installation options an external database system is required. The external database system is not included in the package. Depending on the ARIS Publisher Server license purchased (page 196), the system enables all users to simultaneously work on exports.

Prerequisite

- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- The **bpadduser.sql** script (<installation media\Add-ons\DatabaseScripts\PublisherServer\oracle) is available.
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. Please adjust the system as required to manage ARIS Publisher Server in combination with an Oracle database.
2. Create a database using the **bpadduser.sql** script. If you install or configure a database yourself, always follow the instructions provided by the respective manufacturer, or contact your local Software AG sales organization (page 295). We recommend 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.

Write down all connection parameters that you define during that process, e.g. the database name, the table space names, the user name, and password. You must enter these values later during the setup process.

3. Make sure to configure the database following these prerequisites:
 - Use of the database character set **AL32UTF8** is mandatory.
 - We recommend a block size of 8K.
 - `query_rewrite_enabled=true`
 - `query_rewrite_integrity=trusted`
 - Create two table spaces, e. g. **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.
 - We recommend that you turn off the Oracle recycle bin because large quantities of tables accumulate there when exports are deleted
 - Create 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 - encoded or unencoded - later during the ARIS Publisher Server setup process. To encrypt passwords use the ARIS Server Administrator (page 243) **encrypt** command . If you prefer a different name, change the name as well: `CREATE USER ARISBP IDENTIFIED BY ARISBP;`

This 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;`
4. Start the ARIS Publisher Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
5. Install the ARIS server on the active computer and use the default agent user's credentials. To perform remote installations (page 48) on Microsoft Windows machines, please first run the ARIS Agent setup on the remote servers.
6. Select the installation directory.
7. To import the ARIS license file right now, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
8. Select the ARIS Publisher Server to be installed. A Report Server can only be installed on another machine. This is to optimize system performance when running reports.
9. If you retain the settings of the installation program, the context path and the default port **19990** to the web server are entered automatically. Either make sure that the default port is not used by other programs, or enter another free port number.

10. If you use Process Governance please specify the IP address or fully-qualified ARIS Server name. Enter the port number only if it is another than the standard port.

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.

11. To use the user and license management of another ARIS server, select **Use the ARIS Administration of an existing ARIS server**.

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

http://<IP address or fully-qualified host name>:<port number other than default port>/umc

You must enter the port number only if you have changed or redirected (page 227) the standard port **19990**.

Enter the ARIS Administration user's name **superuser** and the corresponding password.

12. 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. Only in this case ARIS document storage will be available if customized (page 193).
13. Select the **Medium** or **Large** installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.
14. Select **Oracle** as database system.
15. Select the required JDBC driver for the Oracle database management system.
16. Enter the connection parameters you have defined while creating the Oracle database.
 - **Server**
Fully qualified name or IP address of the Oracle system.
 - **Port**
Port addressing the Oracle server instance running over TCP. The default port number is **1433**.
 - **Database/Service name**
Oracle SID or Oracle service name.
 - **Application user**
Login user name that is used by the application. The default value is **ARISBP9**.
 - **Password**
The application user's password. The default value is ***ARISBP!1dm95n#**.
 - **Data file group**
Name of the table space for table data that had been created earlier. The default value is **ARISBPDATA**.
 - **Index file group**
Name of the table space for index data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPINDEX**.

17. Start the installation process.
18. Configure the system (page 103), once after the installation process is completed. You may change the standard database connection parameters (page 199). You can adjust (page 236) all parameters that have been entered during the setup process.
19. Click **Start > All Programs > ARIS > Start ARIS Publisher Server**.

20. 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

21. Start the ARIS Administration (page 105) of the ARIS Connect Server or ARIS Design Server and import the ARIS Publisher Server license file.

22. To prevent unauthorized actions, the administrator must take care that the passwords have been changed.

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 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.

You may change the standard database connection parameters (page 199). You can adjust (page 236) all parameters that have been entered during the setup process. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.1.10 ARIS remote installations

Before installing servers remotely on a Windows 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 from the DVD folder **Setups\Windows\ARIS_Agent**. This will provide ARIS Cloud Controller (ACC) (page 212) on that machine.
2. Select the installation directory and start the installation process. After the process is completed, any ARIS server can be installed remotely.
3. Start the server installation from any Windows system (page 9).
4. Select the **remote installation** option and enter the name of the remote server.
5. If you have changed the remote access password (page 223) you must enter the new password using the option **Enter changed remote access password**.
6. Once after the installation process is completed configure the system (page 103).
7. Start the ARIS server (**Start > All Programs > ARIS > Administration > <start link of the installed server>**). If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.
The start process will take a while.
8. Click **Start > All Programs > ARIS > Administration > Start ARIS Cloud Controller**. If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.
9. Enter **list** to check the status of the processes.
10. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
11. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
12. Click the **Administrator User Management** user (top right).
13. Click **Administration**. The ARIS Administration opens.
14. Click  **Licenses** and check whether the licenses were properly imported during setup.
15. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.

16. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

17. Click **Logout**.
18. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

The server is installed, customized and running.

You can stop enter **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

4.1.2 Linux operating system

In this chapter you find the ARIS server installation processes for a Linux operating system:

ARIS CONNECT SERVER

- Installing ARIS Connect Server using the standard database (page 51)
- Installing ARIS Connect Server using a Microsoft SQL Server® (page 55)
- Installing ARIS Connect Server using an Oracle® database (page 61)

ARIS DESIGN SERVER

- Installing ARIS Design Server using the standard database (page 67)
- Installing ARIS Design Server system using a Microsoft SQL Server® (page 71)
- Installing ARIS Design Server using an Oracle® database (page 77)

ARIS PUBLISHER SERVER

- Installing ARIS Publisher Server a Microsoft SQL Server® (page 83)
- Installing ARIS Publisher Server an Oracle® database (page 88)
- The demo system, using Derby as database system, is not available on Linux systems.

4.1.2.1 Installing ARIS Connect Server on a Linux operating system using the standard database

Before installing an ARIS 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
```

Prerequisites

- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).
2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Perform the ARIS Connect Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Connect_Server**).
5. Start the **setup.exe** file as an administrator.
6. Select the **Perform installation on a remote server** option and enter the name of your Linux system.
7. Select the installation directory.
8. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
9. Change the ARIS Agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
10. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
11. To force secure connections uncheck **ARIS Server port**. If you do so, please make sure to make a valid SSL server certificate (page 226) available.
12. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
13. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
14. Select the **Standard** database system.

15. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

16. Activate **Use TLS/SSL encryption** to prevent password sniffing.
17. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

18. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.
19. Configure the start option:
Select **Start automatically** if you want to have the server started up with every restart of your operating system.
Select **Start manually** if you want to start/stop the server on the active computer manually.
20. Start the installation process.
21. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.
22. Start **ARIS Cloud Controller** (acc.sh).
As the internal ARIS user running all runnables 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 227).
23. Enter **startall**. This process will take a while.
24. Enter **list** to check the status of all runnables.
25. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
26. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
27. Click the **Administrator User Management** user (top right).
28. Click **Administration**. The ARIS Administration opens.
29. Click  **Licenses** and check whether the licenses were properly imported during setup.
30. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.

31. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

32. Click **Logout**.
33. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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**.

4.1.2.2 Installing ARIS Connect Server on a Linux operating system using a Microsoft SQL Server®

Before installing an ARIS 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
```

Prerequisites

- An operating Microsoft SQL Server database. If you have not yet installed the Microsoft SQL Server, please follow the instructions in the Microsoft installation program, as well as the documentation provided by the manufacturer.
- The **SQL Server and Windows authentication mode** (mixed mode) option must be selected (Microsoft SQL Console > **Security** tab).
- You need to know the port number, the database name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\mssql) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Adjust the settings used by all configuration scripts.

Edit the **envset.bat** file to specify the connection data of the Microsoft SQL server instance. It's a good idea to write down the credentials. They must be entered later during the ARIS Server setup process.

To specify the connection data of the Microsoft SQL instance, modify the highlighted parameters:

```
@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
...
```

5. 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 234) to additionally created schemes only. Additional tenants require new licenses. License keys must be unique in every tenant.

6. If you do not use the scripts you can also setup the database and create an empty schema for each tenant manually.
7. Perform the ARIS Connect Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Connect_Server**).
8. Start the **setup.exe** file as an administrator.
9. Select the **Perform installation on a remote server** option and enter the name of your Linux system.
10. Select the installation directory.
11. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
12. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

13. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
14. 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 **Medium** or **Large** option.

Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).

15. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
16. Select **MSSQL**.
17. Select the required JDBC driver for the Microsoft SQL database management system.

18. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Microsoft SQL server is installed.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number used in the **envset.bat** file is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, enter the used named instance name instead.
- **Database name**
Name of the database that was created by the **envset.bat** script. The default value is **ARIS9DB**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_DEFAULT**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. The default value used in the from **envset.bat** file is **ARIS_MASTER**.

19. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

20. Activate **Use TLS/SSL encryption** to prevent password sniffing.
21. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

22. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

23. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

24. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

25. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

26. Start **ARIS Cloud Controller** (acc.sh).

As the internal ARIS user running all runnables 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 227).

27. Enter **startall**. This process will take a while.

28. Enter **list** to check the status of all runnables.

29. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

30. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

31. Click the **Administrator User Management** user (top right).

32. Click **Administration**. The ARIS Administration opens.

33. Click  **Licenses** and check whether the licenses were properly imported during setup.

34. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.

35. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

36. Click **Logout**.

37. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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**.

4.1.2.3 Installing ARIS Connect Server on a Linux operating system using an Oracle® database

Before installing an ARIS 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
```

Prerequisites

- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- 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.
- You need to know the port number, the database/service name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\oracle) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Adjust the settings used by all configuration scripts.

Edit the file **envset.bat** to specify the connection data of the Oracle instance. It's a good idea to write down values and credentials. They must be entered later during the ARIS Server setup process.

5. Edit the **envset.bat** file and adjust the following lines replacing the **highlighted** parameters with the settings appropriate for your environment:

REM The path to where sqlplus.exe can be found.

SET CIP_ORA_BIN_PATH=**<enter the path>**

REM hostname, port and service name

SET TARGET_HOST=**localhost**

SET TARGET_PORT=**1521**

SET TARGET_SERVICE_NAME=**ARIS**

6. Edit the following lines to change the **highlighted** 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**

7. 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**

8. If your data table space name is different from **ARISDATA** respectively **TEMP** for temp table space, you will also need to modify these highlighted parameters 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**

9. Save the **envset.bat** file. So you can use it for future update setups again (page 97).

10. Run the script **cip_create_app_user.bat**.

This will create the application user. The application user (CIP_APP_USER) is the Oracle user connecting ARIS and the Oracle database. The default user name is **ARIS9**. But you may have changed that name in the **envset.bat** earlier.

11. 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 process. If you need additional tenants (page 130) you must create additional schemes.

To 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.

12. After you have set up the schemas you need to assign the tenants (page 234) to additionally created schemes.

13. Perform the ARIS Connect Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Connect_Server**).

14. Start the **setup.exe** file as an administrator.

15. Select the **Perform installation on a remote server** option and enter the name of your Linux system.

16. Select the installation directory.

17. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
18. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
19. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
20. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
21. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
22. Select **Oracle**.
23. Select the required JDBC driver for the Oracle database management system.
24. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the Oracle server.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Oracle server.

Enter exactly the values used by the Oracle server, e. g. **database name**. Use the **default** schema's name and the **master** schema's name that have been created earlier.

- **Server**
Fully qualified name or IP address of the Oracle server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Oracle server is installed.
- **Port**
Port addressing the Oracle server instance running over TCP. The default port number used in the **envset.bat** file is **1521**.
- **Database/Service name**
Oracle SID or Oracle service name. The default value used in the from **envset.bat** file is **ARIS**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_default**.

- **Master scheme**

Schema name for the **master** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_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 238).

25. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

26. Activate **Use TLS/SSL encryption** to prevent password sniffing.

27. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

28. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

29. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

30. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

31. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

32. Start **ARIS Cloud Controller** (acc.sh).

As the internal ARIS user running all runnables 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 227).

33. Enter **startall**. This process will take a while.

34. Enter **list** to check the status of all runnables.

35. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
36. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
37. Click the **Administrator User Management** user (top right).
38. Click **Administration**. The ARIS Administration opens.
39. Click  **Licenses** and check whether the licenses were properly imported during setup.
40. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
41. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

42. Click **Logout**.
43. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Connect Server is installed, customized and running. If an ARIS Design Server license is imported instead of an ARIS Connect license, ARIS Connect functionality will not be available.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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 93). Components will be stopped. After the system has been updated all components will be started automatically.

4.1.2.4 Installing ARIS Design Server on a Linux operating system using the standard database

Before installing an ARIS 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
```

Prerequisites

- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).
2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

4. This command installs ARIS Agent to your Red Hat and SUSE system.
5. Perform the ARIS Design Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Design_Server**).
6. Start the **setup.exe** file as an administrator.
7. Select the **Perform installation on a remote server** option and enter the name of your Linux system.
8. Select the installation directory.
9. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
10. Change the ARIS Agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
11. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
12. To force secure connections uncheck **ARIS Server port**. If you do so, please make sure to make a valid SSL server certificate (page 226) available.
13. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
14. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
15. Select the **Standard** database system.

16. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

17. Activate **Use TLS/SSL encryption** to prevent password sniffing.
18. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

19. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

20. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

21. The help system is always installed in English. You can select additional languages. With each additional language, the installation time will increase.

22. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

23. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

24. Start **ARIS Cloud Controller** (acc.sh).

As the internal ARIS user running all runnables 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 227).

25. Enter **startall**. This process will take a while.

26. Enter **list** to check the status of all runnables.

27. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

28. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

29. Click the **Administrator User Management** user (top right).

30. Click **Administration**. The ARIS Administration opens.
31. Click  **Licenses** and check whether the licenses were properly imported during setup.
32. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
33. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

34. Click **Logout**.
35. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Design Server is installed, customized and running.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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**.

4.1.2.5 Installing ARIS Design Server on a Linux operating system using a Microsoft SQL Server®

Before installing an ARIS 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
```

Prerequisites

- An operating Microsoft SQL Server database. If you have not yet installed the Microsoft SQL Server, please follow the instructions in the Microsoft installation program, as well as the documentation provided by the manufacturer.
- The **SQL Server and Windows authentication mode** (mixed mode) option must be selected (Microsoft SQL Console > **Security** tab).
- You need to know the port number, the database name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\mssql) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Adjust the settings used by all configuration scripts.

Edit the **envset.bat** file to specify the connection data of the Microsoft SQL server instance. It's a good idea to write down the credentials. They must be entered later during the ARIS Server setup process.

To specify the connection data of the Microsoft SQL instance, modify the highlighted parameters:

```
@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
...
```

5. 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 234) to additionally created schemes only. Additional tenants require new licenses. License keys must be unique in every tenant.

6. If you do not use the scripts you can also setup the database and create an empty schema for each tenant manually.
7. Perform the ARIS Design Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Design_Server**).
8. Start the **setup.exe** file as an administrator.
9. Select the **Perform installation on a remote server** option and enter the name of your Linux system.
10. Select the installation directory.
11. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
12. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.

If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.

13. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
14. 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 **Medium** or **Large** option.

Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).

15. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
16. Select **MSSQL**.
17. Select the required JDBC driver for the Microsoft SQL database management system.

18. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Microsoft SQL server is installed.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number used in the **envset.bat** file is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, enter the used named instance name instead.
- **Database name**
Name of the database that was created by the **envset.bat** script. The default value is **ARIS9DB**.
- **Application user**
Login user name that is used by the application. The default value used in the **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. The default value used in the **envset.bat** file is **ARIS_DEFAULT**.
- **Master scheme**
Schema name for the **master** tenant and user name for that schema's owner. The default value used in the **envset.bat** file is **ARIS_MASTER**.

19. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

20. Activate **Use TLS/SSL encryption** to prevent password sniffing.
21. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

22. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

23. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

24. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration >...**). However, that bears the risk of a stolen password.

25. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

26. Start **ARIS Cloud Controller** (acc.sh).

As the internal ARIS user running all runnables 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 227).

27. Enter **startall**. This process will take a while.

28. Enter **list** to check the status of all runnables.

29. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.

30. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.

31. Click the **Administrator User Management** user (top right).

32. Click **Administration**. The ARIS Administration opens.

33. Click  **Licenses** and check whether the licenses were properly imported during setup.

34. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.

35. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

36. Click **Logout**.

37. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Design Server is installed, customized and running.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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**.

4.1.2.6 Installing ARIS Design Server on a Linux operating system using an Oracle® database

Before installing an ARIS 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
```

Prerequisites

- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- 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.
- You need to know the port number, the database/service name of the new database instance and also the credentials, i.e., the user name and the password of the application user.
- 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. All scripts and files are located on the installation medium (Add-ons\DatabaseScripts\Design&ConnectServer\oracle) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.
- You need access to the ***.rpm** and ***.deb** files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Adjust the settings used by all configuration scripts.

Edit the file **envset.bat** to specify the connection data of the Oracle instance. It's a good idea to write down values and credentials. They must be entered later during the ARIS Server setup process.

5. Edit the **envset.bat** file and adjust the following lines replacing the **highlighted** parameters with the settings appropriate for your environment:

REM The path to where sqlplus.exe can be found.

SET CIP_ORA_BIN_PATH=**<enter the path>**

REM hostname, port and service name

SET TARGET_HOST=**localhost**

SET TARGET_PORT=**1521**

SET TARGET_SERVICE_NAME=**ARIS**

6. Edit the following lines to change the **highlighted** 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**

7. 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**

8. If your data table space name is different from **ARISDATA** respectively **TEMP** for temp table space, you will also need to modify these highlighted parameters 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**

9. Save the **envset.bat** file. So you can use it for future update setups again (page 97).

10. Run the script **cip_create_app_user.bat**.

This will create the application user. The application user (CIP_APP_USER) is the Oracle user connecting ARIS and the Oracle database. The default user name is **ARIS9**. But you may have changed that name in the **envset.bat** earlier.

11. 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 process. If you need additional tenants (page 130) you must create additional schemes.

To 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.

12. After you have set up the schemas you need to assign the tenants (page 234) to additionally created schemes.

13. Perform the ARIS Design Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Design_Server**).

14. Start the **setup.exe** file as an administrator.

15. Select the **Perform installation on a remote server** option and enter the name of your Linux system.

16. Select the installation directory.

17. Only if you need to specify an external IP address for incoming requests please enter the server name or server IP.
18. Change the ARIS agent user's credentials to prevent unauthorized access to your ARIS system.
If you change the credentials, you will be further on prompted to enter that password you've chosen whenever you start/stop the ARIS Server or access your ARIS installation using ARIS Cloud Controller.
19. If the ports **80** or **443** are already in use, specify the port numbers to be used. If you change the default port numbers users must add **:<this port number>** to the URL (see below).
20. 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 **Medium** or **Large** option.
Only for demonstration purposes (laptop) we recommend the option **Demo scenario** (page 240).
21. To import the ARIS license file, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
22. Select **Oracle**.
23. Select the required JDBC driver for the Oracle database management system.
24. Enter the connection parameters used in the **envset.bat** file and exactly the values used by the Oracle server.

The values shown are the default values used in the **envset.bat** file and the default parameters used when setting up the Oracle server.

Enter exactly the values used by the Oracle server, e. g. **database name**. Use the **default** schema's name and the **master** schema's name that have been created earlier.

- **Server**
Fully qualified name or IP address of the Oracle server. The default parameter used in the **envset.bat** file is **localhost**. The default name works only if you run that script from the machine where the Oracle server is installed.
- **Port**
Port addressing the Oracle server instance running over TCP. The default port number used in the **envset.bat** file is **1521**.
- **Database/Service name**
Oracle SID or Oracle service name. The default value used in the from **envset.bat** file is **ARIS**.
- **Application user**
Login user name that is used by the application. The default value used in the from **envset.bat** file is **ARIS9**.
- **Password**
The application user's password. The default value used in the from **envset.bat** file is ***ARIS!1dm9n#**.
- **Default schema**
Schema name for the **default** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_default**.

- **Master scheme**

Schema name for the **master** tenant and user name for that schema's owner. Enter exactly the name used when you have created the schema (see step 6), e. g. **aris_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 238).

25. Enter the SMTP mail processing parameters of an existing account.

If you don't, ARIS will not send any notifications, due to the missing mailing functionality.

But you can configure SMTP mail processing (page 238) at any later point of time. Some parameters can also be managed using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

26. Activate **Use TLS/SSL encryption** to prevent password sniffing.

27. Only if your mail server requires SMTP authentication, select the option **SMTP authentication** and enter the user's credentials.

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

28. If you are about to use a proxy server, please enter all proxy processing parameters. You can also enter them later, using the ARIS Administration (page 201) of this server. Please refer to the online help of ARIS Administration.

29. Configure the start option:

Select **Start automatically** if you want to have the server started up with every restart of your operating system.

Select **Start manually** if you want to start/stop the server on the active computer manually.

30. Start the installation process.

If you have changed the ARIS Agent's default user credentials during this procedure, you will be prompted for that password you have chosen.

Alternatively, you might want to modify (page 223) the shortcut (**Start > All Programs > ARIS > Administration > ...**). However, that bears the risk of a stolen password.

31. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure ACC** command (page 236) to change settings.

32. Start **ARIS Cloud Controller** (acc.sh).

33. As the internal ARIS user running all runnables 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 227).

34. Enter **startall**. This process will take a while.

35. Enter **list** to check the status of all runnables.

36. After the ARIS server is running open your browser and enter **localhost** or **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
37. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
38. Click the **Administrator User Management** user (top right).
39. Click **Administration**. The ARIS Administration opens.
40. Click  **Licenses** and check whether the licenses were properly imported during setup.
41. Create users and user groups and assign privileges and licenses (page 104) for the **default** tenant. If you have created additional tenants (page 130), users and licenses must be managed for each additional tenant.
42. Create additional system users and superusers holding all required privileges. This will allow access to the ARIS system in case of password loss.

To prevent unauthorized access to the ARIS system, the administrator must take care that the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user have been changed on all operational tenants (page 107), as well as on the infrastructure tenant (page 106). 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 223) manually.

