



# **ARIS Cloud Controller (ACC)** **COMMAND-LINE TOOL**

Version 10.0 - Service Release 2

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This document applies to ARIS Version 10.0 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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## Contents

1	ARIS Cloud Controller (ACC) .....	1
1.1	Start and stop runnables .....	8
1.2	Monitor runnable's health .....	9
1.3	Show node .....	10
1.4	Configuring health monitoring .....	11
1.5	Change the default agent user's password .....	13
1.6	Provide JDBC drivers .....	14
1.7	Provide license files .....	14
1.8	Provide additional memory .....	15
1.9	Provide SAP JCo for Process-driven Management for SAP® Solutions .....	16
1.10	Make SSL certificate available .....	17
1.11	Redirect ports .....	18
1.12	Create a tenant .....	19
1.13	Back up a tenant .....	20
1.14	Restore a tenant .....	21
1.15	What data is backed up and restored? .....	23
1.16	Copy a tenant to a different server .....	24
1.17	Delete a tenant .....	26
1.18	Configure the database connection for additional schemes .....	27
1.19	Reconfigure settings .....	30
1.20	Configure the service 'Create static ARIS Publisher export' for Process Governance .....	32
1.21	Update external service (database clusters) .....	33
1.22	Configure SMTP mail server connection .....	33
1.23	Use existing ARIS document storage and ARIS Administration for ARIS Risk & Compliance Manager .....	34
1.24	Deactivate runnable .....	34
1.25	Activate runnable .....	35
1.26	Remove unneeded runnables .....	35
2	Disclaimer .....	36

## 1 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 agent user credentials you must enter the password.

To start ACC under a Linux operating system, execute the **acc10.sh** shell script instead. ACC is available if you have copied and installed the **aris10-acc-`<number>`** rpm file depending on the Linux operating system.

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

### 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. 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 Server installation for a medium number of users.

```
ACC+ arisserver>list
On node arisserver now 14 runnables are installed.
zoo_m          : STARTED (com.aris.runnables.zookeeper-run-prod-10.0.0)
postgres_m     : STARTED (com.aris.runnables.PostgreSQL-run-prod-10.0.0)
dashboarding_m : STARTED (com.aris.runnables.PostgreSQLACP-run-prod-10.0.0)
cloudsearch_m  : STARTED (com.aris.cip.y-cloudsearch-run-prod-10.0.0)
elastic_m      : STARTED (com.aris.runnables.elasticsearch-run-prod-10.0.0)
adsadmin_m     : STARTED (com.aris.adsadmin.y-adsadmin-run-prod-10.0.0)
umcadmin_m     : STARTED (com.aris.umcadmin.y-umcadmin-run-prod-10.0.0)
loadbalancer_m : STARTED (com.aris.runnables.httpd.httpd-run-prod-10.0.0)
abs_m          : STARTED (com.aris.modeling.runnables.y-server-run-prod-10.0.0)
apg_m          : STARTED (com.aris.age.age-run-prod-10.0.0)
copernicus_m   : STARTED
                (com.aris.copernicus.copernicus-portal-server-run-prod-10.0.0)
octopus_m      : STARTED (com.aris.octopus.y-octopus_server-run-prod-10.0.0)
ecp_m          : STARTED (com.aris.runnables.ecp-run-prod-10.0.0)
simulation_m   : STARTED
                (com.aris.modeling.runnables.simulationserver.y-simuserver-run-prod-10.0.0)

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.

## RUNNABLES OF ALL ARIS SERVERS

This table lists all runnables run by ARIS Server, 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)	ARIS Server	ARCM	Publisher	LOCAL
Runnables run by different server types				
<b>zoo_m</b> 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
<b>postgres_m</b> 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
<b>cloudsearch_m</b> 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
<b>elastic_m</b> Document index (Elasticsearch) Main full-text search index for documents and collaboration data. It also stores users, user groups, and privileges of these components.	x	x		x



Runnable (instanceID)	ARIS Server	ARCM	Publisher	LOCAL
<b>adsadmin_m</b> ARIS document storage management Server component managing ARIS document storage.	x	x		
<b>umcadmin_m</b> ARIS Administration/User Management Server component managing users, permissions, licenses, LDAP connectivity and SSO.	x	x		x
<b>loadbalancer_m</b> 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		
<b>abs_m</b> Modeling/publishing/reporting Main server component for modeling and operations on modeling data including report execution.	x			x
<b>hds_m</b> (optional; not by setup) Heavy-duty Server (HDS) HDS is an additional component that takes the load of running ARIS reports from your <b>abs_&lt;s, m or l&gt;</b> modeling component.	x			
<b>cdf_m</b> (optional; not by setup) Cloud Decoupling Framework (CDF) CDF is a queue which can be used to decouple synchronous accesses to services. It is required for communication between the <b>abs_&lt;s, m or l&gt;</b> modeling component and the <b>hds</b> instances.	x			
<b>apg_m</b> Process Governance server component. Executes processes and provides managing user interfaces.	x			

Runnable (instanceID)	ARIS Server	ARCM	Publisher	LOCAL
<b>copernicus_m</b> Portal Server component providing the portal in ARIS Connect.	x			
<b>octopus_m</b> Analysis Server component processing ad hoc analyses and queries triggered in ARIS Architect or ARIS Designer.	x			x
<b>ecp_m</b> Collaboration Server component of the collaboration component in ARIS Connect.	x			x
<b>simulation_m</b> Simulation Server component of the simulation functionality in ARIS Architect.	x			x
<b>dashboarding_m</b> Dashboards (ARIS Aware) Server component of the dashboarding component in ARIS Connect.	x			
<b>businesspublisher_m</b> ARIS Publisher server Server component of the ARIS Publisher functionality in ARIS Architect.			x	
<b>arcm_m</b> ARIS Risk & Compliance Manager server Server component of ARIS Risk & Compliance Manager.		x		

## 1.1 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 <instanceld>**, 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 <instanceld>**, 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 to ensure more memory for the system.

## 1.2 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 to 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 11).

### Procedure

1. Start ARIS Cloud Controller (ACC) (page 1).
2. Make sure that the runnable has been started.
3. Enter, 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
Number of nodes       60             0 - -            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 restarted. 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.

## 1.3 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 11).

### Procedure

1. Start ARIS Cloud Controller (ACC) (page 1).
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        OMB-8097MB    OMB         OMB          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     OMB-476938MB 1000MB      OMB          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>
```