43. Click **Logout**.
44. Send the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home** to all users.

ARIS Design Server is installed, customized and running.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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**.

4.1.2.7 Installing ARIS Publisher Server on a Linux operating system using a Microsoft SQL Server®

Before installing an ARIS 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
```

This setup will install **ARIS Agent** and **ARIS Publisher Server**. The standard setup installs ARIS Publisher Server and **Tomcat** 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.

For a productive ARIS Publisher system you must select the **small** or **large** installation option. For these installation options an external database system is required. The external database system is not included in the package. Depending on the ARIS Publisher Server license purchased (page 196), the system enables all users to simultaneously work on exports.

Prerequisites

- You need access to the *.rpm and *.deb files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).
- The file **create_db.sql** (<installation media\Add-ons\DatabaseScripts\PublisherServer\mssql) 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. If you install or configure a database yourself, always follow the instructions provided by the respective manufacturer, or contact your local Software AG sales organization (page 295).
- 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 243) command **encrypt**.
- If you would like to import the ARIS license file during the setup procedure, please make sure to have the zip file saved on this computer. Otherwise licenses must be imported (page 224) after the installation.

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. 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>.
5. Open the Microsoft SQL Console.

6. Open the **Server properties** dialog.
7. On the **Security** tab, select the **SQL Server and Windows authentication mode** option (mixed mode).
8. Create a database using the **bpadduser.sql** script.
9. Note the database name, user name, and password. You must enter these values later during the setup process.
10. 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
11. Close the Microsoft SQL Console.
12. Start the ARIS Publisher Server installation as an administrator (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
13. Start the ARIS Publisher Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
14. Start the **setup.exe** file as an administrator.
15. Select the **Perform installation on a remote server** option and enter the name of your Linux system.
16. Select the installation directory.
17. To import the ARIS license file right now, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
18. Select the ARIS Publisher Server to be installed. A Report Server can only be installed on another machine. This is to optimize system performance when running reports.
19. If you retain the settings of the installation program, the context path and the default port **19990** to the web server are entered automatically. Either make sure that the default port is not used by other programs, or enter another free port number.
20. If you use Process Governance please specify the IP address or fully-qualified ARIS Server name. Enter the port number only if it is another than the standard port.

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.

21. To use the user and license management of another ARIS server, select **Use the ARIS Administration of an existing ARIS server**.

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

http://<IP address or fully-qualified host name>:<port number other than default port>/umc

You must enter the port number only if you have changed or redirected (page 227) the standard port **19990**.

Enter the ARIS Administration user's name **superuser** and the corresponding password.

22. 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. Only in this case ARIS document storage will be available if customized (page 193).
23. Select the **Medium** or **Large** installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.
24. Select the **Microsoft SQL Server** as database system.
25. Select the required JDBC driver for the Microsoft SQL database management system.
26. Enter the connection parameters used in the **create_db.sql** file and exactly the values used by the **Microsoft SQL server**.

The values shown are the default values used in the **create_db.sql** file and the default parameters used when setting up the Microsoft SQL server.

- **Server**
Fully qualified name or IP address of the Microsoft SQL server.
- **Port**
Port addressing the SQL server instance running over TCP. The default port number is **1433**.
- **Instance name**
When setting up a Microsoft SQL server, the default instance name is **MSSQLSERVER**. If you use named instances, append a backslash and enter the used instance name instead.
- **Database name**
Name of the database that was created by the **create_db.sql** script. The default value is **ARISBP9**.
- **Application user**
Login user name that is used by the application. The default value used in the from **create_db.sql** file is **ARISBP9**.
- **Password**
The application user's password. The default value used in the from **create_db.sql** file is ***ARISBP!1dm95n#**.
- **Data file group**
Name of the table space for table data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPDATA**.
- **Index file group**
Name of the table space for index data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPINDEX**.

27. Start the installation process.

28. Configure the system (page 103), once after the installation process is completed. Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command (page 236) to change settings.
29. Start **ARIS Cloud Controller** (acc.sh).

As the internal ARIS user running all runnables 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 227).
30. Enter **startall**. This process will take a while.
31. Enter **list** to check the status of all runnables.
32. 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
```
33. Start the ARIS Administration (page 105) of the ARIS Connect Server or ARIS Design Server and import the ARIS Publisher Server license file.

ARIS Publisher Server is installed, customized and running.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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 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.

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 93). Components will be stopped. After the system has been updated all components will be started automatically.

4.1.2.8 Installing ARIS Publisher Server on a Linux operating system using an Oracle® database

Before installing an ARIS 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
```

This setup will install **ARIS Agent** and **ARIS Publisher Server**. The standard setup installs ARIS Publisher Server and **Tomcat** 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.

For a productive ARIS Publisher system you must select the **small** or **large** installation option. For these installation options an external database system is required. The external database system is not included in the package. Depending on the ARIS Publisher Server license purchased (page 196), the system enables all users to simultaneously work on exports.

Prerequisites

- You have access to the *.rpm and *.deb files (DVD folder **Setups\Linux <system>\ARIS_Agent** or **ARIS_Cloud_Controller**).
- An operating Oracle database management system. The Oracle database management system is not included in the package. If you have not yet installed the Oracle database management system, please follow the instructions in the Oracle installation program, as well as the documentation provided by the manufacturer.
- The **bpadduser.sql** script (<installation media\Add-ons\DatabaseScripts\PublisherServer\oracle) is available.
- 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 224) after the installation.

Procedure

1. 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 212).

2. 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.

3. Depending on the files you have copied and the type of the Linux system enter the relevant command to install the files.

It is important to first install ARIS Cloud Controller, then ARIS Agent.

dpkg -i aris-acc_<number>_amd64.deb

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

dpkg -i aris-cloud-agent_<number>_amd64.deb

This command installs ARIS Agent to your Debian or Ubuntu system.

rpm -i aris-acc-<number>-1.x86_64.rpm

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

rpm -i aris-cloud-agent-<number>-1.x86_64.rpm

This command installs ARIS Agent to your Red Hat and SUSE system.

4. Please adjust the system as required to manage ARIS Publisher Server in combination with an Oracle database.

5. Create a database using the **bpadduser.sql** script. If you install or configure a database yourself, always follow the instructions provided by the respective manufacturer, or contact your local Software AG sales organization (page 295). We recommend 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.

Write down all connection parameters that you define during that process, e.g. the database name, the table space names, the user name, and password. You must enter these values later during the setup process.

6. Make sure to configure the database following these prerequisite:

- Use of the database character set **AL32UTF8** is mandatory.
- We recommend a block size of 8K.
- `query_rewrite_enabled=true`
- `query_rewrite_integrity=trusted`
- Create two table spaces, e. g. **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.
- We recommend that you turn off the Oracle recycle bin because large quantities of tables accumulate there when exports are deleted
- Create 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 - encoded or unencoded - later during the ARIS Publisher Server setup process. To encrypt passwords use the ARIS Server Administrator (page 243) **encrypt** command . If you prefer a different name, change the name as well: `CREATE USER ARISBP IDENTIFIED BY ARISBP;`

This 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;`

7. Start the ARIS Publisher Server installation from a machine running a Microsoft Windows operating system (DVD folder **Setups\Windows\ARIS_Publisher_Server**).
8. Start the **setup.exe** file as an administrator.
9. Select the **Perform installation on a remote server** option and enter the name of your Linux system.

10. Select the installation directory.
11. To import the ARIS license file right now, click **Change** to navigate to the license zip file. Otherwise licenses must be imported (page 224) after the installation.
12. Select the ARIS Publisher Server to be installed. A Report Server can only be installed on another machine. This is to optimize system performance when running reports.
13. If you retain the settings of the installation program, the context path and the default port **19990** to the web server are entered automatically. Either make sure that the default port is not used by other programs, or enter another free port number.
14. If you use Process Governance please specify the IP address or fully-qualified ARIS Server name. Enter the port number only if it is another than the standard port.

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.

15. To use the user and license management of another ARIS server, select **Use the ARIS Administration of an existing ARIS server**.

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

http://<IP address or fully-qualified host name>:<port number other than default port>/umc

You must enter the port number only if you have changed or redirected (page 227) the standard port **19990**.

Enter the ARIS Administration user's name **superuser** and the corresponding password.

16. 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. Only in this case ARIS document storage will be available if customized (page 193).
17. Select the **Medium** or **Large** installation option. You need to take the memory requirement into account to ensure optimum load distribution and better protection against failure.
18. Select **Oracle** as database system.
19. Select the required JDBC driver for the Oracle database management system.
20. Enter the connection parameters you have defined while creating the Oracle database.
 - **Server**
Fully qualified name or IP address of the Oracle system.
 - **Port**
Port addressing the Oracle server instance running over TCP. The default port number is **1433**.
 - **Database/Service name**
Oracle SID or Oracle service name.
 - **Application user**
Login user name that is used by the application. The default value is **ARISBP9**.
 - **Password**
The application user's password. The default value is ***ARISBP!1dm95n#**.

- **Data file group**
Name of the table space for table data that had been created earlier. The default value is **ARISBPDATA**.
- **Index file group**
Name of the table space for index data that had been created earlier. The default value used in the from **create_db.sql** file is **ARISBPINDEX**.

21. Start the installation process.
22. Configure the system (page 103), once after the installation process is completed. You may change the standard database connection parameters (page 199). You can adjust (page 236) all parameters that have been entered during the setup process.
23. Start **ARIS Cloud Controller** (acc.sh).
As the internal ARIS user running all runnables 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 227).
24. Enter **startall**. This process will take a while.
25. Enter **list** to check the status of all runnables.
26. 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
27. Start the ARIS Administration (page 105) of the ARIS Connect Server or ARIS Design Server and import the ARIS Publisher Server license file.

ARIS Publisher Server is installed, customized and running.

You can stop the server by entering **stopall** in the **ARIS Cloud Controller**. Please refer to the chapter Configuration (page 103) to obtain information on additional settings required.

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 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.

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 93). Components will be stopped. After the system has been updated all components will be started automatically.

4.2 Update installation

The update installation setup is available for ARIS servers that have been installed by a setup program. So each ARIS server is installed on one machine (single-node installation).

All runnables will be updated. Using the standard database system or Microsoft SQL, the **default** tenant will be updated and migrated as well. All other tenants system database must be updated manually (page 254). If the setup prompted to update your external Oracle database, you must run the **updatesystemdb** command (page 254) as well as the **updatesystem** command (page 255).

To update customized installations e.g. multi-node systems, when an ARIS installations spans across several computers, please contact your local Software AG sales organization (page 295).

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up. This process takes additional time and requires additional disk space while the setup is running. Make sure that the size of the free disk space is at least 15 GB larger than the folder size of the working directories <ARIS installation path>\server\bin\work (Windows®) or /home/ARIS/cloudagent/work (Linux). The update will fail if there is insufficient free disk space. If the update process fails, all ARIS components will be rolled back 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 backup all tenant's data (page 95) and read the **readme** file for last-minute information which couldn't be included in this document anymore.

Restrictions

- In the highly unlikely event of running reports during an update, the system database might fail. Please make sure to lock scheduled reports before starting the update.
- Please always use the **reconfigure** ACC command (page 236) 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. Therefore, close all Command Prompts pointing into the ARIS installation folder.
- Please make sure to 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 installation 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\Design&ConnectServer\Oracle. 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`.

- If the ARIS 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 (<ARIS installation directory>\server\bin\work\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config\<customization>\instances\UserAction\). 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`.

- If you update an ARIS version older than 9.7, make sure to execute the **updatesystem** command (page 255). This is mandatory in order to make databases visible for all authorized users. Using large databases this may take some time.

4.2.1 Back up and restore data

Before you perform an update installation (page 93), 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 229) will save all data of that tenant at once. Tenants can easily be restored using the **restore tenant** (page 230) 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 runnables 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

In ARIS Architect on the **Administration** tab, using the  **Backup** functionality.

On the command line tool 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 (page 254).

METHOD, CONFIGURATION, AND QUERIES

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

REPORT SCRIPTS, MACROS AND SEMANTIC CHECKS

In ARIS Architect on the **Administration** tab with the function **Export** in the pop-up menu for a script (individual backup). If you have adapted standard scripts and standard files instead of copies the individual backup is mandatory. All standard scripts and standard files will be overwritten by an updated. Modifications will be lost.

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

QUERIES AND AD HOC ANALYSES

In ARIS Architect 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 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

4.2.2 Using the standard or Microsoft SQL® database system

To update the installed version please run the most recent ARIS installation program.

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up. This process takes additional time and requires additional disk space while the setup is running. Make sure that the size of the free disk space is at least 15 GB larger than the folder size of the working directories <ARIS installation path>\server\bin\work (Microsoft®) or /home/ARIS/cloudagent/work (Linux). The update will fail if there is insufficient free disk space. If the update process fails, all ARIS components will be rolled back automatically.

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.
- During the update, you will in general need the following credentials:
Username/password of the ARIS Agent (default values are **Clous/g3h31m**)
The password of the user superuser (default: superuser), or alternatively, the password of a user with all functionalprivileges for each tenant.

Procedure

1. Backup your Microsoft SQL database system.
2. Back up all tenants (page 95).
3. Make sure to have all runnables activated (page 240).
4. Exit ACC.
5. Start the update setup as the same administrator that has installed ARIS.
6. Enter the agent user's credentials.
7. Execute the **updatesystemdb** command for all additional tenants (page 254).
8. Only if you have updated an ARIS version older than 9.7, execute the **updatesystem** command (page 255). This is mandatory in order to make databases visible for all authorized users. Using large databases this may take some time.

ARIS is up to date.

If the update process has failed all ARIS runnables 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.

4.2.3 Using Oracle® as database system

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

When you update or uninstall ARIS by an ARIS setup, the current installation will automatically be backed up. This process takes additional time and requires additional disk space while the setup is running. Make sure that the size of the free disk space is at least 15 GB larger than the folder size of the working directories <ARIS installation path>\server\bin\work (Microsoft®) or /home/ARIS/cloudagent/work (Linux). The update will fail if there is insufficient free disk space. If the update process fails, all ARIS components will be rolled back automatically.

Prerequisites

- If you update ARIS please make sure to exit ACC before running the update setup.
- During the update, you will in general need the following credentials:
Username/password of the ARIS Agent (default values are **Clous/g3h31m**)
The password of the user superuser (default: superuser), or alternatively, the password of a user with all functionalprivileges for each tenant.

Procedure

1. Back up all tenants (page 95).
2. Backup (dump) your Oracle Database.
3. Make sure to have all runnables activated (page 240).
4. Start the update setup as the same administrator that has installed ARIS.
5. Enter the agent user's credentials.
6. Update the Oracle schemas for each tenant (page 98).

Before starting the server you must update your database schemas. Otherwise your runtime environment and data might be harmed and the application may not work anymore.

7. Execute the **updatesystemdb** command for all tenants (page 254). The default tenant's system database will not be updated automatically.
8. Execute the **updatesystem** command (page 255).

ARIS is up to date.

Please make sure to update locally installed clients, too.

4.2.3.1 Updating the Oracle® schema

This step is only needed if you are using the external DBMS Oracle in your installation.

Prerequisites

- 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.
- SQL scripts and all additional files. All scripts and files are located on the installation medium (DatabaseScripts\Oracle\Design&ConnectServer) or they can be downloaded from the ARIS Download Center (aris.softwareag.com).
- The **envset.bat** file that had been adjusted when ARIS was installed the first time.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212) and enter the ARIS Agent's user credentials, if prompted.
2. Enter **stopall**.
3. Update the database schema for each tenant in your system. To do so prepare and execute the **cip_update_schema_for_tenant.bat** file for Microsoft® Windows® operating system or the **cip_update_schema_for_tenant.sh** file for Unix operating systems (ARIS DVD folder: Add-ons\DatabaseScripts\Design&ConnectServer\Oracle). Make sure to use the **envset.bat** file that had been adjusted when ARIS was installed the first time. This file contains all settings used by all configuration scripts.
4. If this file is not available, edit the **envset.bat** file (ARIS DVD folder: Add-ons\DatabaseScripts\Oracle\Design&ConnectServer) to specify the connection data of the Oracle instance again (page 99).
5. Identify the names of the schemas of all tenants that are used by the installation.
If the schemas were originally created following the recommended naming convention, the schema names will look like:
aris_<tenant_ID>, e.g. **aris_default** and **aris_master**.
6. If you do not know the schema name of a tenant, you can get it via the **list tenant <tenant_ID> data for service db** ACC command, e. g. for **default** tenant schema:
list tenant default data for service db
The result of the command will show the **default** tenant's schema name **aris_default**:

Key	Value
com.aris.cib.db.schema	aris_default
7. For each tenant's schema run the **cip_update_schema_for_tenant.bat** script with the schema name as parameter. Call the file directly on a computer where an Oracle client is installed, e.g. command for schema **aris_default**:
cip_update_schema_for_tenant.bat aris_default
8. Update all other tenant's schemas. It is important that the schemas of all existing tenants are updated this way, even if the tenants are currently not used. This includes both **default** and **master** tenants.

The tenant's oracle schemas are up to date.

If your ARIS version is **ARIS 9.7 GA** you must execute additional SQL commands (page 100).

4.2.3.2 Editing the envset.bat file

When updating the oracle database schema for each tenant in your system (page 98), make sure to use the **envset.bat** file that had been adjusted when ARIS was installed the first time. This file contains all settings used by all configuration scripts.

If this file is not available, edit the **envset.bat** file (ARIS DVD folder: Add-ons\DatabaseScripts\Oracle\Design&ConnectServer) to specify the connection data of the Oracle instance again.

Prerequisites

You need to know the highlighted values to be adjusted, e.g. path to the **sqlplus.exe** file, the port number, the database/service name of the database instance and also the credentials, i.e., the user name and the password of the application user.

Procedure

1. Edit the **envset.bat** file and adjust the following lines replacing the **highlighted** parameters with the settings appropriate for your environment:


```
REM The path to where sqlplus.exe can be found.
SET CIP_ORA_BIN_PATH=<enter the path>
REM hostname, port and service name
SET TARGET_HOST=localhost
SET TARGET_PORT=1521
SET TARGET_SERVICE_NAME=ARIS
```
2. Edit the following lines to change the **highlighted** 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 highlighted parameters 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 run the **cip_update_schema_for_tenant.bat** script for each tenant (page 98).

4.2.3.3 Executing additional SQL commands updating ARIS 9.7 GA

Only if your ARIS version is exactly **ARIS 9.7 GA** you must execute additional SQL commands.

Prerequisites

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.

Procedure

1. To check your ARIS version, start ACC and enter:

get agent.version

If the version number range is between **97.0.0.5.946097** and **97.0.0.10.958105** your ARIS version is **ARIS 9.7 GA**. Versions **97.1.0.0.981214** and higher do not need the following update.

2. Execute the following SQL commands for each tenant schema. R replace <TenantSchema> with the schema name of the respective tenant:

```
ALTER TABLE <TenantSchema>.ardb_ExplImplLocks MODIFY LOB(SVALUE) (CACHE);
```

```
ALTER TABLE <TenantSchema>.SysPendingPackets MODIFY LOB(packetData) (CACHE);
```

```
ALTER TABLE <TenantSchema>.ardb_SymbolLocks ADD (VERSION number(10,0) DEFAULT 0 not null);
```

```
ALTER TABLE <TenantSchema>.ardb_ExplImplLocks ADD (VERSION number(10,0) DEFAULT 0 not null);
```

```
ALTER TABLE <TenantSchema>.ardb_LockOwner ADD (VERSION number(10,0) DEFAULT 0 not null);
```

The tenant's Oracle schemas are up to date.

4.2.4 Updating 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 293).

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. When you update ARIS Publisher Server by an ARIS setup, the current installation will automatically be backed up.
2. Make sure to have all runnables activated (page 240).
3. Start the **setup.exe** as the same administrator that has installed this ARIS Publisher Server. The runnables will be stopped. After the system has been updated all runnables will be started automatically.
4. 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 188).

You may change the standard database connection parameters (page 199). You can adjust (page 236) all parameters that have been entered during the setup process.

4.2.5 Updating Linux installation

To update one ARIS version to the next you will have to update the ARIS Agent. The exact procedure depends on the Linux 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 212).
2. Stop all runnables (page 218).
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 runnables.

5 Configuration

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/>) (login required) or from the ARIS Download Center (aris.softwareag.com).

If you use standard licenses without extension packs the system will work without customizing. If you use Oracle or Microsoft SQL Server as database management systems you must provide JDBC drivers (page 224) after the setup process.

For some functionalities and extension packs, e.g. ARIS Publisher/IT Inventory (page 185) or Process-Driven Management for SAP® Solutions (page 148) 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 201).

Please always use the **reconfigure** ACC command (page 236) 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 201).

5.1 Users and licenses

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 and database specific privileges managed within the ARIS Administration and database specific privileges and filters associated to users and user groups. These database specific privileges and filters are managed within ARIS Architect for each database of a tenant.

After the ARIS server installation the **superuser** user can only login to the ARIS Administration. The initial password is **superuser**. Also the **system** user can do so, using the initial password **manager**. Both users hold sufficient permissions to manage users and licenses. The superuser only has these permissions and cannot login to ARIS clients or ARIS Connect as no license can be assigned. The **system** user holds all permissions to manage all data in the system. This user only needs to get licenses assigned to do so.

If you are about to make the tenant management interface available, the superuser needs additional permissions. As well in the infrastructure tenant as in all operating tenants.

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 130) 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 104). Users can also be managed using the ARIS Administration's command line tools (page 201).

If you are about to manage users within the ARIS Administration please make sure to have the ARIS Risk & Compliance Manager Server reconfigured (page 239) and that you have forced ARIS Publisher Server to use the specific ARIS Administration (page 188).

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 107)
2. Import the license if it has not been imported during the setup process. (page 107)
3. Create users (page 108) or import (page 109) them from the LDAP system.
4. Create user groups (page 109) or import (page 109) them from the LDAP system.
5. Assign users to user groups. (page 120)
6. Assign privileges. (page 120)

Further information is available in the ARIS Administration's online help.

All users and user groups managed in the ARIS Administration are available in every existing or future databases of the tenant. In each database product specific privileges must be assigned in ARIS Architect (page 122). 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.

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 121).
2. Assign database specific privileges and filters. (page 122)
3. Provide the URL **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/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.

5.1.1 Log into the infrastructure tenant's User Management

After the installation of ARIS Connect or ARIS Design Server two tenants are available. The operational default tenant and the infrastructural **master** tenant. This **master** tenant works in the background and manages administrative users and all other tenants.

You only need to log into the User Management

- to change the **superuser**'s and the **system** user's passwords to prevent unauthorized access
- to configure the tenant management tool (page 257)

After the installation only the administrative users **superuser** or **system** can login.

Manage users, user groups, privileges, licenses, documents, configurations, and processes for all ARIS products.

For detailed information please refer to the ARIS Administration's online help.

Procedure

1. Click the link **http://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. Change the tenant name if **default** is not the one you want to login to.
4. Click **Log in**.

The ARIS Administration opens.

5.1.2 Change passwords on the infrastructure tenant

Change the **superuser**'s, the **system** user's and the guest user's passwords on the infrastructure tenant (**master**). 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 infrastructure tenant's User Management (page 105).
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.

5.1.3 Log into the tenant's ARIS Administration

The ARIS Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (page 130) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system (page 207). 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.

Procedure

1. Open your browser and enter **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. You must enter the port number only if you have changed or redirected (page 227) the standard port **80**. The login dialog opens.
2. Enter the user name **superuser** and the password **superuser**. This user only has access to the server's ARIS Administration.
3. Click the **Administrator User Management** user (top right).
4. Click **Administration**.

The ARIS Administration opens.

5.1.4 Change passwords on operational tenants

Change the **superuser** user's the **system** user's and the guest user's passwords on all operational tenants. 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 tenant's ARIS Administration (page 106).
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.

5.1.5 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 201).

1. Log into the ARIS Administration of the ARIS Server as superuser (page 105).
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**.

5.1.6 Create users

You need to create users if you do not use a LDAP system (page 109). Users can also be managed using the ARIS Administration's command line tools (page 201).

1. Log into the ARIS Administration of the ARIS Server as superuser (page 105).
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.

5.1.7 Create user groups

You need to create users groups if you do not use a LDAP system (page 109). Users can also be managed using the ARIS Administration's command line tools (page 201).

1. Log into the ARIS Administration of the ARIS Server as superuser (page 105).
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.

5.1.8 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 201).

1. Log into the ARIS Administration of the ARIS Server as superuser (page 105).
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.

5.1.9 Configure single sign-on

You can configure single sign-on (SSO) using Kerberos (page 111) or SAML (page 117). This provides access to all ARIS runnables as soon as a user has logged in to the domain.

If you use ARIS Publisher you must reconfigure the **businesspublisher** runnable (page 190). Only Kerberos is supported.

5.1.9.1 Configure single sign-on using Kerberos

If you are using LDAP, you can configure SSO (single sign-on). This enables access to all ARIS runnables as soon as a user has logged in once to the domain.

Kerberos is a network authentication protocol that allows computers 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 Linux 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 or ARIS Design 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:

Procedure

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 **ktab.exe** JRE command line tool:

```
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_etypes = 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_etypes = 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. Please find the information about hardware and software requirements in the relevant Platform matrix on Empower (<http://documentation.softwareag.com/aris/aris9.htm>).

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.

5.1.9.2 Kerberos keys

Key	Description	Valid input	Example
com.aris.umc.kerberos.active	Use Kerberos. Specifies whether a Kerberos-based login is allowed.	true, false	
com.aris.umc.kerberos.config	Configuration file. Storage location of the configuration file for Kerberos. The file can be uploaded directly.	String	./config/Kerberos/krb5.conf
com.aris.umc.kerberos.debug	Debug output. Specifies whether a debug output of the Kerberos operations is allowed.	true, false	
com.aris.umc.kerberos.kdc	KDC. Fully qualified name of the central Key Distribution Center (KDC) . This is usually the fully qualified host name of the LDAP server.	String	049bfs01.me.corp.softwareag.com
com.aris.umc.kerberos.keyTab	Key table. 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. Realm of the Kerberos ticket. Fully qualified domain name in uppercase letters.	String	MY.CORP.SOFTWAREAG.COM
com.aris.umc.kerberos.servicePrincipalName	Principal. 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
com.aris.umc.kerberos.tenant	Default tenant. Default tenant for a Kerberos-based login. Cross-tenant property, cannot be changed.	String	

5.1.9.3 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 runnables.

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:

Procedure

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/metadataAlis/mytrust/idp
```

You activated Single Sign-On using SAML.

To configure SAML in detail please configure all SAML keys (page 119) 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>\ARIS9.8\server\bin\work\work_umcadmin_<size>\base\logs

Example

C:\SoftwareAG\ARIS9.8\server\bin\work\work_umcadmin_m\base\logs

5.1.9.4 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.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
com.aris.umc.saml.login.mode.keyword.name	.	String
com.aris.umc.saml.tenant	Default tenant used for SAML-based login.	String

5.1.10 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 105).
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.

5.1.11 Assign privileges

Function privileges (page 126) define the role of a user or a user group as they control the actions a user can perform. License privileges (page 123) define the set of ARIS products and views a user can.

1. Log into the ARIS Administration of the ARIS Server as superuser (page 105).
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 128) must be assigned for each database (page 122).

5.1.12 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 120) to the **system** user.

1. Open your browser and enter **http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home**. The login dialog opens. If not, please turn off pop-up blocker in your browser.
2. Enter the user name **system** and the password you have recently changed (page 107).
3. Click **Log in**.
4. Click the user name **system > Download clients**. The product page opens.
5. Click **Start** for ARIS Architect to start the download. A local Java run-time environment is needed to finish this step.
6. Log in as **system** user.

ARIS is starting.

5.1.13 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 121)
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. Versioned databases are needed for ARIS Connect and Process Governance.

All users and user groups automatically have access as defined in the ARIS Administration.

5.1.14 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.

5.1.15 What license and function privileges can be assigned?

Privileges provide users with access to ARIS products and specific functions.

5.1.15.1 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.

- **ARIS Access Full**
View and edit ARIS data of ARIS Connect Server using external applications.
- **ARIS Access Full**
View and edit ARIS data of ARIS Design Server using external applications.
- **ARIS Access Mobile**
View and edit ARIS data of ARIS Connect Server using mobile applications.
- **ARIS Access Mobile**
View and edit ARIS data of ARIS Design Server using mobile applications.
- **ARIS Access Read-Only**
View ARIS data of ARIS Connect Server using external applications.
- **ARIS Access Read-Only**
View ARIS data of ARIS Design Server using external applications.
- **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 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.

 - **Contribution**

View and add 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.
- **ARIS Optimizer**

Calculate meaningful business process data and plan your operational structure and process organization based on these calculations.
- **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.
- **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.
- **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 Cloud Advanced Administration**
Manage databases.
- **ARIS Cloud Basic Viewer**
View ARIS Cloud content.
- **ARIS Cloud Basic Designer**
Create models.
- **ARIS Cloud Advanced Designer**
Create models.
- **ARIS Cloud Advanced Viewer**
Check models.
- **webMethods integration (for Software AG Designer)**
Make business processes available for implementation and optimization by IT via an automated process.

5.1.15.2 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**
Manage ARIS Risk & Compliance Manager system settings and run data exports/imports.
- **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.
- **UML Viewer**
View UML content in ARIS Connect.

ARIS video tutorial

ARIS Architect **Administration** tab versus ARIS Administration

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

5.1.15.3 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.

5.1.16 What is impersonation?

To manage tenants, users must have impersonation privileges. Users manage tenants on behalf of the user **superuser**. To do this, these users must be created in the user management for the infrastructure tenant, e.g. **master**. To use impersonation, users require the **Impersonation** function privilege in the infrastructure tenant.

For tenant management, they also require the **User administrator**, **Tenant administrator**, and **Technical configuration administrator** function privileges.

In all other operational tenants, e.g. **default**, the user **superuse** must be entered as the target for impersonation (page 260). Impersonation means that a user can back up tenants, including databases, analyses, etc., in which they have not actually been created as a user.

To back up and restore the data, the user **superuser** requires the following function privileges in all operational tenants:

- Analysis administrator
- User administrator
- Collaboration administrator
- Document administrator
- License administrator
- Process Governance administrator
- Server administrator
- Technical configuration administrator

5.2 Tenants

After the installation of ARIS Connect or ARIS Design Server two tenants are available.

The infrastructure tenant **master** manages administrative users and all other tenants.

The **default** tenant is available for operational use. If you need additional operational tenants to provide different sets of databases, users, configurations or ARIS methods you can easily create them. Additional tenants require a new set of ARIS license keys. License keys must be unique in all tenants.

If you have installed an ARIS server using an external database management system, all additionally created tenants are available as well.

Administrators can manage tenants in different ways:

- Create tenants using ACC (page 228)
- Backup tenants using ACC (page 229)
- Restore tenants using ACC (page 230)
- Copy tenants using ACC (page 232)
- Delete tenants using ACC (page 233)
- Update a tenant using ACC (page 254)
- Tenant management using command line tools (page 203)
- Manage tenants using the **Tenant Management** tool (page 257)

Please make sure to manage (page 104) users and licenses for all tenants.

5.3 ARIS Connect

The web portal of ARIS Connect can be configured.

- Administrators can define and customize views. To learn about the self-service configuration, please refer to the ARIS Administration's online help (ARIS Administration > Configuration > Publishing > Manage views > Edit view).
- Advanced configuration changes may require the use of XML configuration. Please contact Software AG (<https://empower.softwareag.com/>) for a customization request or participate in the 742-<ID> ARIS Connect Portal Configuration training <http://www.softwareag.com/education/>.

Warning

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

Please note that customization and training services are not subject to the standard Software AG software maintenance agreement. Configuration changes can only be performed by Software AG if you requested and agreed on them.

5.4 Download clients

Users do not need a local ARIS Client installation (see **ARIS Client Installation Guide**). If ARIS Connect Server or ARIS Design Server is installed, all authorized users can start ARIS Clients within their browsers instead.

All necessary files are downloaded from the ARIS server to a local directory. This process requires a locally installed JRE. Settings from the ARIS server's configuration file are passed to the download client's configuration while starting the ARIS client. The target directory and several settings can be configured (page 139) by an administrator.

By default a Java applet, is used to start this process. More and more browsers are blocking Java applets due to security reasons. This causes the issue that the ARIS download clients can neither be downloaded nor started from a browser.

For this reason we provide the ARIS downloader as an additional way for starting download clients. That is a **JAR** file executable with a local Java Runtime Environment (JRE).

The ARIS downloader manages the download process the same way the Java applet does. It checks whether the ARIS download client already exists and still matches the client available on this server. If needed, it downloads a new version of the ARIS download client, and then starts ARIS.

For both, the Java applet and the ARIS downloader **JAR** file a local Java Runtime Environment (JRE) is mandatory. A different JRE can be used for the download clients (page 144) themselves. If browsers block Java applets, there are several ways to start download clients via the ARIS downloader:

- **Start ARIS download clients manually** (page 137)

In this case, ARIS users must add a parameter to the URL of the server's download page. There's no need to modify the ARIS server's configuration.

- **Start ARIS download clients automatically** (page 138)

In this case the administrator must modify the ARIS server's configuration manually:

- **Use ARIS downloader for all tenants of that server** (page 135)

If you are managing a lot of tenants, you can change the settings for all tenants at once. If you run an update setup, you have to change the settings again.

- **Use ARIS downloader for one tenant only** (page 134)

If you only use a few tenants, you can change the settings for each tenant, one after the other. Even after an update, these changes are persistent.

5.4.1 Configure the use of ARIS downloader for one tenant only

By default the use of a Java applet is configured for starting ARIS download clients. If your browser blocks Java applets, there are several ways (page 133) to start download clients using the ARIS downloader. This procedure shows how to configure this for one tenant of an ARIS server. In this case the settings will be permanent, and there's no need for users to modify the URL (page 137).

Prerequisite

You have access to ARIS Server Administrator.

Procedure

1. Start the command line tool **ARIS Server Administrator**.
2. Enter the login credentials and change the setting for one tenant. Enter:
set abs.downloadclient.useJARASDownloadClientLauncher true
3. Exit ARIS Server Administrator. The setting is saved in the system database. This means, that this setting will outlast a program update. If you have configured the setting for all tenants (page 135), the value in the **defaultServerSettings.cfg** file will be overruled.

The ARIS downloader will be used instead of the java applet.

5.4.2 Configure the use of ARIS Downloader for all tenants

By default the use of a Java applet is configured for starting ARIS download clients. If browsers block Java applets, there are several ways (page 133) to start download clients using the ARIS downloader. This procedure shows how to configure this for all tenants of an ARIS server. In this case there's no need for users to modify the URL (page 137).

Warning

If you change settings in the **defaultServerSettings.cfg** file, the settings will be lost after an update setups.

Prerequisite

You have write access to the ARIS installation directory.

Procedure

1. Open the **defaultServerSettings.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<size>\base\webapps\abs\<config set>).
2. Set the option **abs.downloadclient.useJARASDownloadClientLauncher** to true:
abs.downloadclient.useJARASDownloadClientLauncher=true
The download page of the ARIS download clients will provide the ARIS downloader, a JAR file. If the option is false (default value), the ARIS download clients are provided as Java applet.
3. Save the changes. If you reset the settings via ARIS Server Administrator (page 134), after you have manipulated the **defaultServerSettings.cfg** file, these changes will overrule the settings in the **defaultServerSettings.cfg** file.

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

4. Restart the server.

The ARIS downloader will be used instead of the java applet.

5.4.3 Start ARIS Download Clients (Java applet)

If ARIS Connect Server or ARIS Design Server is installed, all authorized users can start ARIS Clients within their browsers.

Prerequisite

- A Java Runtime Environment is installed on the user's computer.
- Users need ARIS Architect or ARIS Designer license privileges (page 123).
- Users need function and access privileges according to their user roles. These privileges are managed within the ARIS Administration (page 126) as well as in ARIS Architect (page 128).

Procedure

1. Open your browser and enter the adapted link provided by your administrator:

Syntax: `http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home`

You must enter the port number only if the standard port **80** has been changed or redirected (page 227). The login dialog opens.

2. Enter your user credentials.
3. Click on your user name (top right).
4. Click **Download Clients**.
5. Click the **Start** button besides the desired ARIS Client.

The ARIS client will be downloaded and started.

If your browser blocks Java applets, the download client will not start. In the case, please start the download client via ARIS downloader (page 137) instead.

5.4.4 Start ARIS Download Clients manually using ARIS Downloader

If ARIS Connect Server or ARIS Design Server is installed, all authorized users can start ARIS Clients within their browsers. If browsers block Java applets, users can start download clients via ARIS downloader instead.

Prerequisite

- A Java Runtime Environment is installed on the user's computer.
- The file extension **.JAR** is assigned to the JRE on the user's computer.
- Users need ARIS Architect or ARIS Designer license privileges (page 123).
- Users need function and access privileges according to their user roles. These privileges are managed within the ARIS Administration (page 126) as well as in ARIS Architect (page 128).

Procedure

1. Open your browser and enter the link provided by your administrator:

Syntax: `http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home`

You must enter the port number only if the standard port **80** has been changed or redirected (page 227). The login dialog opens.

2. Enter your user credentials.
3. Click on your user name (top right).
4. Click **Download Clients**.
5. Add the additional parameter **?jar=true** to this page's URL, e.g:
`http://<IP address or fully-qualified host name>:<port number other than default>/?jar=true#<tenant name>/downloadclients`
6. Click the **Start** button besides the desired ARIS Client.
7. Save the **JAR** file locally. The name of that file is a combination of the ARIS client product name and the server name. Hence, for different download clients different **JAR** files will be downloaded.

The ARIS downloader for the selected download client will be saved. It's a good advice for users to copy the downloaded **JAR** file. So users can easily start download clients without the need to navigate to the download page.
8. After the **JAR** file has been downloaded, double click the file. The ARIS downloader starts. A progress dialog monitors the initial download. It is checked whether the ARIS download client already exists and still matches the client available on this server. If needed, it downloads a new version of the ARIS download client.

The ARIS client starts. If a proxy is used to access the ARIS server from the ARIS download client, the user must add the proxy settings once.

If you face problems starting download clients, please refer to the **log** files and the **Basic Troubleshooting** chapter (page 284). The download process of the ARIS downloader is being monitored in the **%TEMP%** folder within the files **ARISLauncher_<timestamp>.log** or **StartARISFailed_<timestamp>.log** with detailed information about the download process.

5.4.5 Start ARIS Download Clients automatically using ARIS Downloader

If ARIS Connect Server or ARIS Design Server is installed, all authorized users can start ARIS Clients within their browsers. If browsers block Java applets, an administrator must configure the start process of the download clients either for one tenant (page 134) or for all tenants of an ARIS server (page 135).

Prerequisite

- A Java Runtime Environment is installed on the user's computer.
- The file extension **.JAR** is assigned to the JRE on the user's computer.
- Users need ARIS Architect or ARIS Designer license privileges (page 123).
- Users need function and access privileges according to their user roles. These privileges are managed within the ARIS Administration (page 126) as well as in ARIS Architect (page 128).
- The use of ARIS downloader has been configured (page 135).

Procedure

1. Open your browser and enter the link provided by your administrator:

Syntax: `http://<IP address or fully-qualified host name>:<port number other than default>/#<tenant name>/home`

You must enter the port number only if the standard port **80** has been changed or redirected (page 227). The login dialog opens.

2. Enter your user credentials.
3. Click on your user name (top right).
4. Click **Download Clients**.
5. Click the **Start** button besides the desired ARIS Client.
6. Save the **JAR** file locally. The name of that file is a combination of the ARIS client product name and the server name. Hence, for different download clients different **JAR** files will be downloaded.

The ARIS downloader for the selected download client will be saved. It's a good advice for users to copy the downloaded **JAR** file. So users can easily start download clients without the need to navigate to the download page.

7. After the **JAR** file has been downloaded, double click the file. The ARIS downloader starts. A progress dialog monitors the initial download. It is checked whether the ARIS download client already exists and still matches the client available on this server. If needed, it downloads a new version of the ARIS download client.

The ARIS client starts. If a proxy is used to access the ARIS server from the ARIS download client, the user must add the proxy settings once. If you face problems starting download clients, please refer to the **log** files and the Basic Troubleshooting chapter (page 284). The download process of the ARIS downloader is being monitored in the **%TEMP%** folder within the files **ARISLauncher_<timestamp>.log** or **StartARISFailed_<timestamp>.log** with detailed information about the download process.

5.4.6 Configure ARIS Download Clients

If a user starts an ARIS download client, all files are downloaded to a local directory. Administrators can change this location, as well as several other settings.

Warning

Please change values in configuration files as described only if this is absolutely necessary. If changes are not done correctly, they may cause severe issues. Possibly ARIS clients might not start or work reliably.

- Change the download path (page 140)
- Change the configuration and logging path (page 141)
- Change the memory settings (page 142)
- Use a different JRE (page 143)
- Activate SSL connection (page 144)
- Delete encrypted passwords (page 145)
- Use server name for download folder (page 146)

5.4.6.1 Change the download path

If a user starts an ARIS download client, all files are downloaded to a local directory. As default, on Microsoft Windows OS, all files are stored in sub-folders of the user's profile, e.g:

%UserProfile%\ARIS90\DownloadClient\<<the ARIS server's IP address or name>

You can also define the server's name to be used for the folder name instead of the IP address (page 146).

The folder size is about 200 MB per download, and grows with each update. If you are not about to store the files in the user's profile, administrators can change this location.

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

You have write access to the ARIS installation directory.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config)
.
2. Change the default value of **DownloadClientPath="%USERPROFILE%\ARIS90"**.
3. Save the changes.

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

The files will be downloaded to the defined folder.

5.4.6.2 Change the configuration and logging path

If a user starts an ARIS download client, user specific configuration data and log files are stored in a local directory. As default, on Microsoft Windows OS, all files are stored in sub-folders of the user's profile, e.g:

%UserProfile%\ARIS90\DownloadClient\<>the ARIS server's IP address or name<

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

You have write access to the ARIS installation directory.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
2. Change the default value of **UserConfigPath=**.
If you leave this empty, as it is per default, the value of the **DownloadClientPath** will be used.
3. Save the changes.

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

The files will be downloaded to the defined folder.

5.4.6.3 Change the memory settings

If a user starts an ARIS download client, the default heap size of 700 MB is used.

You can change the memory settings.

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

You have write access to the ARIS installation directory.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
2. Change the default value of **MaxHeapSize=**.

If you leave this empty, as it is per default, 700 MB will be used. To specify a maximum heap size of 512 MB, enter **MaxHeapSize=512**.

Please take care about using the correct value. If values are not entered correctly, this may cause severe issues. Possibly ARIS clients might not start or work reliably.

3. Save the changes.

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

The memory settings are changed for download clients.

5.4.6.4 Use a different JRE

If a user starts an ARIS download client, for both start types, the Java applet and the ARIS downloader **JAR** file, a local Java Runtime Environment (JRE) is used. This cannot be changed. You can force all download clients to use one specific JRE.

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

- You have write access to the ARIS installation directory.
- You have zipped the JRE to be used as **jre.zip** file. Please take care, that the JRE must be zipped correctly, thus, the content of the JRE folder must be zipped, not only the **JRE** folder itself.

Procedure

1. Copy the **jre.zip** file to the ARIS installation directory next to the **client.zip** file:
<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\lib
2. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
3. Change the default value of **PrivateJRE=<arbitrary indicator for the jre>**.
You can enter any text string. It is important to change this string every time you have updated the **jre.zip** file. Only if this value has been changed, the **jre.zip** file will be unzipped and downloaded.
4. Save the changes.

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

All download clients will use the zipped JRE.

To update the JRE version, zip the updated JRE, replace the **jre.zip** file and change the **PrivateJRE** value again.

5.4.6.5 Activate SSL connection

You can force all download clients of this ARIS server to only use the encrypted data transfer (SSL: **Secure Socket Layer**). This only affects the data transfer between ARIS download clients and the ARISserver. It does not affect the download process of program files, while starting a download client, handled by the Java applet or the ARIS downloader (page 133).

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

- You have write access to the ARIS installation directory.
- You have zipped the JRE to be used as **jre.zip** file.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
2. Set the value of **ForceSSL** to **true**:

ForceSSL=true

3. To set the java property **javax.net.ssl.trustStore=C:\Users\<windows user name>\ARIS90\DownloadClient\<the ARIS server's IP address or name>\mycacerts**, enter the certificate's folder name as value of **SSLTrustStore**:

SSLTrustStore=mycacerts

The folder will be added to the download path, e. g. **C:\Users\<windows user name>\ARIS90\DownloadClient\<the ARIS server's IP address of 10.127.128.55 or name>\mycacerts**.

4. Save the changes.

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

All download clients of this ARIS server only use SSL. This option cannot be deactivated by ARIS users. The option on the **Login** dialog cannot be changed.

5.4.6.6 Delete encrypted passwords

If a user logs into an ARIS client, the password will be encrypted and stored in configuration files. If you consider this as a security issue, you can force ARIS not to save passwords at all. If you do so, all stored passwords will be deleted automatically.

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups. All stored passwords will be removed from configuration files. This affects all ARIS servers in your system. Not only the one the ARIS client was downloaded from.

Prerequisite

- You have write access to the ARIS installation directory.
- You have zipped the JRE to be used as **jre.zip** file.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
2. Set the value of **DoNotStoreConnectionPasswords** to **true**:
DoNotStoreConnectionPasswords=true
3. Save the changes.

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

Download clients do not store any password for any server connection. This affects all ARIS servers in your system. Not only the one the ARIS client was downloaded from. All encrypted passwords will be deleted from all configuration files.

5.4.6.7 Use server name for download folder

To prevent multiple downloads, you can use the server name as download folder name instead. If a user starts an ARIS download client, all files are downloaded to a local directory. As default, the ARIS server's IP address is used as folder name. The folder size is about 200 MB per download, and grows with each update. If you use dynamic IP addresses, every time an ARIS user starts a download client, the same download will appear multiple times for the same server.

Warning

If you change settings in the **arisloader.cfg** file, the settings will be lost after an update setups.

Prerequisite

- You have write access to the ARIS installation directory.
- You have zipped the JRE to be used as **jre.zip** file.

Procedure

1. Open the **arisloader.cfg** file (<ARIS installation path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\downloadClient\config).
2. Set the value of **UseServerNameAsDownloadFolderName** to **true**:
UseServerNameAsDownloadFolderName=true
3. Save the changes.

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

The target folder, where the download client files are downloaded to, will have the ARIS server's name instead of the IP address.

5.4.7 Logging

The activities of ARIS clients are recorded under **%UserProfile%\ARIS<version>\log**.

5.5 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 149).
- You need SAP® Java Connector (SAP® JCo) (page 153). 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 191).
- When using installed clients, you must provide SAP JCo (page 155).

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

- Use SAP synchronization (page 157)
- Use customizing transactions/views (page 159)
- Use ARIS Online Guide (page 162)
- Use BI Modeling (page 173)
- Use Publisher exports (page 175)
- Ensure that the users have been created in the SAP® system and have RFC privileges (page 150).

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 added 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.

5.5.1 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 153) on every client computer ARIS server and download client.
- Transfer the transport requests (synchronization (page 158) 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 152)

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.

5.5.2 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.

5.5.2.1 Privileges for SAP® synchronization

In order for this function to be available you need to assign users to certain roles in the SAP system. The users then have the required authorizations. You need to assign the following roles.

- The predefined role **SAP_SOLAR01_ALL**
- The predefined role **SAP_SMSY_ALL**
- A role to be defined with RFC privileges

You can create the role to be defined using the **PFCG** transaction. Assign the authorization objects **S_RFC** and **S_RFACL** to the role.

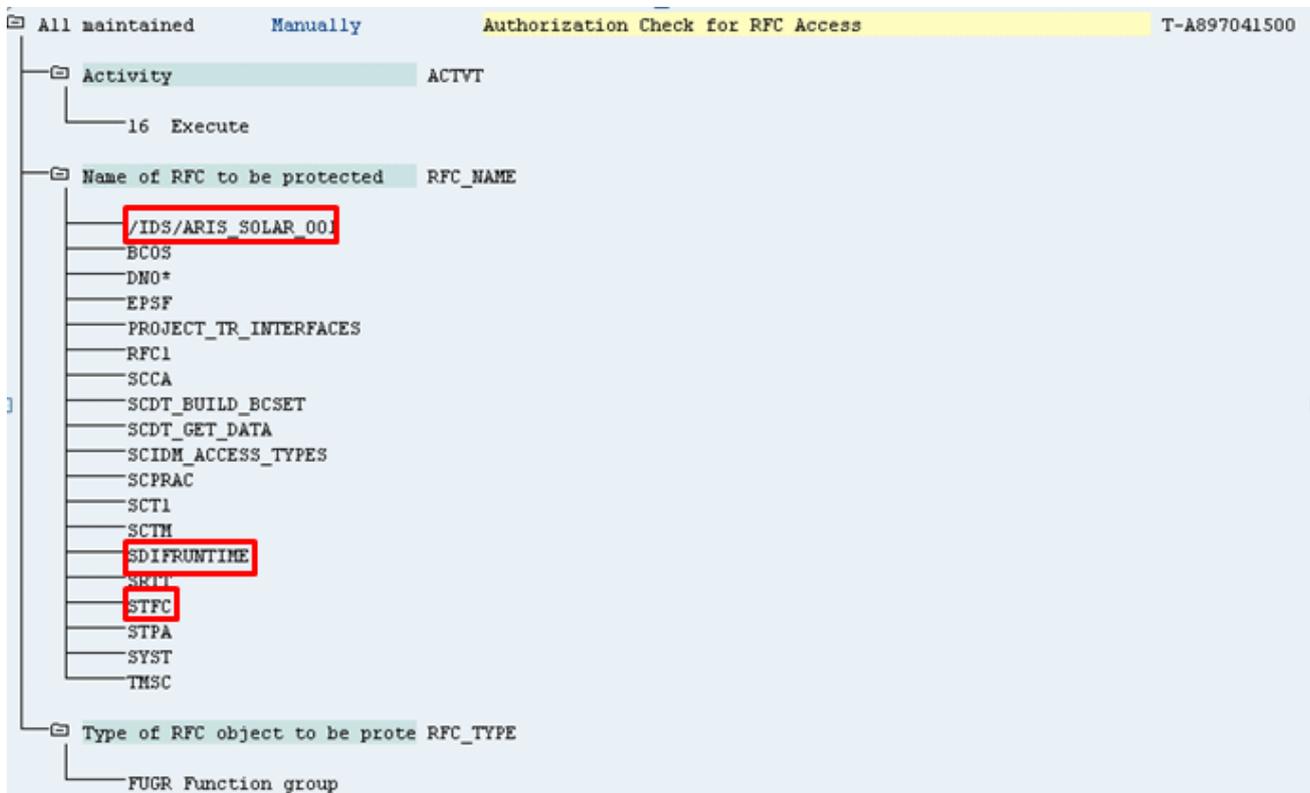
VALUES FOR AUTHORIZATION OBJECT S_RFC

You can see all values to be defined in the following graphic.

Select the **Execute** activity in the **ACTVT** section.

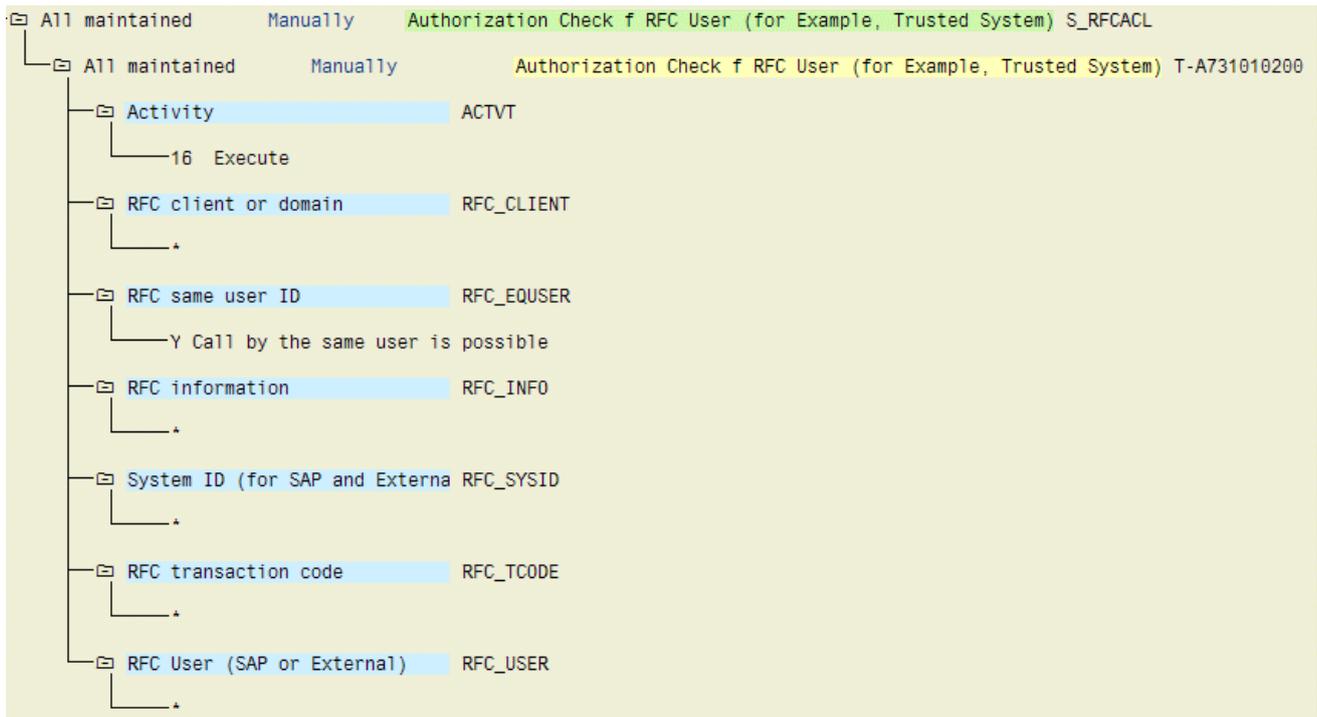
The **RFC_NAME** section shows all names to be entered for the **S_RFC** authorization object of the RFC object to be protected. You need to complete the framed entries **SDIFRUNTIME**, **STFC**, and **IDS/ARIS_SOLAR_001**.

In the **RFC_TYPE** section you must select the **Function group** type.



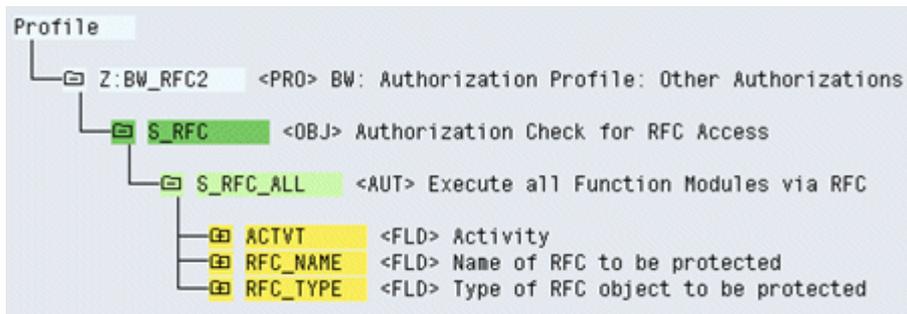
VALUES FOR AUTHORIZATION OBJECT S_RFCACL

The **S_RFCACL** authorization object requires all privileges.



5.5.2.2 Privileges for BI Modeler

The following example of an SAP profile serves as an authorization basis.



5.5.3 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 154) to their local machines. For installed clients (page 155) and the server **LOCAL** (page 156) the **sapjco3.jar** file and the **sapjco3.dll** file must be provided manually.

Procedure

1. 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.
2. Save the zip file, e. g. **d:/sapjco30P_9-10005326.zip**.
3. Start ARIS Cloud Controller (ACC) (page 212).
4. Stop ARIS Design Server or ARIS Connect Server or enter stop **<InstanceId for the modeling runnable>** to stop the modeling runnable **abs_s**, **abs_m** or **abs_l**.
<InstanceId for the modeling runnable> 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 runnable> 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 ARIS Design Server or ARIS Connect Server or enter start **<InstanceId for the modeling runnable>** 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 copy the **sapjco3.dll** file (page 154). Please provide SAP® JCo for installed clients (page 155) or the server **LOCAL** (page 156) 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>).

5.5.4 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 153) all download client's users must copy the **sapjco3.dll** file (page 154) 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** 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. 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

5.5.5 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** 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.
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 156) 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

5.5.6 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 155), 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>).

5.5.7 Customizing features

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

5.5.7.1 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 158) has been imported in the SAP® Solution Manager system that you want to use for synchronization.
- Ensure that the Web services (page 161) for the repository/scenario transfer are enabled in your SAP system and properly configured.

5.5.7.1.1 Import transport request (synchronization)

To ensure that SAP synchronization between **ARIS** and **SAP® Solution Manager** is available, you must import (page 158) 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:

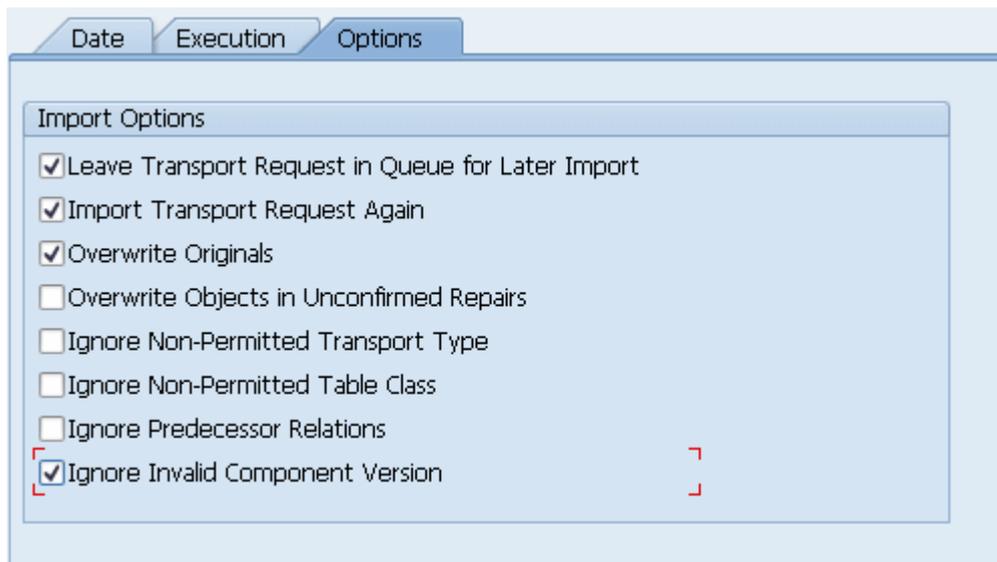
- a. **TP addtobuffer <SAP system SID>K<number> [target system SID]**
- b. **TP import <SAP system SID>K<number> [client on target system]**

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**.

5.5.7.1.2 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**.

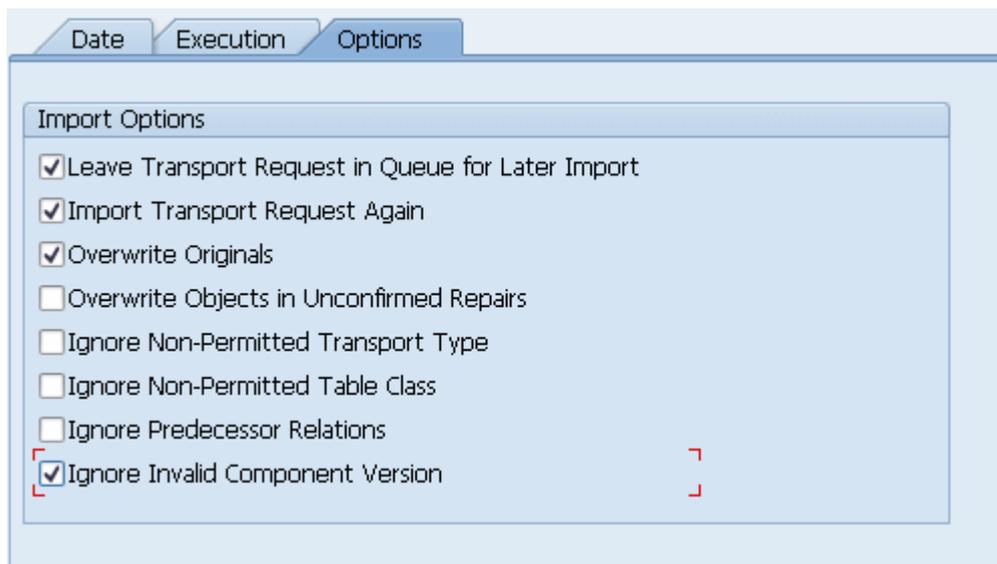
To transfer the transport request to the SAP system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

- c. **TP addtobuffer <SAP system SID>K<number> [target system SID]**
- d. **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**.

5.5.7.1.3 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.

5.5.7.2 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 175).
- 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 162).
2. Modify HELP_START in program **LSHL2U01** (page 164).
3. Specify settings (page 165).

5.5.7.2.1 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**.

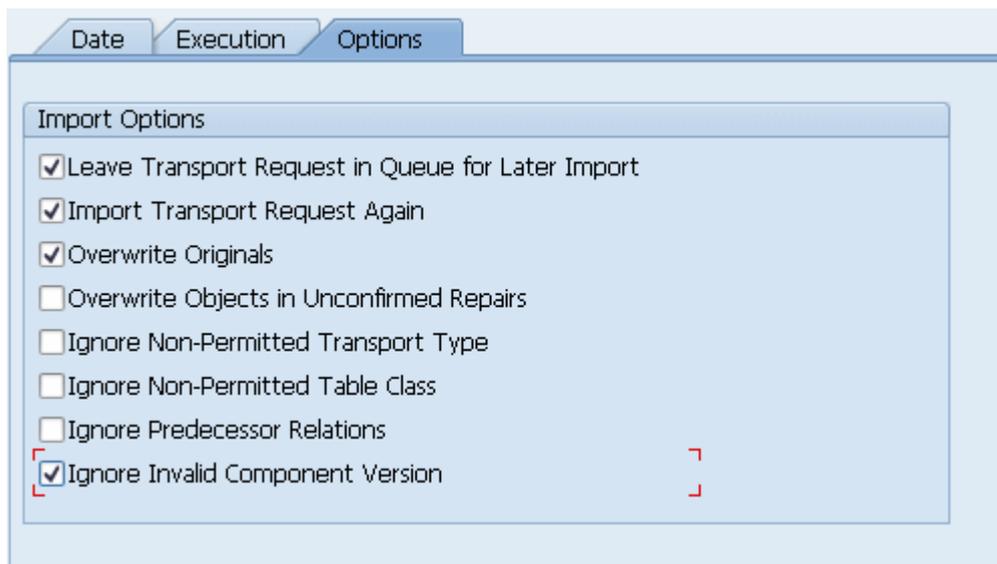
To transfer the transport request to the SAP system using the command line program **TP.EXE**, enter the following commands in the specified sequence:

- 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.

5.5.7.2.2 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 iwerrormsg. " DHB
DATA: l_action LIKE sy-xcode. " *17i
DATA: exit_flg.
DATA: save_help_info_call LIKE help_infos-call.
DATA: ihelpinfo TYPE help_info.
DATA: lv_help_mode TYPE char1.
DATA: lv_window_name TYPE sydatar.
DATA: a_msgv1 LIKE help_infos-msgv1,
      a_msgv2 LIKE help_infos-msgv2,
      a_msgv3 LIKE help_infos-msgv3,
      a_msgv4 LIKE help_infos-msgv4.
* help center
DATA: l_flag_hc_called TYPE as4flag. "note 1135202

*----- CALL MODIFICATION ARIS Online Guide
DATA: loaded TYPE c,
      bothhelp TYPE c.

IF help_infos-call CN 'TMV' AND help_infos-call CO 'D' AND help_infos-object
IS NOT INITIAL.
  CALL FUNCTION '/IDS/START_ARIS_ONLINE_GUIDE'
  EXPORTING
    i_program = help_infos-program
  IMPORTING
    e_help_loaded = loaded
    e_both_help = bothhelp.
  IF bothhelp NE 'X' AND loaded = 'X'.
    EXIT.
  ENDIF.
ENDIF.
***** end of insertion*****
*) INSERT
---Additional code. ---

```

The F1 help call of ARIS Online Guide is available.

After you have imported support packages into the SAP system, this modification may be missing in some cases. The F1 help call of ARIS Online Guide is no longer available then. In this case, modify LSHL2U01 again.

5.5.7.2.3 Specify settings

Once you have imported the required function modules (page 162) and modified the SAP standard function **HELP_START** (page 164), you can use the transactions **/n/IDS/AOG_ADMIN** (page 165) and **/n/IDS/AOG_USER** (page 167) to specify various settings for the ARIS Online Guide in the SAP® system.

5.5.7.2.3.1 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 167) with the **/n/IDS/AOG_USER** transaction.

ARIS Online Guide - Administration Settings

Use ARIS Online Guide

Businesspublisher

Connect

Show additionally default help

Businesspublisher

Publisher URL overwriteable

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.

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 169) 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.

5.5.7.2.3.2 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.

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 169) 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**.

5.5.7.2.3.3 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.

5.5.7.2.3.4 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. For more information please refer to:

[http://msdn.microsoft.com/en-us/library/0h88fahh\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/0h88fahh(VS.85).aspx).

System language	LCID
Afrikaans - South Africa	1078
Albanian - Albania	1052
Arabic - Algeria	5121
Arabic - Bahrain	15361
Arabic - Egypt	3073
Arabic - Iraq	2049
Arabic - Jordan	11265
Arabic - Kuwait	13313
Arabic - Lebanon	12289
Arabic - Libya	4097
Arabic - Morocco	6145
Arabic - Oman	8193
Arabic - Qatar	16385
Arabic - Saudi Arabia	1025
Arabic - Syria	10241
Arabic - Tunisia	7169
Arabic - U.A.E.	14337
Arabic - Yemen	9217
Basque - Spain	1069
Belarusian - Belarus	1059
Bulgarian - Bulgaria	1026
Catalan - Spain	1027
Chinese - Hong Kong	3076
Chinese - PRC	2052

System language	LCID
Chinese - Singapore	4100
Chinese - Taiwan	1028
Croatian - Croatia	1050
Czech - Czech Republic	1029
Danish - Denmark	1030
Dutch - Belgium	2067
Dutch - Netherlands	1043
English - Australia	3081
English - Belize	10249
English - Canada	4105
English - Caribbean	9225
English - Ireland	6153
English - Jamaica	8201
English - New Zealand	5129
English - South Africa	7177
English - Trinidad	11273
English - United Kingdom	2057
English - United States	1033
Estonian - Estonia	1061
Faeroese - Faeroe Islands	1080
Farsi - Iran	1065
Finnish - Finland	1035
French - Belgium	2060
French - Canada	3084
French - France	1036
French - Luxembourg	5132
French - Switzerland	4108
German - Austria	3079
German - Germany	1031
German - Liechtenstein	5127

System language	LCID
German - Luxembourg	4103
German - Switzerland	2055
Greek - Greece	1032
Hebrew - Israel	1037
Hungarian - Hungary	1038
Icelandic - Iceland	1039
Indonesian - Indonesia	1057
Italian - Italy	1040
Italian - Switzerland	2064
Japanese - Japan	1041
Korean - Korea	1042
Latvian - Latvia	1062
Lithuanian - Lithuania	1063
Norwegian - Norway (Bokmal)	1044
Norwegian - Norway (Nynorsk)	2068
Polish - Poland	1045
Portuguese - Brazil	1046
Portuguese - Portugal	2070
Romanian - Romania	1048
Russian - Russia	1049
Serbian - Serbia (Cyrillic)	3098
Serbian - Serbia (Latin)	2074
Slovak - Slovakia	1051
Slovene - Slovenia	1060
Spanish - Argentina	11274
Spanish - Bolivia	16394
Spanish - Chile	13322
Spanish - Colombia	9226
Spanish - Costa Rica	5130
Spanish - Dominican Republic	7178

System language	LCID
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

5.5.7.3 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]**

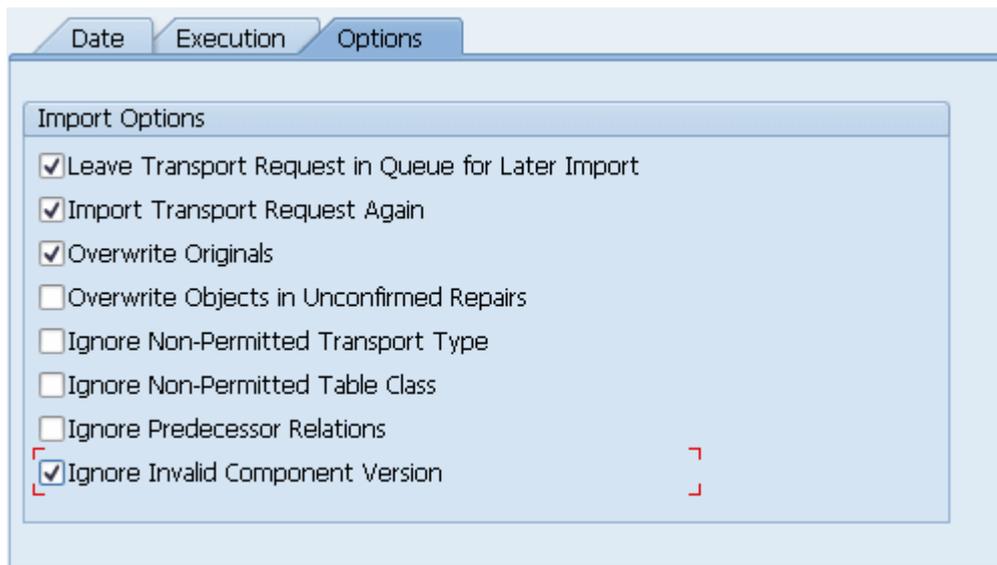
The transport request has been transferred.

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.

5.5.7.4 ARIS Publisher Server

If you use ARIS Publisher please make sure to configure the SAP connection (page 191).

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.

5.5.7.5 ARIS Connect

If you plan to use ARIS Online Guide (page 162) 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 176).

5.5.7.5.1 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

Advanced configuration changes may require the use of XML configuration. Please contact Software AG (<https://empower.softwareag.com/>) for a customization request or participate in the **742-xx ARIS Connect Portal Configuration training** <http://www.softwareag.com/education/>. Please note that customization and training services are not subject to the standard Software AG software maintenance agreement. Configuration changes can only be performed by Software AG if you requested and agreed on them.

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

Procedure

1. Open the ARIS installation directory:

```
<ARIS installation
path>\server\bin\work\work_abs_<s, m or l>\base\webapps\abs\WEB-INF\config
```

2. Copy and paste the folder e. g. **classic** into the **config** folder and rename it to **classicSAP**. Do not enter spaces.

3. Open the ARIS installation directory:

```
<ARIS installation
path>\server\bin\work\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config
```

4. Copy and paste the folder **classic** into the **config** folder and rename it to **classicSAP**. Make sure to use the same name as in step 2. Do not enter spaces.

5. Edit the XML file:

```
<ARIS installation path>\server\bin\work\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. Edit the XML file:

```
<ARIS installation path>\server\bin\work\work_abs_<s, m or  
1>\base\webapps\WEB-INF\config\classicSAP\search\search.xml
```

10. Find the following entries:

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

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

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

12. Save the changes.

13. Load the changed content using this external link:

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

14. Click **Load**. The new view will be made available. The warning about missing properties can be ignored. The view's name is language independent and will be shown as entered.

15. 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.

5.5.7.5.2 Publish database in ARIS Connect Portal

If you plan to use ARIS Online Guide (page 162) 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.

5.5.7.5.3 Select the view providing SAP® content

Select the additionally created **classicSAP** view (page 176) to display portal data.

Prerequisite

- You own the **ARIS Connect Designer** license privilege.
- You have created additional views (page 176).
- 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, e. g. **classicSAP**.
6. Click  **Activate**.

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

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<size>\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:\SoftwareAG\ARIS9.8\server\bin\work\work_apg_m\base\model

5.6.2 ARIS Process Board

ARIS Process Board is automatically installed when you install ARIS Connect Server or 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/>) (login required) or from the ARIS Download Center (aris.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 212) ARIS Cloud Controller.
2. Stop the relevant runnable, type e.g. **stop apg_m**.
3. Open the **<ARIS installation directory>\server\bin\work\work_apg_<character>\base\webapps\processboard\WEB-INF\tl-configuration.xml** file with a text editor, e.g. **C:\Program files\ARIS9.x\server\bin\work\work_apg_m\base\webapps\processboard\WEB-INF\tl-configuration.xml**.
4. Set the element **styledeclarations active** to **true**: **<styledeclarations active="true">**
5. Customize the colors, logos and styles. You can define different customizations for each tenant. If you do not define a tenant, you customization is used for all tenants. If no customization is defined, the default colors and styles are used.
Many runnables can be grouped to special color groups. Constants are introduced to the XML file to define the color of a complete group of runnables.
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 212).
2. Stop (page 218) 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 218) 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 212) 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 212) 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 212) 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 ARIS Publisher/IT Inventory

This chapter describes the system configuration.

Network connection

ARIS Publisher Server to external DBMS: Integration in a 1000 MBit network

5.7.1 IT Inventory - user management, license and permissions

To create IT Inventory you need to create specific users and user groups in the ARIS Administration (page 188) 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.
- Ensure that you have imported an ARIS Publisher Server license including the IT Inventory extension pack and the number of number of ARIS Viewer licenses.
- Ensure that you have access to the protected import file <installation media>\Add-ons\IT Inventory**umcDataExport_with_IT_Inventory_without_keys.zip**.
The password of the zip file is **manager**.

Import users and user groups using the import file

1. Open the ARIS Administration.
 2. Click the  **User management** tab.
 3. Click  **Additional functions** >  **Restore data**.
 4. 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. AS the zip file is protected, enter the password **manager**.
 5. Assign the **ARIS Viewer** license to IT Inventory users, e. g. in the UMG demo database to **peter** and **gunnar** .
 6. 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.
 - 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.

5.7.2 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 Architect. Administrators can create exports of ARIS databases after having installed ARIS Publisher Server.

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 (page 236) to change settings.

Additional modification is required for Process-driven Management for SAP® Solutions (page 175).

5.7.2.1 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 its own 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 automatically.

If you already use ARIS Connect or ARIS Design Server you can force ARIS Publisher Server manually to use the ARIS Administration (page 201) 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 (page 236) 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 212) on your ARIS Publisher Server.
2. To stop the runnable enter: **stop businesspublisher_<s,m or l>**
3. Reconfigure **businesspublisher_<s,m or l>** and force that runnable 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. The + symbol is mandatory adding parameters. Changing parameters works without +.

+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 default port number is 80 (Windows operating systems) or 1080 (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>** runnable again, enter: **start businesspublisher_<s,m or l>**

This runnable 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 193).

5.7.2.2 Using SSO

If you have configured Single Sign-On (SSO) (page 110), you must reconfigure the **businesspublisher_<s,m or l>** runnable. Only Kerberos is supported. Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command (page 236) to change settings.

Procedure

1. Start ARIS Cloud Controller (page 212) on your ARIS Publisher Server.
2. To stop the runnable enter: **stop businesspublisher_<s,m or l>**

Reconfigure **businesspublisher_<s,m or l>**

+bp.umc.sso.active=<true>

+bp.umc.sso.type=<kerberos>

For a better overview the parameters of the reconfigure command are shown with line-wraps. For execution you must enter a single-line command. The + symbol is mandatory adding parameters. Changing parameters works without +.

3. To start the **businesspublisher_<s, m or l>** runnable again, enter:
start businesspublisher_<s,m or l>

This runnable is reconfigured.

5.7.2.3 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 reconfigure the **businesspublisher** runnable.

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

- Ensure that the users have been created in the SAP® system and have RFC privileges (page 150).
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 added 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.

Procedure

1. Start ARIS Cloud Controller (page 212) on your ARIS Publisher Server.
2. To stop the runnable enter: **stop businesspublisher_<s,m or l>**.
3. To reconfigure **businesspublisher_<s,m or l>** and switch on the **bp.sap.switch**, enter:
reconfigure businesspublisher_<s,m or l> bp.sap.switch=on
4. To start the runnable again, enter: **start businesspublisher_<s,m or l>**

The runnable has been reconfigured.

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.

5.7.2.4 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 (page 236) to change settings.

Procedure

1. Start ARIS Cloud Controller (page 212) on your ARIS Publisher Server.
2. To stop the runnable 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 runnable again, enter:
start businesspublisher_<s,m or l>

All entered Process Governance connection parameters have been changed.

5.7.2.5 Show all groups in the explorer tree

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

Procedure

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

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

to

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

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.

5.7.2.6 Configure automatic e-mailing

Automatic e-mailing is necessary, e.g. to send reset passwords 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.

5.7.2.7 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 188) 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 236) parameters that have been entered during the setup process.

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

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

Procedure

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

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.

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

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

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

Prerequisite

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

Procedure

1. Open the file:
file <ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/layouts/default/config/**layout.cfg.xml**.
2. Find the line:
<attr feedbackAttributeNr="-1"
3. Replace **-1** with **1584**.

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

4. 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. 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. The GUID is displayed on the properties page of the attribute type **Administration** tab (Conventions > Method > Attribute types).

5.7.2.10 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 224) it into the ARIS Connect Server's ARIS Administration (page 201) the ARIS Publisher Server is connected to and the ARIS Publisher Server.

5.7.2.11 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 196) the selection of available aspects, the objects (object families) used in aspects, and the graphical representation. The following configuration files control matrix functions and layout:

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

If you change the configuration file, please note the XML structure. Please use the default layout of the matrix as a guide.

We recommend that you ask ARIS Customized Solutions to change your configuration.

Procedure

1. Open the relevant configuration file under.<ARIS installation path>/server/bin/work/work_businesspublisher_<s, m or l>/base/webapps/businesspublisher/views/**matrix** and change it according to your requirements.

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.

5.7.2.12 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 197) 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.

5.7.2.13 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.

5.7.2.14 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.

5.7.2.15 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**.

5.7.2.16 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 (page 236) 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** runnable:

- <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 212) on your ARIS Publisher Server.
2. To stop all runnables, enter:

```
stop all
```

3. Reconfigure the **businesspublisher** runnable, 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"
```

4. Start all runnables, enter:

```
start all
```

The properties have been changed.

5.7.3 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**.

5.8 ARIS Administrator tools

For administration please use the tools described in this chapter.

5.8.1 ARIS Administration

The ARIS Administration is a tool to manage users, user groups, privileges, licenses, documents, and configurations for each tenant (page 130) of all ARIS products. This ensures the single sign-on for various ARIS products. Users can also be created using an LDAP system (page 207). 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.

5.8.1.1 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**.

- ARIS must be running.
- The command-line tools must be executed in the following path:
<ARIS installation path>/server/bin/work/work_umcadmin< your installation size, e.g. s,m,
or >/**tools/bin**.

The following command line tools are provided:

- y-datadump.bat
- y-elasticsearch.bat
- y-ldapsync.bat
- y-password.bat
- y-tenantmgmt.bat

For more information about parameters and commands please type the tool name without parameters or commands.

For Unix operating systems please use the following:

- y-datadump.sh
- y-elasticsearch.sh
- y-ldapsync.sh
- y-password.sh
- y-tenantmgmt.sh

5.8.1.1.1 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

Open a command prompt on the above folder (**Start > Run > cmd**).

1. Type **y-password.bat <option> <password>**
2. Mark and copy the encrypted password and paste it to your configuration file or use it directly from command line.

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
```

Usage of an encrypted password from command line

This example shows how to use the encrypted password while executing the LDAP synchronization from command line.

Input

```
y-ldapsync.bat syncUser -au <user_name> -u system -p
{crypte}f4a28327ad2f0c87336dd74fe0a70c39
```

Output

```
Connected to User Management at end point 'http://servername:1080/umc' for tenant 'default'.
Synchronizing user 'system' with LDAP...
Synchronization of user with LDAP is complete.
```

5.8.1.1.2 Tenant Management

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

Using some advanced ACC commands makes it possible to create a tenant, import a license and migrate or restore a database in one step. If you do not use the standard database system, please make sure to create additional schemes in your Oracle or Microsoft SQL database management system and you have assigned the tenants (page 234) to these schemes.

You have to redirect (page 227) the ports in case of a Linux operating system.

Prerequisites

- ARIS Connect Server Installation
Users need the function privileges **License administrator**, **User administrator**, **Technical configuration administrator**.
- ARIS Design Server 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.
Type **y-tenantmgmt.bat -t <tenant name> <command> -u <user name> -p <password>** to enter a command. Parameters may differ.

General usage

Options	Description
-?, -h, --help	Show help, default: false
-s, --server	URL of the server, e.g. http://my_host_url:<port number other than default port 80 or 1080 (page 227)>

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>
deleteUser	Deletes an existing user.	--user (-u) <USERNAME> (mandatory) --password (-p) <PASSWORD> (mandatory) --tenant (-t) <TENANTNAME> (mandatory) --affectedUser (-au) <USERLOGIN> (mandatory)

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

Examples

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 port 81 used and initial system user password **abc**. Please pay attention to the order.

```
y-tenantmgmt.bat -s http://my_aris_host.com:81 -t test01 createTenant -u system -p manager -systemp abc
```

The following line gets 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
```

5.8.1.1.3 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.

You have to redirect (page 227) the ports in case of a Linux operating system.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-ldapsync.bat -s <http://host_url:<port number other than default port 80 or 1080 (page 227)>> -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:<port number other than default port 80 or 1080 (page 227)>
-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:81 -t default importUsers -u system -p manager -f  
(cn=*)
```

5.8.1.1.4 Importing all documents of a folder

You can import all documents of a folder to ARIS document storage.

Precondition

You have the **Document administrator** function privilege.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type `y-admintool.bat -t <TENANT> bulkimport -path <source folder> -u <user> -p <password>`.

In case of a Linux operating system, please use the **y-admintool.sh** shell script instead.

3. Hit Return.

All documents of a folder are imported to ARIS document storage.

Optional, you can benchmark your upload.

Example

```
y-admintool.bat -t default bulkimport -path c:\mydocuments -u system -p manager
```

PARAMETERS FOR Y-ADMINTOOL

The following parameters are available when importing all documents from a folder.

Parameter	Description
<code>-path</code>	Path to the documents that should be uploaded.
<code>-elf,</code> <code>--errorlistfilename</code>	Defines the name of the file in which the list of document names is contained that could not be uploaded.
<code>-r, --repository</code>	Target repository in ARIS document storage.
<code>-sw, --stopwatch</code>	Enables the benchmarking of the upload.

5.8.1.1.5 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.

You have to redirect (page 227) the ports in case of a Linux operating system.

Procedure

1. Open a command prompt (**Start > Run > cmd**).
2. Type **y-datadump.bat -s <http://host_url:<port number other than default port 80 or 1080 (page 227)>> -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: <port number other than default port 80 or 1080 (page 227)>
-t, --tenant	Tenant name Default: default

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

Example

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

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

5.8.2 ARIS Cloud Controller (ACC)

ACC is a command-line tool for administrating and configuring an ARIS installation. It communicates with ARIS Agents on all nodes.

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, execute the **acc.sh** shell script instead. 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.

Enter **help** or **help <command>** to get information about the usage of the commands. Please only use the commands described in this chapter.

Warning

Using ACC commands will deeply affect your system. This requires profound knowledge of the technical ARIS infrastructure and environment. The required know-how can be acquired only by attending the training course **ARIS Server Installation**, available via Global Education Services. Get more details on <http://softwareag.com/training> (<http://softwareag.com/training>). If you use ACC commands without this knowledge or the services of Software AG, according to the standard Software AG software maintenance agreement 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 connect to the node, that was installed by the setup program. Only 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. This requires profound knowledge of the technical ARIS infrastructure and environment. The required know-how can be acquired only by attending the training course **ARIS Server Installation**.
- 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.

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

```
ACC+ arisserver>list
On node arisserver now 15 runnables are installed.
zoo_m          : STARTED (com.aris.runnables.zookeeper-run-prod-98.4.0)
postgres_m     : STARTED (com.aris.runnables.PostgreSQL-run-prod-98.4.0)
postgresECP_m  : STARTED (com.aris.runnables.PostgreSQLECP-run-prod-98.4.0)
couchdb_m      : STARTED (com.aris.runnables.couchdb-run-prod-98.4.0)
cloudsearch_m  : STARTED (com.aris.cip.y-cloudsearch-run-prod-98.4.0)
elastic_m      : STARTED (com.aris.runnables.elasticsearch-run-prod-98.4.0)
adsadmin_m     : STARTED (com.aris.adsadmin.y-adsadmin-run-prod-98.4.0)
umcadmin_m     : STARTED (com.aris.umcadmin.y-umcadmin-run-prod-98.4.0)
loadbalancer_m : STARTED (com.aris.runnables.httpd.httpd-run-prod-98.4.0)
abs_m          : STARTED (com.aris.modeling.runnables.y-server-run-prod-98.4.0)
apg_m         : STARTED (com.aris.age.age-run-prod-98.4.0)
copernicus_m   : STARTED
                (com.aris.copernicus.copernicus-portal-server-run-prod-98.4.0)
octopus_m      : STARTED (com.aris.octopus.y-octopus_server-run-prod-98.4.0)
ecp_m         : STARTED (com.aris.runnables.ecp-run-prod-98.4.0)
simulation_m   : STARTED
                (com.aris.modeling.runnables.simulationserver.y-simuserver-run-prod-98.4.0)

ACC+ arisserver>
```

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

- **UNKNOWN**

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

- **STOPPED**

The runnable is currently not running.

- **STARTING**

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

- **STARTED**

The runnable is running.

- **STOPPING**

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

- **DEACTIVATED**

The runnable is not in use. It has been deactivated manually and can be activated if necessary.

- **DOWN**

This runnable has started and crashed. ARIS Agent will attempt to automatically restart the runnable momentarily.

- **FAILED**

This runnable has crashed. ARIS Agent has given up trying to restart the runnable.

If a runnable does not start properly please read the **Basic Troubleshooting** chapter (page 283).

RUNNABLES OF ALL ARIS SERVERS

This table lists all runnables 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 runnables end with **_m**. Installations for a small or a large number of users are typified with **_s** or **_l**.

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

Runnable (instanceID)	Design	Connect	ARCM	Publisher	LOCAL
Runnables run by different server types					
zoo_m Service registry This runnable is a server component managing the communication, configuration and status information of all available runnables and external services.	x	x	x		x
postgres_m Modeling database Internal standard database system storing all ARIS databases (modeling data) and the system databases (ARIS method, filters, templates, languages, fonts, font formats and script data). This database can be replaced by an external Oracle® or Microsoft® SQL database.	x	x	x		x
postgresECP_m Collaboration database Internal database handling Collaboration content available in ARIS Connect.		x			
couchdb_m ARIS document storage database Database optimized for document storage, storing attached documents.	x	x	x		

Runnable (instanceID)	Design	Connect	ARCM	Publisher	LOCAL
cloudsearch_m Search index Main full-text search and graph structure index for modeling data. It allows fast access to the data stored in the modeling database, Oracle® or Microsoft® SQL database.	X	X	X		X
elastic_m Document index Main full-text search index for documents and collaboration data. It also stores users, user groups, and privileges of these components.	X	X	X		X
adsadmin_m ARIS document storage management Server component managing ARIS document storage.	X	X	X		
umcadmin_m ARIS Administration/User Management Server component managing users, permissions, licenses, LDAP connectivity and SSO.	X	X	X		X
loadbalancer_m Load balancer Central point of entry for all ARIS clients to the entire ARIS application, typically accessed via HTTP ports 80 or 1080, or HTTPS ports 443 or 1443. It distributes the workload across the installed components.	X	X	X		
abs_m Modeling/publishing/reporting Main server component for modeling and operations on modeling data including report execution.	X	X			X

Runnable (instanceID)	Design	Connect	ARCM	Publisher	LOCAL
apg_m Process Governance server component. Executes processes and provides managing user interfaces.	X	X			
copernicus_m Portal Server component providing the portal in ARIS Connect.	X	X			
octopus_m Analysis Server component processing ad hoc analyses and queries triggered in ARIS Architect or ARIS Designer.	X	X			X
ecp_m Collaboration Server component of the collaboration component in ARIS Connect.	X	X			X
simulation_m Simulation Server component of the simulation functionality in ARIS Architect.	X	X			X
businesspublisher_m ARIS Publisher server Server component of the ARIS Publisher functionality in ARIS Architect.				X	
arcm_m ARIS Risk & Compliance Manager server Server component of ARIS Risk & Compliance Manager.			X		

5.8.2.1 Start and stop runnables

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

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

- Enter **startall** to get all runnables started in correct order. To monitor the process enter **list**.
- Enter **start <instanceId>**, e.g. **start abs_m** to start only the runnable **abs** (Modeling & Publishing (Business server))
- Enter **stopall** to stop all runnables. To monitor the process enter **list**.
- Enter **stop <instanceId>**, e.g. **stop abs_m** to only stop one runnable.

If you run ARIS on a laptop (8 GB) for demonstration purposes you might want to stop runnables you do not need (page 240) to ensure more memory for the system.

5.8.2.2 Monitor runnable's health

The **health** command determines a variety of health values for each runnable.

The exact list of health values available depends on the specific runnable. However, a few basic measurements are available for all runnables, in particular the CPU load and its memory usage. For all Java-based runnables, additional information is available.

Prerequisite

Health monitoring parameters are set (page 221).

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Make sure that the runnable has been started.
3. Enter **show instance <InstanceId> health**

e.g.

show instance zoo_m health

The output will look like this example:

```
ACC+ arissrv>show instance zoo_m health
Health attribute      Current Value  Value Range    Min           Max           Thrh.  State
CPU load (Percent)   0,00%         0,00% - 100,00% 0,00%         1,09%         -      -
JVM Committed Heap (Megabyte) 102,75MB      0,00MB - 455,13MB 102,75MB      121,50MB      -      -
JVM Committed Heap (Percent) 22,58%        0,00% - 100,00% 22,58%        26,70%        -      -
JVM Heap Usage (Megabyte) 43,13MB       0,00MB - 455,13MB 24,77MB       80,13MB       -      -
JVM Heap Usage (Percent) 9,48%         0,00% - 100,00% 5,44%         17,61%        -      -
Memory usage (Megabyte) 214,14MB      0,00MB - 16266,68MB 213,52MB      216,13MB     -      -
Memory Usage (Percent) 1,32%         0,00% - 100,00% 1,31%         1,33%         -      -
Avg. latency (milliseconds) -             0ms - -         0ms           449ms         -      -
Mode                 standalone     -               -             -             -          -      -
Client connections   5             0 - -          5             6             6      -
Number of nodes      60           0 - -          60           60           60     -
```

The first column shows the name of the measured value and its physical unit, e.g., megabytes, percent, etc.

The second column shows the current value of the health value. Note that this is not measured the moment the command is executed. The agent plugin will take measurements periodically, and this column will show the result of the last measurement.

The third column shows the range of possible values, e.g., minimum and maximum value. If no minimum or maximum value can be determined or the value does not have an ordinal value scale a - is shown instead.

The fourth and fifth column, respectively, show the minimum and maximum values, respectively, that have been observed for this measured health value since the runnable or the agent was last restated. But only if the measured health value has an ordinal value scale. For measured values without an ordinal value scale, - will be shown.

The sixth column shows the low or high warning thresholds for the measured value, if the measured health value has an ordinal value scale and if thresholds have been configured.

The seventh column shows the state of the measured value if the measured health value has an ordinal value scale and if a low and/or high threshold has been configured. The state can be either **OK**, **LOW** or **HIGH**. If in **LOW** or **HIGH** state, the column will also show for how long the value has been in that state already.

5.8.2.3 Show node

The **show node** command shows machine monitoring information concerning CPU, memory and disk usage. If a threshold is violated, it will be shown.

Prerequisite

Health monitoring parameters are set (page 221).

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Make sure that the runnables have been started.
3. Enter **show node**

The output will be in tabular format and look like this example:

```
Status: OK
Specified IP or host name: arissrv
Resolved IP or host name: arissrv/127.0.0.1
Agent port: 9001
Monitored Resource      Current Value  Value Range  Low Thrh.  High Thrh.  State  Last msrd. at  Msrd. evry
CPU Load                 11,36%        0,00%-100,00%  0,00%      80,00%      OK     08:05:39.844  1s 000ms
Memory Usage (Percent)  36,81%        0,00%-100,00%  0,00%      80,00%      OK     08:05:39.844  1s 000ms
Memory Usage (Megabytes) 2980MB        0MB-8097MB     0MB        0MB         OK     08:05:39.844  1s 000ms
Free Disk Space (Percent) 63,40%        0,00%-100,00%  3,00%      0,00%       OK     08:05:39.845  1s 000ms
Free Disk Space (Megabytes) 302361MB     0MB-476938MB  1000MB     0MB         OK     08:05:39.846  1s 000ms
Known used ports:
  Port  Runnable  Port Parameter
  2181  zoo_m     clientPort
  9001  (AGENT)   rest.port     DEFAULT
ACC+ arissrv>
```

5.8.2.4 Configuring health monitoring

If you use the health monitoring (page 268), using ACC, make sure to configure the system.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Enter the parameters described below.

THRESHOLDS

Thresholds for monitored values can be configured using agent configuration parameters:

Parameter	Description
monitoring.high.cpu.threshold.percent (0.0 – 1.0, default 0.8)	High CPU usage threshold (relative, in percent)
monitoring.relative.low.disk.space.warning.threshold.percent (0.0 – 1.0, default 0.03)	Low memory threshold (relative, in percent)
monitoring.absolute.low.disk.space.warning.threshold.megabytes (default 1000)	Low disk space threshold (absolute, in megabytes)

THRESHOLD MEASUREMENT

The measurement can be configured by the following parameters:

Parameter	Description
monitoring.interval (default 1000)	Interval in milliseconds, in which the measurement will be done.
monitoring.high.cpu.number.of.intervals.warning.threshold (default 10)	Number of measurements with CPU load above threshold before a warning state is reached
monitoring.high.mem.usage.number.of.intervals.warning.threshold (default 10)	Number of measurements with memory usage above threshold before a warning state is reached.
monitoring.low.disk.space.number.of.intervals.warning.threshold (default 10)	Number of measurements with free disk space below threshold before a warning state is reached.

MAIL NOTIFICATION

Mail notification can be configured by the following parameters:

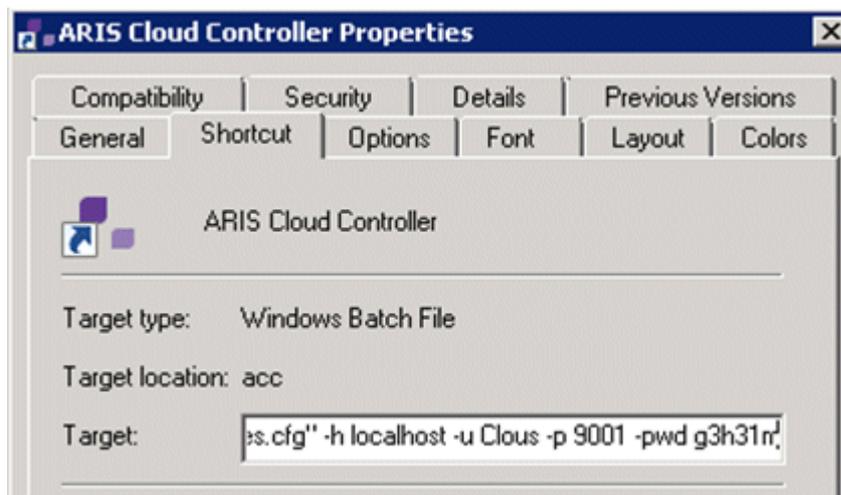
Parameter	Description
mail.notification.enabled (default: false)	En-/disabling mail notifications
mail.smtp.host	Mail server hostname
mail.smtp.port	Mail server port
mail.smtp.username	Mail server username
mail.smtp.password	Mail server password
mail.sender.address	Mail sender address
mail.recipients	Mail recipients This parameter is multivalued, specify several recipients separated with commas, e.g.: set mail.recipients = "a@abc.com","b@abc.com"
mail.recipients.cc	Mail recipients (CC) This parameter is multivalued (see mail.recipients)
mail.on.system.events	Defining events triggering email notifications This parameter is multivalued, specify several event types separated by comma, e.g.: set mail.on.system.events = MACHINE_STATE_CPU_LOAD_HIGH, MACHINE_STATE_ Possible values: <ul style="list-style-type: none"> ▪ MACHINE_STATE_LOW_DISK_SPACE_PERCENT ▪ MACHINE_STATE_OK_DISK_SPACE_PERCENT ▪ MACHINE_STATE_LOW_DISK_SPACE ▪ MACHINE_STATE_OK_DISK_SPACE ▪ MACHINE_STATE_CPU_LOAD_HIGH ▪ MACHINE_STATE_CPU_LOAD_OK ▪ MACHINE_STATE_MEMORY_USAGE_HIGH ▪ MACHINE_STATE_MEMORY_USAGE_OK

5.8.2.5 Change the default agent user's password

The ARIS 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 212).
2. Change the password:
set password = "<enter the new password>"
3. Restart the ARIS service. Enter:
restart agent
The Password has been changed.
4. Stop ACC. Enter:
exit
5. Restart ACC.
6. Enter the new password.
7. If you use the **Start** icon for ARIS Cloud Controller (**Start > All Programs > ARIS > Administration > ARIS Cloud Controller**) you can change the **password** command line parameter within the **ACC** shortcut. If you do not change the password it will be prompted every time you start ACC.



If you run an ARIS server setup after you have changed the password please enter the changed credentials.

5.8.2.6 Provide JDBC drivers

If you set up ARIS Design Server, ARIS Connect Server or ARIS Publisher Server using Oracle or Microsoft SQL Server instead of the standard database system you must provide the specific drivers for each server.

Procedure

1. Download the JDBC driver from the Microsoft and Oracle Web Sites to a directory of your choice.
e. g. **d:\ojdbc6-11.2.0.3.jar**.
 2. Start ARIS Cloud Controller (ACC) (page 212).
 3. Stop the server runnables. Enter stop **<runnable>**.
<runnable> 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:
enhance abs_s with webappsClasspath 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 runnables. Enter start **<InstanceId>** e. g.:
start abs_s
- The driver will be available.

5.8.2.7 Provide license files

You can provide license files for 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 212).
 3. Stop the server runnables. Enter stop **<runnable>**.
<runnable> 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 **<runnable>** using this command:
enhance <runnable> with license local file <path to the saved file>,
e. g.
enhance businesspublisher_l with license local file "d:/Publisher_Server_key.zip"
 5. Start the server runnables. Enter start **<runnable>**.
- The license is available.

5.8.2.8 Provide additional memory

If you have performed an installation for small (s), medium (m) or large (l) memory requirement, you can provide additional memory for runnables.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Enter **reconfigure <instanceId> +JAVA-Xmx="<amountOfMemory>"**.

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

Examples

- **reconfigure abs_s +JAVA-Xmx="1152m"**
The memory settings for the modeling runnable of an s installation will be increased to max. 1152 MB.
- **reconfigure abs_m +JAVA-Xmx="6G"**
The memory settings for the modeling runnable of an m installation will be increased to 6 GB.
- **reconfigure apg_m +JAVA-Xmx="2G"**
The memory settings for the governance runnable of an m installation will be increased to 2 GB.

5.8.2.9 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.

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 212).
4. Stop (page 218) the **load balancer** runnable.
5. Enter the ACC command **enhance <runnable 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 218) the **load balancer** runnable 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 285).

5.8.2.10 Redirect ports

If you have performed an ARIS installation on a Linux operating system the internal ARIS user running all runnables 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 212). 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 runnables run using the redirected ports.

If runnables do not start up properly, please resolve possible port conflicts (page 290).

5.8.2.11 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 203).

Prerequisites

- ARIS Design Server or ARIS Connect Server installation
- Users need the function privileges:
 - License administrator
 - User administrator
 - Technical configuration administrator
 - Document administrator
 - Process Governance administrator
 - Server administrator
 - Database administrator
- If you do not use the standard database system, please make sure to create additional schemes in your Oracle or Microsoft SQL database management system and you have assigned the tenants (page 234) to these schemes.

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Enter:

create tenant <tenant name> username=<user name of a user holding the required privileges> password=<this user's password>.

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 master.tenant.user.name = admin master.tenant.user.pwd=tenantmanager123

The tenant **test01** will be created.

3. The administrator must import licenses, create users and user groups and assign privileges and licenses (page 201) 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 229).

5.8.2.12 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:

- The system database will be backed up only if you use ARIS 9.8 service release 2 or newer versions. If you use ARIS 9.6 or 9.7 you must execute the ARIS Server Administrator command **backupsystemdb** (page 252) manually.
- All databases
- All user data (users, privileges and licenses)
- All ARIS document storage data including all access rights
- All Process Governance data

You can restore these data also using Process Governance command line tools (page 256).

- 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
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
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 230) 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 203).

5.8.2.13 Restore a tenant

You can restore a tenant or copy the content of this tenant (page 232) to a different ARIS server. You need to have access to the relevant back-up zip file containing the data of a tenant:

- The system database
- All databases
- All user data (Administration)
- All ARIS document storage data including all access rights
- All Process Governance data
 - You can restore these data also using Process Governance command line tools (page 256).
- 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
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Start ARIS Cloud Controller (ACC) (page 212).
2. To restore the tenant, enter:

restore tenant <tenant name> from <pathToBackUpFile> username=<user name of a user holding the required privileges> password=<this user's password>

e. g:

restore tenant default from "f:\\backupDefault.acb" username=y1234 password=managery1234.

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

The tenant will be restored.

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

3. If Process Governance data is included within the tenant backup to be restored, enter:
 - stop <Process Governance instance>, e.g. stop apg_m.**

4. Reindex Process Governance data, enter:

y-backupmgmt.bat reindex

5. Restart the Process Governance runnable, enter:

start <Process Governance instance>, e.g. **start apg_m**.

The tenant is restored. You can manage tenants also using the ARIS Administration's command line tools (page 203).

5.8.2.14 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 (users, privileges and licenses)
- 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
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Create a tenant (page 228) on the ARIS server where the tenant will be copied to and import the licenses (page 201).
2. Start ARIS Cloud Controller (ACC) (page 212).
3. To restore Process Governance data, stop the Process Governance runnable first. To do so enter
stop <Process Governance 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 runnable. To do so enter:
start <Process Governance 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 203).

5.8.2.15 Delete a tenant

If you delete a tenant all information will be lost:

- All databases
- All user data (users, privileges and licenses)
- 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
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Back up (page 229) the tenant in order to restore (page 230) data.
2. Start ARIS Cloud Controller (ACC) (page 212).
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 prompting the user.

You can manage tenants also using the ARIS Administration's command line tools (page 203).

5.8.2.16 Configure the database connection for additional schemes

ASSIGN TENANT TO DATABASE SCHEMA

During the setup process you have created an empty Oracle or Microsoft SQL schema for an additional tenant. Additionally created tenants must be assigned to the database schema.

1. Start ARIS Cloud Controller (ACC) (page 212).
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. For a better overview the parameters of the reconfigure command are shown with line-wraps. For execution you must enter a single-line command. The + symbol is mandatory adding parameters. Changing parameters works without +.

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 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.testOnBurrow=true
startall
```

The database connection is configured.

5.8.2.17 Reconfigure settings

Settings entered during the setup process can be adjusted. Please always use the **reconfigure** ACC command (page 236) 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 of ARIS Publisher Server 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 212) on your ARIS Publisher Server.
2. To stop the runnable enter:
stop businesspublisher_<s,m or l>
3. Reconfigure **businesspublisher_<s,m or l>** and force that runnable 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. The + symbol is mandatory adding parameters. Changing parameters works without +.

#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 **default** port number is 80 (Windows operating systems) or 1080 (page 227) (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.datab  
ase.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>** runnable again, enter:

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

This **businesspublisher_<s, m or l>** runnable 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 193).

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.

5.8.2.18 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 212).
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>))) (CONNECT_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.

5.8.2.19 Configure SMTP mail server connection

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

1. Start ARIS Cloud Controller (ACC) (page 212).
2. Enter:


```
register external service smtp host="YourMailServerAddressWithDomain"
port=25
```
3. Check that setting entering:


```
list external services
```
4. If you have installed ARIS Connect server or ARIS Design Server, just restart the server entering:


```
stopall startall
```

SMTP mail server configuration is set.

5.8.2.20 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 runnables, 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 runnable 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 212) on your ARIS Risk & Compliance Manager server.
2. To stop all runnables enter:

stop all

3. To reconfigure ARIS Risk & Compliance Manager and force that runnable 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 runnable 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 runnables (page 240) or remove (page 242) them.

5.8.2.21 Deactivate runnable

Deactivation is useful, if you do not yet use a certain runnable, but maybe need it later. If you activate the runnables again, you can still use the setup program to update your ARIS version. To deactivate runnables is safer than removing (page 242) or shutting them down (page 240).

A deactivated runnable cannot be started with a **start** command. They will be ignored by the **startall** command and the agent's runnable autostart.

Prerequisites

Runnables are in **STOPPED** or **FAILED** state.

Procedure

1. Start ARIS Cloud Controller (page 212).
2. To deactivate the runnable enter:

deactivate <instanceId>

e. g:

deactivate simulation_m

The **simulation** runnable will not be started, until you have activated it again (page 240).

5.8.2.22 Activate runnable

You can activate runnables that have been deactivated (page 239). This is required before starting an update setup.

Procedure

1. Start ARIS Cloud Controller (page 212).
2. To activate the runnable enter:

activate <instanceId>

e. g:

activate simulation_m

The **simulation** runnable can be started again.

5.8.2.23 Shut down runnables

If you run ARIS Connect Server all runnables are started even if your current license does not include some runnable's functionality. You can stop or deactivate (page 239) those runnables 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>** runnable (page 239) you might shut down all other runnables of your ARIS Risk & Compliance Manager installation.

Instead of turning off runnables manually (page 218) you may automate this process.

Turn off auto-start as general setting for all runnables in the ACC configuration and then turn auto-start on only for those runnables essentially needed to run ARIS Connect.

In this example **simulation_<l>**, **octopus_<l>** and **apg_<l>** will be switched off.

SET THE AUTO-START FLAG

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

set zoo_l property autostart=true

Use the **show instance** command to check the current setting:

```
ACC+ n1>show instance zoo_l
ID: zoo_l state:STARTED type:com.aris.runnables.zookeeper-run-prod-98.2.0)
```

```
Configuration parameters:
  clientPort=2181
  myid=1
  server=sarissrv01:2888:3888, arissrv02:2888:3888
```

```
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 RUNNABLES ONLY

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

```
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 runnables. 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 runnables 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"
```

5.8.2.24 Remove unneeded runnables

If you have added an ARIS Risk & Compliance Manager installation to your productive ARIS system and have reconfigured the **arcm_<s, m or l>** runnable (page 239) in order to use the ARIS Connect server's or ARIS Design Server's ARIS Administration, you might shut down all other runnables (page 240) 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 runnable will lead to a data loss. The server cannot be updated using the setup program. To avoid this, please deactivate the runnables (page 239) instead.

1. Start ARIS Cloud Controller (page 212) on your ARIS Risk & Compliance Manager server.
2. To stop all runnables enter:
stop all
3. Deconfigure all runnables one after the other except **arcm_<s,m or l>**, enter:
deconfigure zoo_<s,m or l>
4. After you have deconfigured all unneeded runnables please start the ARIS Risk & Compliance Manager runnable again, enter:
start arcm_<s,m or l>

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

5.8.3 ARIS Server Administrator

The command line tool **ARIS Server Administrator** is available if you have installed ARIS Connect Server, ARIS Design Server, an ARIS client or the ARIS Administrator Tools (see ARIS Client Installation Guide).

If you have installed ARIS Connect Server or ARIS Design Server, navigate to **ARIS installation path>\server\bin\work\work_abs_<s, m or l>\tools\arisadm** and run the batch file.

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. Under a Linux operating system, execute the **arisadm.sh** shell script instead. 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 tenant, or to back up or restore a tenant configuration, 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 no tenant .
-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
backup	<p>Backs up a database <dbname> as an adb file in a directory <archivedir>.</p> <p>Syntax</p> <pre>backup <dbname> all <archivedir> [-p <password for encryption>] [<alternatename>]</pre>
backupasn	<p>Extracts from a versioned database <dbname> the state of the specified change list number <asn> in an adb file of the directory <archivedir>. head or work can be used instead of <asn>. While head represents the last versioned state, work represents the current state that is not versioned yet.</p> <p>Syntax</p> <pre>backupasn <dbname> all <archivedir> <asn> head work [-p <password for encryption>] [<alternatename>]</pre>

Command	Description and syntax
backupsystemdb	Saves the central system database that contains data such as filters, model templates, and scripts in an ADB file in a directory <archivedir> . Syntax backupsystemdb <archivedir> [<alternatename>]
copy	Copies a database from <fromdbname> to <toddbname> . Syntax copy <fromdbname> <toddbname>
createdb	Generates a new ARIS database with the name <dbname> . Syntax createdb <dbname> [versioned]
delete	Deletes the database <dbname> . When using the force option the database is also deleted when users are logged in. Syntax delete <dbname> all [force]
download	Downloads files from ARIS to the specified directory <dir> . Syntax download <dir>
dropversion	Deletes all versions of a database <dbname> up to the version <new min version> . Syntax dropversion <dbname> <new min version>
encrypt	Encrypts passwords <password> for use in batch files. Syntax encrypt <password>
exit	Leaves the interactive mode.
exportscript	Exports a script of the type <REPORT REPORTTEMPLATE SEMCHECK MACRO> with the identifier <scriptid> to an export directory <exportdirectory> . Syntax <REPORT REPORTTEMPLATE SEMCHECK MACRO> <scriptid> <exportdirectory>

Command	Description and syntax
help	<p>Provides as help an overview of all commands with syntax descriptions and possible parameters. help <command> provides this help for the command specified.</p> <p>Syntax</p> <pre>help [<command>]</pre>
importscript	<p>Imports a script <importfile> of the type <REPORT REPORTTEMPLATE SEMCHECK MACRO> in the specified category <categoryname>.</p> <p>Syntax</p> <pre>importscript <REPORT REPORTTEMPLATE SEMCHECK MACRO> <importfile> <categoryname></pre>
importfilter	<p>Imports a method filter <importfile>.</p> <p>Syntax</p> <pre>importfilter <importfile></pre>
interactive	Starts the program in interactive mode.
kill	<p>Terminates the connection <sessionid> of the current server.</p> <p>Syntax</p> <pre>kill <sessionid> all</pre>
list	<p>Lists all of the server's registered databases. By default, only the databases of the current schema context are listed. When using the all option, all databases will be listed (including BO databases, for example).</p> <p>Syntax</p> <pre>list [all]</pre>
lockdb	<p>Locks the database with the name <dbname>, or all databases.</p> <p>Syntax</p> <pre>lockdb <dbname> all</pre>
maintain	<p>Starts the regeneration of search indexes (Cloud Search, Rocket Search, Elastic Search) for the specified ARIS database or all ARIS databases.</p> <p>As this action can take a long time, the command should be executed only in case of an error and only in a maintenance window.</p> <p>Syntax</p> <pre>maintain <dbname> all</pre>

Command	Description and syntax
migrate	<p>Migrates a database <dbname> from an adb file <archive>, or migrates all adb files in a directory <archivedir>. You need the password of the system user system to migrate an individual database. To migrate multiple databases the passwords must be supplied to every single database in command-line mode.</p> <p>Syntax</p> <pre>migrate [<archive> <archivedir>] <systempassword></pre>
monitor	Displays all running server activities, such as backup, XML export etc.
rename	<p>Renames the database from <olddbname> to <newdbname>. If you use the force option, the database is also renamed while users are still logged in.</p> <p>Syntax</p> <pre>rename <olddbname> <newdbname> [force]</pre>
reorg	<p>Reorganizes the database <dbname> or all databases semantically, i.e. deletes all object and connection definitions that do not have occurrences in any model.</p> <p>Syntax</p> <pre><dbname> all [options]</pre> <p>Options</p> <ul style="list-style-type: none"> • CXNDEFS_IN_MATRIX_MODELS Connection definitions without occurrences are not being removed, if they are still used in matrix models (MT_MATRIX_MOD). • USERDEF_CONTENT_SYMBOLS Userdefined symbols, which are not allowed by the server's current methodology, will be replaced by the original default symbols. • USERDEF_CONTENT_MODELS Userdefined models, which are not allowed by the server's current methodology, will be removed. • USERDEF_CONTENT_ATTRS Userdefined attributes, which are not allowed by the server's current methodology, will be removed. • NO_DEFS Object definitions without occurrences will be removed; this is the default action, if no options are specified.

Command	Description and syntax
restore	<p>Restores the state of a database <dbname> from a adb file <archive> resp. all adb/bdb files from a directory (restore).</p> <p>Syntax</p> <pre>restore <archive> <archivedir> [<dbname>] [-p <password for decryption>] [noconfirm]</pre>
restoreasn	<p>Generates a versionable database <dbname> from a particular version of an adb file <archive>. You can select either a change list number <asn> or head as a state. head stands for the last versioned state. In addition, it can restore all of the adb/bdb files of a directory.</p> <p>Syntax</p> <pre>restoreasn <archive> <archivedir> <asn> head [<dbname>] [-p <password for decryption>]</pre>
restoresystemdb	<p>Restores the central system database that contains data such as filters, model templates, and scripts from a previously saved system database (ADB file) <archive>. When updating, all ARIS standard scripts and JS files are overwritten and customer-specific changes are discarded. Export these files before you update the system database. Copied scripts and files are not overwritten. Changes in copies are retained. You can also update the system database using the updatesystemdb command.</p> <p>Updates the system configuration of the tenant (filters, templates, and scripts) after installing an update based on the system database supplied (ARIS_DVD\Content\SystemDB*.adb).</p> <p>When updating, all ARIS standard scripts and JS files are overwritten and customer-specific changes are discarded. Export these files before you update the system database. Copied scripts and files are not overwritten. Changes in copies are retained.</p> <p>Syntax</p> <pre>updatesystemdb <archive></pre> <p>Syntax</p> <pre>restoresystemdb <archive></pre>
restoreunversioned	<p>Generates a non-versioned database <dbname> from an ADB file <archive> of a non-versioned database. Also restores databases based on multiple ADB/BDB files of a directory.</p> <p>Syntax</p> <pre>restoreunversioned <archive> <archivedir> [<dbname>] [-p <password for decryption>]</pre>

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

Command	Description and syntax
updatesystem	<p>Starts the regeneration of search indexes (Cloud Search, Rocket Search, Elastic Search) for all databases on all tenants of this server. In addition, the CanRead flag for older ARIS databases is set. If an update was performed for an ARIS version < older than 9.7, it is recommended to run the command once. Otherwise, ARIS databases will be invisible to all users but the user system.</p> <p>Syntax</p> <pre>updatesystem</pre>
updatesystemdb	<p>Updates the system configuration of the tenant (filters, templates, and scripts) after installing an update based on the system database supplied (ARIS_DVD\Content\SystemDB*.adb).</p> <p>When updating, all ARIS standard scripts and JS files are overwritten and customer-specific changes are discarded. Export these files before you update the system database. Copied scripts and files are not overwritten. Changes in copies are retained.</p> <p>Syntax</p> <pre>updatesystemdb <archive></pre>
version	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 reorganize databases only when each object definition occurs in at least one overview model. If elements have already been created for later use but do not yet occur in models, these elements are deleted during the consolidation.

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>**.

5.8.3.1 Execute the `backupsystemdb` command

You can save the central system database as ADB file in a directory **<archivedir>** manually. It contains data such as filters, model templates, and scripts.

If you use ARIS 9.8 service release 2 or newer versions, the system database will be backed up automatically while backing up a tenant (page 229).

Prerequisites

- ARIS Design Server or ARIS Connect Server installation
- Users need the function privileges:
 - License administrator
 - User administrator
 - Technical configuration administrator
 - Document administrator
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Start ARIS Server Administrator (page 243) and connect to your tenant.
2. Enter **backupsystemdb <name of ADB file on DVD>**.

The system configuration, managing e.g. report scripts, macros, semantic checks, filters and templates, of this tenant will be saved.

5.8.3.2 Execute the `restoresystemdb` command

Restores the central system database that contains data such as filters, model templates, and scripts from a previously saved system database (page 252) (ADB file) **<archive>**. You can also update the system database using the `updatesystemdb` command.

Updates the system configuration of the tenant (filters, templates, and scripts) after installing an update based on the system database supplied (ARIS_DVD\Content\SystemDB*.adb).

When updating, all ARIS standard scripts and JS files are overwritten and customer-specific changes are discarded. Export these files before you update the system database. Copied scripts and files are not overwritten. Changes in copies are retained.

Syntax

```
updatesystemdb <archive>
```

Prerequisites

- ARIS Design Server or ARIS Connect Server installation
- Users need the function privileges:
 - License administrator
 - User administrator
 - Technical configuration administrator
 - Document administrator
 - Process Governance administrator
 - Server administrator
 - Database administrator
- You have access to the backup file (**<ADB file>**)

Procedure

1. Start ARIS Server Administrator (page 243) and connect to your tenant.
2. Enter **restoresystemdb <name of ADB file on DVD>**.

The system configuration, managing e.g. report scripts, macros, semantic checks, filters and templates, of this tenant will be restored.

5.8.3.3 Execute the `updatesystemdb` command

If you have updated (page 93) your installation, the **default** tenant's system database will be updated automatically only if you are using the standard database system or a Microsoft SQL server. For all additional tenants, please update the system databases with the provided database manually. In case of an Oracle database system, you must update the **default** tenant's system database as well. If you do not update system databases, all updates concerning e.g. scripts, filters and templates 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
 - Process Governance administrator
 - Server administrator
 - Database administrator
- You have access to the most recent system database (**<installation DVD>/Content/SystemDB/<ADB file>**)
- You have backed up all data that will be overwritten during the update (page 95).

Procedure

1. Start ARIS Server Administrator (page 243) and connect to your tenant.
2. Enter **updatesystemdb <name of ADB file on DVD>**.

The system configuration, managing e.g. report scripts, macros, semantic checks, filters and templates, of this tenant will be updated. User defined changes made in the configuration will remain.

5.8.3.4 Execute the `updatesystem` command

If you have updated (page 93) your installation, the search indexes of each database on the **default** tenant are re-indexed automatically only if you are using the standard database system or a Microsoft SQL server. Only in case of errors using ARIS Connect you may execute this command. It will affect all databases on all tenants of the ARIS server.

If the setup (page 97) prompted to update your external Oracle database, you must execute this command as well as the **updatesystemdb** command (page 254).

If you update an ARIS version older than 9.7, this procedure is mandatory in order to make databases visible for all authorized users. 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
 - Process Governance administrator
 - Server administrator
 - Database administrator

Procedure

1. Start ARIS Server Administrator (page 243) and connect to your tenant.
2. Enter **updatesystem**.

All tenant's search indexes will be re-indexed. Databases will be visible for authorized users.

5.8.4 Command line tools for Process Governance

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

- ARIS must be running.
- The command-line tools must be executed in the following path:
<ARIS installation path>/server/bin/work/work_apg_< your installation size, e.g. s,m, or >/**tools/bin**.

The following command line tools are provided:

- y-backupmgmt.bat
- y-backup-all.bat
- y-restore-all.bat
- y-export4ppm.bat

For more information about parameters and commands please type the tool name without parameters or commands.

For Unix operating systems please use the following:

- y-backupmgmt.sh
- y-backup-all.sh
- y-restore-all.sh
- y-export4ppm.sh

5.8.5 Command line tools for ARIS document storage

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

- ARIS must be running.
- The command-line tools must be executed in the following path:
<ARIS installation path>/server/bin/work/work_adsadmin_< your installation size, e.g. s,m, or >/**tools/bin**.

Please use y-admintool.bat for Windows operating systems and y-admintool.sh for Unix operation systems.

For more information about parameters and commands please type the tool name without parameters or commands.

5.8.6 Tenant Management tool

The Tenant Management is an additional component that provides a user interface. It is available only, if an advanced administrator has configured the **tmbundle** runnable on top of your ARIS installation via ARIS Cloud Controller (ACC).

The Tenant Management allows authorized users (page 265) to manage all tenants of the ARIS system (see Tenant Management online help).

5.8.6.1 Add Tenant Management runnable

The Tenant Management is an additional component that provides a user interface. It allows authorized users to manage all tenants of the ARIS system. To install Tenant Management, you basically need to add the **tmbundle_<s, m, or l>** runnable (**TM**) to your installation. You can only configure a single instance of this runnable into an ARIS installation.

This documentation assumes that you add the runnable to an installation done with the standard setup.

Warning

When adding the **TM** runnable, you will not be able to update this installation with an update setup. As the setup will recognize that the installation has been tampered with.

You can either update the installation manually (see **ARIS Update Cookbook**) or you can remove the **TM** runnable with the ACC **deconfigure** command (see ACC help (Page 212)), then run the update setup and add the new version of the **TM** runnable again.

Prerequisites

- You have a running ARIS Connect server or ARIS Design Server installation.
- You have access to the remote repository.
- You have basic knowledge of how to use the ARIS Cloud Controller (ACC) (Page 212).
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 **TM** runnable.

1. Make the 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 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.

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**.

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

To start ACC under a Linux operating system, execute the **acc.sh** shell script instead.

3. Enter the agent user's password.
4. Make the ARIS Agent use the remote repository 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

5. 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.

6. To add the **TM** runnable, enter the command:

configure tmbundle_<s, m, or l> <instance ID>

e.g.

configure tmbundle_s tm_s

The runnable can be installed in three different sizings, **s**, **m** or **l**. The sizing defines how much memory the Tenant Management application may consume and how many requests it can handle in general. Since the Tenant Management application will be used by only very few users in parallel, the **s** sizing will be OK for most installation scenarios.

You can replace **tmbundle_s** with **tmbundle_m** or **tmbundle_l**, respectively, to install with sizing **m** or **l**. You can also choose a different logical name of the runnable (instance ID). So feel free to replace **tm_s** with any name. Make sure it isn't already used for any other runnable.

7. To make the online help available, enter the command:
enhance <runnable's instance ID> with help <help_type> <version> classifier <language>
type war
e.g.
enhance tm_s with help com.aris.documentation.administration.tm 98.4.0 type war
8. Once the commands are executed successfully, you can start the runnable entering **start tm_s**.
9. Manage the superuser's permissions. This user will be able to manage all tenants in the system. You can also create additional users having the same role.
10. To start Tenant Management, open your browser and enter:
<server>:<port>/tm
11. Enter the user credentials to login to the infrastructure tenant, e.g. **master**.
Tenant Management is available for authorized users. To learn how to use Tenant Management, please refer to the Tenant Management's online help.

5.8.6.2 Assigning users privileges for Tenant Management

The Tenant Management user interface is only available if trained administrators have manually supplemented the installation. In this case, you have to customize the system.

Tenant Management is run automatically with the user account for the user **superuser**. In order for users to log in (page 264) there, you have to configure the infrastructure tenant (page 261). This assigns users in the infrastructure tenant privileges for impersonation (page 130), along with additional function privileges.

Once all operational tenants are configured (page 262), impersonation enables users to access the account of the system user **superuser** in order to perform administrative tasks for which their own user accounts do not have the necessary privileges.

If you want existing tenants that were not created with Tenant Management to be managed centrally in the future, you have to adjust the configuration of these tenants (page 263).

5.8.6.2.1 Configure infrastructure tenant

In order for users to be able to log into the Tenant Management, they must have been assigned impersonation (page 130) privileges by system users in the infrastructure tenant and also require additional function privileges. Impersonation enables users to take over the account for the system user **superuser** in order to perform management tasks for which their own user accounts do not have the privileges.

Prerequisite

You are a system user or have the **User administrator** and **Impersonation** function privileges.

Procedure

1. Click the link that was provided to you or that you have saved as a bookmark in your browser, e.g., **http://myServer:1080/umc**. The Log in dialog opens.
2. Enter **master** in the  **Tenant** field.
3. Enter the user name **superuser** and the associated password.
4. Click **Log in**.
5. Click  **User management**.
6. Click the user **superuser**.
7. Click **Privileges**. The list of function privileges is displayed.
8. Make sure that in addition to the assigned privileges at least the following function privileges are activated:
 - User administrator
 - Impersonation
 - Tenant administrator
 - Technical configuration administrator
9. Click  **Save**.

The user **superuser** now has the required privileges in the infrastructure tenant.

If necessary, create users as substitutes and assign them the required function privileges in the same way.

For users to be able to use Tenant Management, you must configure all operational tenants (page 262).

5.8.6.2.2 Configure operational tenants

Impersonation enables users to take over the account for the system user **superuser** in order to perform management tasks for which their own user accounts do not have the privileges.

To enable Tenant Management to establish connections to tenants, the user **superuser** requires all of the necessary function privileges for backing up and restoring in all operational tenants and must be entered as a target for impersonation.

Prerequisite

You are a system user or have the **User administrator** and **Impersonation** function privileges.

Procedure

1. Open ARIS Administration for an operational tenant, e.g. **default** (e.g. `http://<Server name>:<Port>/#default/home`).
2. Log in as a system user or a user with the **User administrator** and **Technical configuration administrator** function privileges.
3. Click **<User name> > Administration**. ARIS Administration opens.
4. Activate the  **Configuration** tab.
5. Click **User management** in the selection box.
6. Click **General**.
7. Click  **Edit**.
8. Click in the **Impersonation target users** field.
9. Enter the user name **superuser**.
10. Click  **Save**. All users that have the **Impersonation** and **Tenant management** function privileges in the infrastructure tenant take on the identity of **superuser** by inheriting all of the **superuser** privileges.
11. Click  **User management**.
12. Click the user **superuser**. The details will be displayed.
13. Click **Privileges > Function privileges**.
14. Activate the function privileges required for backing up and restoring:
 - Analysis administrator
 - User administrator
 - Collaboration administrator
 - Document administrator
 - License administrator
 - Process Governance administrator
 - Server administrator
 - Technical configuration administrator

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.
15. Log out of ARIS Administration.

The user **superuser** has the privileges to manage data for the **default** tenant.

16. Enter the user **superuser** under **Impersonation target users** in all other operational tenants in your system in turn, and assign the required function privileges.

The user **superuser** has the privileges to manage all data for the tenants (page 267). All substitutes can log in using their user name and manage tenants on behalf of the system user **superuser**.

5.8.6.2.3 Configure existing tenants

To enable Tenant Management to establish connections to tenants that were not created in Tenant Management, you must adjust the configuration of these tenants.

Prerequisite

You are a system user or have the **User administrator** and **Impersonation** function privileges.

Procedure

1. Open ARIS Administration for an operational tenant, e.g. **default** (e.g. `http://<Server name>:<Port>/#default/home`).
2. Log in as a system user or a user with the **User administrator** and **Technical configuration administrator** function privileges.
3. Click **<User name> > Administration**. ARIS Administration opens.
4. Activate the  **Configuration** tab.
5. Click **User management** in the selection box.
6. Click **General**.
7. Click  **Edit**.
8. Click in the **Impersonation target users** field.
9. Enter the user name **superuser**.
10. Click  **Save**. All users that have the **Impersonation** and **Tenant management** function privileges in the infrastructure tenant take on the identity of **superuser** by inheriting all of the **superuser** privileges.
11. Click **Security** in the selection box.
12. Click **Advanced settings**.
13. Click  **Edit**.
14. Enable the **Generate user statistics** check box.
15. Click  **Save**. The **Utilization** and **Licenses** columns can be displayed on the **Tenants** page.
16. Click  **User management**.
17. Click the user **superuser**. The details will be displayed.
18. Click **Privileges > Function privileges**.

19. Activate the function privileges required for backing up and restoring:

- Analysis administrator
- User administrator
- Collaboration administrator
- Document administrator
- License administrator
- Process Governance administrator
- Server administrator
- Technical configuration administrator

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.

20. Log out of ARIS Administration.

The user **superuser** has the privileges to manage data for this tenant.

21. Configure all other tenants that were not created in Tenant Management in the same way.

The user **superuser** has the privileges to manage all data for the tenants (page 267). All substitutes can log in using their user name and manage tenants on behalf of the system user **superuser**.

5.8.6.2.4 Open Tenant Management

System users and users with appropriate privileges can log in to tenant management on the infrastructure tenant.

- They know the passwords for the system users **system** or **superuser**.
- Their user account has been assigned login privileges (page 260).

Procedure

1. Click the link that was provided to you or that you have saved as a bookmark in your browser (syntax: <Server name>:<Port>/tm>). The Log in dialog opens.

The name of the infrastructure tenant is displayed. You cannot select any other.

2. Select the interface language. You cannot change the language once you have logged in. To change the language you have to log in again.

3. Enter your user name and your password.

Clicking **Forgot password** enables you to reset the password.

If you reset the password for the user **system** or **superuser** no other users can then log in with these user names. Automated processes, e.g. automatic backups, can no longer be performed.

4. Click **Log in**.

You can manage all tenants in the system.

5.8.6.2.5 Which users can manage tenants?

To manage tenants across servers, administrators have to customize the installation, assign privileges to users, and configure tenants (page 260).

SUPERUSER

The user account for the user **superuser** is used to automatically perform tenant management for each tenant. To do this, the user requires the following additional function privileges for tenant management in the infrastructure tenant:

FUNCTION PRIVILEGES IN INFRASTRUCTURE TENANT

- User administrator
- Impersonation
- Tenant administrator
- Technical configuration administrator

The user also has other function privileges, e.g. **License administrator**.

FUNCTION PRIVILEGES IN ALL OPERATIONAL TENANTS

The user **superuser** does not require any license privileges, but does require certain function privileges. The available function privileges depend on the licenses for the relevant tenant.

To ensure that tenants are fully backed up, the user **superuser** requires the following function privileges in every operational tenant:

- Analysis administrator
- User administrator
- Collaboration administrator
- Document administrator
- License administrator
- Process Governance administrator
- Server administrator
- Technical configuration administrator

If a function privilege is missing, e.g. **Analysis administrator**, ad-hoc analyses and queries for this tenant are not backed up.

USER CONFIGURATION

The user **superuser** must be entered as a target for impersonation (page 130) in every operational tenant, e.g. **default**. Thus, all users that have the **Impersonation** function privilege in the infrastructure tenant inherit its privileges and can manage tenants.

USERS WITH TENANT MANAGEMENT PRIVILEGES

Other users can also manage tenants even if they are not created as users in operational tenants. Management is always carried out on behalf of the user **superuser**. The following requirements have to be met:

- The users must be created in the infrastructure tenant.
- The users must have the required function privileges in the infrastructure tenant.
- The user **superuser** must have the required function privileges in the infrastructure tenant and in all operational tenants, and must have been entered as a target for impersonation in all operational tenants (see above).

5.8.6.2.6 What is impersonation?

To manage tenants, users must have impersonation privileges. Users manage tenants on behalf of the user **superuser**. To do this, these users must be created in the user management for the infrastructure tenant, e.g. **master**. To use impersonation, users require the **Impersonation** function privilege in the infrastructure tenant.

For tenant management, they also require the **User administrator**, **Tenant administrator**, and **Technical configuration administrator** function privileges.

In all other operational tenants, e.g. **default**, the user **superuser** must be entered as the target for impersonation (page 260). Impersonation means that a user can back up tenants, including databases, analyses, etc., in which they have not actually been created as a user.

To back up and restore the data, the user **superuser** requires the following function privileges in all operational tenants:

- Analysis administrator
- User administrator
- Collaboration administrator
- Document administrator
- License administrator
- Process Governance administrator
- Server administrator
- Technical configuration administrator

5.8.6.2.7 What data is backed up?

If you back up tenants manually or use a scheduled backup, the current state of the following data is saved in backup lists.

Warning

The data is only fully backed up if the user **superuser** has sufficient privileges for all components in every tenant.

Scheduled reports and ACC extensions (SSL, SAP® Java Connector and ODBC drivers) created using the ACC command **enhance** are not backed up.

Backup	Required function privileges	Component (runnable)
Data from ARIS Administration e.g. users, privileges and licenses.	User administrator Technical configuration administrator License administrator	ARIS Administration/User Management (umc_<s, m or l>)
System database Contains filters, templates, and font formats, but also the ARIS Method and all evaluation scripts and macros. ARIS databases	Server administrator Database administrator	Modeling & publishing (abs_<s, m or l>)
Ad-hoc analyses and queries	Analysis administrator	Analysis (octopus_<s, m or l>)
ARIS document storage data Contains documents and access privileges	Document administrator	ARIS document storage (adsadmin_<s, m or l>)
Process Governance data	Process Governance administrator	Process Governance (apg_<s, m or l>)
Collaboration	Collaboration administrator	Collaboration (ecp_<s, m or l>)

You require the same function privileges to restore the data.

5.8.7 Monitoring health

The monitoring of physical resources is important to keep ARIS running properly. You can monitor the system using the **healthchecks.jsp** (page 270) or ACC commands (page 272).

FILE SPACE

Monitor the file system of the ARIS installation. When the usage exceeds 85%, increase the disk space.

If the space is consumed by normal usage of the application, e. g. many databases, many documents, etc., the available disk space must be increased. Check whether disc space can be made available. Call the **deleteLogFiles.bat** script (<drive>:\<ARIS installation directory>\ARIS9.8\support). This ensures that current log files are written properly. A maintenance window for the runnable should be used, so that it can be stopped while the script is running. Also check, whether heap dumps have been created. They can consume a large part of disc space. There is one directory where special attention to the free disk space is recommended (/home/ARIS/cloudagent/work/work_cloudsearch_l/rsindex/). The folder size depends on the size and the structure of the ARIS user data, actually stored in the connected database management system. We recommend increasing the available disk space, if the used space exceeds 75 % of the available disk space.

If ARIS document storage is used extensively, these runnables should be actively monitored, too. Depending on the number and size of the documents, it might be needed to increase the available disc space regularly.

MEMORY USAGE

Every runnable has a **JAVA-Xmx** configuration parameter. It has to be monitored, if the memory usage is rising over time.

Peaks are not a problem, if they do not break the limit. If the system is suffering over a longer time, e. g. the memory usage is higher than 70% for more than one hour, check for rarely occurring use cases. They might explain the high memory consumption. This can be:

- an exceptional number of parallel running Process Governance processes
- more users accessing as usual
- expensive reporting
- running database maintenance operations
- assigning user access right over the whole database etc.

If the defined limit for memory consumption is exceeded, there are two possible measures:

- Extend the heap size for the concerned runnable. This can be done in ACC with a configure command for the **JAVA-Xmx** parameter (page 225). But this step only makes sense, if enough additional memory is available.
- Scale up by increasing the resources, e.g. adding a new node/runnable of the same type or assigning more memory to the virtual machine and increasing the **JAVA-Xmx** parameter for the runnable to use this memory.

For advanced ARIS server installations Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative (page 295).

CPU LOAD

A continuous high level of CPU usage can be an indicator that it might be necessary to scale up/out the system.

For the CPU load the same arguments as for the heap usage regarding peaks are true. So if a high CPU load is detected (> 60% for more than one hour), first it should be analyzed, if short peaks or exceptional use cases are the reason. If this is the case no direct reaction is needed.

If the defined limit for CPU usage is exceeded, there are two possible measures:

- Extend the number of CPU's available for the runnable.
- Scale up by increasing the resources of the current node, i. g. assigning more CPU cores to the virtual machine or scale out by adding a new node/runnable of the same type.

For advanced ARIS server installations Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative (page 295).

THREAD POOL SIZE

For most runnables the **ajpNumWorkerThreads** parameter and the **httpNumWorkerThreads** parameter are set. Those values should be monitored.

If they regularly exceed 80% of the configuration parameter of the runnable, it has to be scaled out by adding a new runnable of the same type.

For advanced ARIS server installations Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative (page 295).

5.8.7.1 Using the healthchecks.jsp

To have a clear picture of the runnable's state, check whether it works properly. The checks can be executed instantly to identify possible issues.

Procedure

1. Make sure that the abs runnable has been started.
2. Open your browser and enter the URL:

syntax: **http://<server name>:<port>/abs/healthchecks.jsp**

e. g.

http://aris10srv.eur.co.umg:1080/abs/healthchecks.jsp

The different checks are executed on-demand. Thus it can take a moment until the result is shown.

The state of each check is displayed. Hovering over a check field enables a **Show details** link. It shows the complete result of this specific check. To see detailed result information on all checks, click the **Show info for support** link.

- **Read Lock**

This check calculates a ratio between the total execution time of non-locking and locking threads. It fails if the ratio is greater than 30.

As this check creates a large set of test data objects, it is only executed once an hour in the background. Thus the result shown and the calculation it is based on could be maximally 59 minutes apart. It entails 16 threads in total that will process them. From these 16 threads, 8 will access the data directly. The remaining 8 will request a read lock from the JVM first, then access the data and release the lock again. Every thread will repeat its operation 2 million times. Both, the execution time of the non-locking and the locking threads are measured and added up. The total execution time of the locking threads is divided by the total execution time of the non-locking threads. This ratio is greater than 1, as the total execution time of locking threads always exceeds that of non-locking threads.

- **Threads**

This check detects threads running in an infinite loop longer than 5 minutes. It constantly monitors all AJP and HTTP threads currently running.

- **JIT Compiler**

This check detects whether the JIT compiler is active. If this is so it also monitors the state of the used code cache volume. If that is 90% of its maximum, the check fails. Even if the JIT compiler is active.

- **CPU Loop**

This identifies JIT & VM performance problems. It executes a loop counting up to one billion and measures the time needed. The check fails, if this takes more than 2,5 seconds.

- **Self Host Lookup**

This check calls the machine's host name via its IP address. The check fails, if the host name cannot be identified or if the call takes longer than 30 milliseconds.

- **ZooKeeper Connection**

The check uses an instance of ZooKeeperClient to test whether the server is connected to ZooKeeper. If not, the check fails.

- **ZooKeeper Leader**

This check detects the leading ZooKeeper for the **abs** application type. The check is executed frequently. If no leader is detected the check fails.

- **DB Query**

Checks whether a database connection can be created. If so, all databases of the **default** tenant will be retrieved. This test is repeated 100 times, the time of each execution is measured and a threshold is calculated. The test fails if the database connection can't be created or if the execution time is greater than the calculated threshold.

- **DB Latency**

This check tests whether a valid database connection can be created via a ping method call invoked on CIP. If this ping does not succeed, the check fails immediately. Otherwise, the test is repeated 100 times to measure the average response time of the database. If this is above 300 milliseconds, a failed result status is returned.

- **databaseConnectionPool**

The **org.apache.tomcat.jdbc.pool.jmx.ConnectionPool MBean** is called via JMX to retrieve the values of the **Active** and **MaxActive** attributes. If the value of the **Active** attribute is equal or above 95% of the value of the **MaxActive** attribute, the check fails. It also fails if the MBean or the attributes cannot be retrieved.

- **cloudSearchAccess**

This check obtains the host IDs of all CloudSearch instances and sends a ping request to them. If at least one ping succeeds, the check returns an OK state. If there are no host IDs or if no ping succeeds, the check fails.

5.8.7.2 Using ACC commands

You can monitor the health of a specific runnable as well as the health of the whole system.

- Monitor runnable's health (page 219)
- Show node (page 220)

5.9 Logging

If problems occur during operation, please stop all components (page 218), ARIS servers and your local ARIS client and execute the file <path to server installation directory>\support\collectLogFiles.bat. All ARIS log files will be collected and saved as a ZIP file.

All activities of runnables 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 **%UserProfile%\ARIS<version>\log**.

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

6 Data migration from ARIS 7.2 to ARIS 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 274) in ARIS 7.2 and no Process Governance was used.
- ARIS was used with LDAP integration (page 275).
- Process Governance was used without the central user management (page 276).
- Process Governance was used with the central user management (page 277).

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 **myGroup3**.

The new names are **myDatabase_myGroup1**, **myDatabase_myGroup2** and **myDatabase_myGroup3**.

6.1 Migrating ARIS using a local User Management

The user administration is now web based and users are no longer created directly with ARIS databases. 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 277).

6.2 Migrating ARIS using 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 Migrating ARIS using 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 your 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 your restored database.
6. 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.

6.4 Migrating ARIS using 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 274) your ARIS version 9.x system with the relevant JDBC driver.

Procedure

1. Back up the database in ARIS version 7.2.
2. Stop (page 218) your User Management instance, e. g. **umcadmin_m**.
3. Copy the JDBC driver from your 7.2 version installation to the ARIS 9.x installation folder under **<your ARIS installation path>/server/bin/work/work_umcadmin_<size>/base/webapps/umc/WEB-INF/lib**.
You find this file in the ARIS 7.2 installation folder under **ARISGE1.0/tomcat/lib**.
4. Restart (page 218) your User Management instance, e. g. **umcadmin_m**.
5. Navigate to the **\\<ARIS installation folder>\server\bin\work\work_umc_<size>\tools\bin** folder, e.g. **C:\ARIS9.8\server\bin\work\work_umcadmin_m\tools\bin**.
6. Migrate the users from the User Management to the ARIS Administration using the batch file **y-datadump.bat** (page 210). For more information, please open a command prompt and type **y-datadump** without any parameters.
In case of a Linux operating system, please use the **y-datadump.sh** shell script instead.
7. Restore the database in ARIS version 9.x.
8. 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.
9. 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.
10. 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 Migrating 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 3) the ARIS version 9.x in parallel to your version 7.2.
2. Click **Start > ARIS > Administration > ARIS Cloud Controller**. ARIS Cloud Controller is started.
3. Type **stopall** to stop all runnables.
4. Open a command prompt (**Start > Run > cmd**).
5. Navigate to
C:\SoftwareAG\ARIS9.8\server\bin\work\work_adsadmin_m\tools\bin.
6. Type **y-admintool.bat migrate -s <ARIS 7 installation folder> -t <ARIS9.8 installation 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.

In case of a Linux operating system, please use the **y-admintool.sh** shell script instead.

Example

```
y-admintool.bat migrate -s "%ARIS_HOME%\ARISGE10\data" -t "
C:\SoftwareAG\ARIS9.8\server\bin\work\work_couchdb_m\data".
```

7. Click **Start > ARIS > Administration > ARIS Cloud Controller**. ARIS Cloud Controller is started.
8. Type **startall** to start all runnables.
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
C:\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 Migrating databases, configuration elements and scripts

It is possible to import filters, templates, reports, macros and databases for all users. User defined method extensions or changes can be migrated via **Export filter** functionality in 7.2 and **Import filter** functionality 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 group name.

Procedure

1. Back up the database in ARIS version 7.2 using the **backup** functionality in the pop-up menu of a database (ARIS Architect).
2. Restore the database in ARIS version 9.x using the **Export** functionality in the pop-up menu for a filter (individual back up in ARIS Architect).
3. Export filters, templates and script files in ARIS version 7.2.
4. Start ARIS Architect.
5. Open the **Administration** tab.
6. Import all files to ARIS version 9.x.

All data will be converted while restoring and importing.

7 Notes on data security observance

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 role

Please consider all of the topics in the check list and make sure, that they are considered after the installation.

- Allow 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 Linux please start ARIS Agent via shell. You might redirect ports (page 227).

Make sure that the used OS user account can access only the specified directories.

The path data corresponds with Windows conventions. Slashes (/) are used as separators in UNIX.

Directory/File	Privilege
%TEMP%	Read (r), execute (x), write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\	Read (r) (pass on to files and folders recursively)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\logs	Write (w) (pass on to files)
<ARIS installation directory>\ server\bin\work\work_abs_[s,m,l]\base\temp	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\work	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\webapps\abs\log	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\fonts	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\work_abs_[s,m,l]\base\temp	Write (w) (pass on to files)
<ARIS installation directory>\server\bin\work\postgres_[s,m,l]\pgworkdata	Write (w) (pass on to files and folders)

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

- **Enable SSL encryption** (page 226)
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 243) command **encrypt**.

7.2 ARIS administrator role

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 212). Change the password (page 223).

- **Change the default credentials of user/password - system/manager and superuser/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-equivalent 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 ARIS installation even if you forget the password for the **system** user (see help page **Create system user**).

- **Back up your data regularly** (page 95)

Administrators can back up (page 229) all tenant data to a zip file.

Administrators have various options for backing up the data managed on ARIS Connect Server or ARIS Design Server using ARIS Server Administrator (page 243).

- **Version your database content**

Versioning is used to keep different versions of 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 refer to the Monitoring health chapter (page 268) and read the following pages.

8.1 No access to ARIS

PROBLEM

You cannot access ARIS.

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 Download Clients cannot be started

PROBLEMS

1. **Starting a download client (Java applet) does not work.**

Java applets are used as default to start ARIS download clients. Maybe your browser blocks Java applets.

2. **Using ARIS downloader (page 137), but double clicking the JAR file does not work and prompts with an error message.**

Either there's no Java Runtime Environment installed on the user's computer, or the file extension **.JAR** is NOT assigned to the JRE.

SOLUTIONS

1. If your browser blocks Java applets, start download clients using ARIS downloader (page 137).
2. If no JRE is installed on the user's computer, download and install it from <http://java.com> (<http://java.com>).
 - a. Start the Windows Explorer and navigate to the **%UserProfile%\downloads** download folder, or to that folder where the ARIS downloader **JAR** file has been saved by the browser.
 - b. Right click the ARIS downloader **JAR** file.
 - c. Select **Open with**.
 - d. Assign it with a locally installed Java™ Platform SE binary Oracle Corporation.

If a file extension assignment for **.JAR** files is not feasible, the ARIS downloader can be started using the JRE on a command line.

Examples

JRE version 7 is installed and the ARIS downloader should start ARIS Architect/Designer on the ARIS server **myARISserver.domain**:

```
%ProgramFiles(x86)%\Java\jre7\bin\java.exe -jar ARIS_myARISserver.domain.jar
```

JRE version 8 is installed and the ARIS downloader should start ARIS Architect/Designer on the ARIS server **myARISserver.domain**:

```
%ProgramFiles(x86)%\Java\jre1.8.0_60\bin\javaw.exe -jar ARIS_myARISserver.domain.jar
```

8.3 ARIS clients cannot connect to servers using SSL

PROBLEM

A SSL certificate is available (page 226) 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 212).
3. Stop (page 218) the load balancer runnable.
4. Enhance the certificate using this command:

**enhance <runnable of the load balancer component> with sslCertificate local file
"<path to the downloaded zip file>"**

5. Start (page 218) the **load balancer** runnable again.

The SSL certificate is available.

8.4 ARIS clients using SSL throw Java exceptions

PROBLEM

A SSL certificate is available (page 226) 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 created for the ARIS server, i.g. 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 **<ARIS installation path>client\jre**.

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 **<ARIS installation path>client\jre**.

Inside **<ARIS installation path>client\jre\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
<ARIS installation path>client\jre\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 your 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.

8.5 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 using Process Governance 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.

8.6 Server started but no access to ARIS

PROBLEM

After you have started the server (page 283) you still cannot access ARIS.

SOLUTION

Open the ARIS Cloud Controller (ACC) (page 212) using the link in the start menu. Once the prompt appears, type **list**. Check if all runnables are in state **STARTED**.

If the output of the list command shows one or more runnables in state **STARTING** please wait a while and type **list** again.

Please ensure that the DNS name resolution works correctly.

8.7 Runnables do not start

PROBLEM

Runnables still are in state **STARTING**.

SOLUTION

Kill the runnable 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 runnables in state **FAILED** or **STOPPED**. Type **startall**. Once the command finishes give the runnables some time to complete startup and type **list** to see their current state.

8.8 Resolving port conflicts

PROBLEM

You have killed and restarted (page 289) a FAILED/STARTING runnable several times but it still doesn't start up properly.

SOLUTION

Port collisions are a common reason for runnables 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 273) for messages indicating port conflicts.
2. Find out the ports used by an ARIS runnable using the ACC (page 212) command **show instance <instanceId>**,

e.g.

```
ACC+ localhost>show instance abs_m
ID: abs_m state:STARTED
type:com.aris.modeling.runnables.y-server-run-prod-9.0.0-RC108-Trunk-SNAPSHOT)
Configuration parameters:
    JAVA_OPTS=-server
-Xrunjdw: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 runnable that is not starting up properly and which have the state **listening**.

Sometimes, two programs might startup and use the same port. Only the first program will be reachable via this port.

Proto	Local Address	Foreign Address	State	PID
TCP	0.0.0.0:9701	MCY137201:0	LISTENING	5524
TCP	0.0.0.0:9702	MCY137201:0	LISTENING	4652
TCP	0.0.0.0:9703	MCY137201:0	LISTENING	5968
TCP	0.0.0.0:9704	MCY137201:0	LISTENING	3632
TCP	0.0.0.0:9705	MCY137201:0	LISTENING	9740
TCP	0.0.0.0:9706	MCY137201:0	LISTENING	6464
TCP	0.0.0.0:9707	MCY137201:0	LISTENING	6836
TCP	0.0.0.0:9708	MCY137201:0	LISTENING	6400
TCP	0.0.0.0:9709	MCY137201:0	LISTENING	7156
TCP	0.0.0.0: 10080	MCY137201:0	LISTENING	2992
TCP	0.0.0.0: 10080	MCY137201:0	LISTENING	6836
TCP	0.0.0.0:10081	MCY137201:0	LISTENING	3632
TCP	0.0.0.0:10082	MCY137201:0	LISTENING	7922
TCP	0.0.0.0:10083	MCY137201:0	LISTENING	4094
	...			

5. Use Windows Task Manager to identify to identify the program using its PID that is using that port.

After you have stopped the program causing the conflict or redirected ports (page 227), all ARIS runnables 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/>) (login required) or from the ARIS Download Center (aris.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 (page 236) 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. Therefore, close all Command Prompts pointing into the ARIS installation folder.
- Please make sure to 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 installation 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\Design&ConnectServer\Oracle. 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.

- If the ARIS 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 (<ARIS installation directory>\server\bin\work\work_copernicus_<s, m or l>\base\webapps\ROOT\WEB-INF\config\<customization>\instances\UserAction\). 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.`
- If you update an ARIS version older than 9.7, make sure to execute the **updatesystem** command (page 255). This is mandatory in order to make databases visible for all authorized users. Using large databases this may take some time.

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, 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 (https://empower.softwareag.com/public_directory.asp).

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

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.

ARIS Agent

Is a required service on every machine (node) on which an ARIS server component runs (runnable). It allows the remote installation, configuration, operation of ARIS runnables.

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 runnable.

<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 runnable.

<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 for administrating and configuring an ARIS installation. It communicates with ARIS Agents on all nodes.

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

Collaboration database

The **postgresECP_<s,m or l>** runnable handles the internal database storing Collaboration content available in ARIS Connect.

D

Distributed installation

Multi-node installation, i.e., an installation spanning across several computers/VMs. Such a specific scenario requires profound knowledge of the technical ARIS infrastructure and environment. This cannot be provided in the product documentation. The required know-how can be acquired only by attending the training course **ARIS Server Installation**, available via Global Education Services. Get more details on <http://softwareag.com/training> (<http://softwareag.com/training>). For this type of installation Software AG strongly recommends that you request an installation service by Global Consulting Services. You can order that service from your Software AG sales representative.

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 serves technical purposes only. It is not for use by end users. Logging in to ARIS Connect or other Software AG products with this user is not allowed. Further information is available in the Software AG license terms (<http://softwareag.com/licenses>).

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.

Example

abs_m is the Instance ID representing the **abs** runnable. This runnable manages the Modeling & **Publishing** component.

<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**

L

Load balancer

In ARIS the **loadbalancer** runnable distributes the workload across the installed components.

In computing, load balancing distributes workloads across multiple computing resources, such as computers, a computer cluster, network links, central processing units or disk drives. Load balancing aims to optimize resource use, maximize throughput, minimize response time, and avoid overload of any single resource. Using multiple components with load balancing instead of a single component may increase reliability and availability through redundancy. Load balancing usually involves dedicated software or hardware, such as a multilayer switch or a Domain Name System server process.

M

Multi node

Distributed ARIS installation spanning several computers, delivered by manual provisioning.

Such a specific scenario requires profound knowledge of the technical ARIS infrastructure and environment. This cannot be provided in the product documentation. The required know-how can be acquired only by attending the training course **ARIS Server Installation**, available via Global Education Services. Get more details on <http://softwareag.com/training> (<http://softwareag.com/training>).

Modeling database

The **postgres_<s,m or l>** runnable handles the internal standard database system storing all ARIS databases (modeling data) and the system databases (ARIS method, filters, templates, languages, fonts, font formats and script data).

This database can be replaced by an external Oracle® or Microsoft® SQL database.

N

Node

A node is a virtual or physical machine on which ARIS Agent is installed to host ARIS runnables.

<nodeName>

Free variable parameter used in ACC expressions.

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

<operation>

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 223), 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

Relative Path

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

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

Repository File

file <key> <relativePath>

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

Runnable

Name of ARIS server's program component.

Depending on the ARIS server type different runnables are running in order to provide full functionality. Runnables can be managed using ARIS Cloud Controller (ACC) (Page 212). The runnable's name is the InstanceID of ARIS server's program component.

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 runnables.

Single node

An ARIS server installation delivered by an ARIS server setup.

<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 234) | smtp (Page 238) | proxy | postgresql-ecp | elasticsearch | rs | ...

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

This example shows how to register an external service db (Microsoft SQL) and the required configuration parameters (**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
```

Service registry

The **zoo_<s,m or l>** runnable is a server component managing the communication, configuration and status information of all available runnables and external services.

<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 runnable 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-on.

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's **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 tenant is a container having its own set of ARIS data.

After the installation two tenants are available. The infrastructure **master** tenant manages administrative users and all other tenants. The **default** tenant is available for operational use. It handles databases, documents, users/user groups, licenses etc. A single physical ARIS installation can host multiple operational tenants. Users of a specific tenant can't access data from other tenants. A tenant is a kind of logical ARIS installation. Tenants do not share any data.

<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 223), 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.