## 1.4 Configuring health monitoring

If you use the health monitoring, using ACC, make sure to configure the system.

### Procedure

1. Start ARIS Cloud Controller (ACC) (page 1).
2. Enter the parameters described below.

### THRESHOLDS

Thresholds for monitored values can be configured using agent configuration parameters:

Parameter	Description
<b>monitoring.high.cpu.threshold.percent</b> (0.0 – 1.0, default 0.8)	High CPU usage threshold (relative, in percent)
<b>monitoring.relative.low.disk.space.warning.threshold.percent</b> (0.0 – 1.0, default 0.03)	Low memory threshold (relative, in percent)
<b>monitoring.absolute.low.disk.space.warning.threshold.megabytes</b> (default 1000)	Low disk space threshold (absolute, in megabytes)

### THRESHOLD MEASUREMENT

The measurement can be configured by the following parameters:

Parameter	Description
<b>monitoring.interval</b> (default 1000)	Interval in milliseconds, in which the measurement will be done.
<b>monitoring.high.cpu.number.of.intervals.warning.threshold</b> (default 10)	Number of measurements with CPU load above threshold before a warning state is reached
<b>monitoring.high.mem.usage.number.of.intervals.warning.threshold</b> (default 10)	Number of measurements with memory usage above threshold before a warning state is reached.
<b>monitoring.low.disk.space.number.of.intervals.warning.threshold</b> (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:

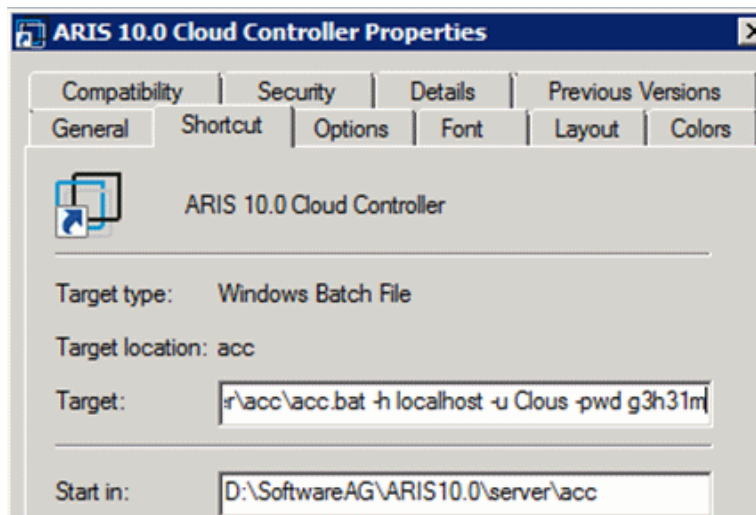
Parameter	Description
<b>mail.notification.enabled</b> (default: <b>false</b> )	En-/disabling mail notifications
<b>mail.smtp.host</b>	Mail server hostname
<b>mail.smtp.port</b>	Mail server port
<b>mail.smtp.username</b>	Mail server username
<b>mail.smtp.password</b>	Mail server password
<b>mail.sender.address</b>	Mail sender address
<b>mail.recipients</b>	Mail recipients  This parameter is multivalued, specify several recipients separated with commas, e.g.: <b>set mail.recipients = "a@abc.com","b@abc.com"</b>
<b>mail.recipients.cc</b>	Mail recipients (CC)  This parameter is multivalued (see <b>mail.recipients</b> )
<b>mail.on.system.events</b>	Defining events triggering email notifications  This parameter is multivalued, specify several event types separated by comma, e.g.: <b>set mail.on.system.events = MACHINE_STATE_CPU_LOAD_HIGH, MACHINE_STATE_</b>  Possible values: <ul style="list-style-type: none"> <li>▪ MACHINE_STATE_LOW_DISK_SPACE_PERCENT</li> <li>▪ MACHINE_STATE_OK_DISK_SPACE_PERCENT</li> <li>▪ MACHINE_STATE_LOW_DISK_SPACE</li> <li>▪ MACHINE_STATE_OK_DISK_SPACE</li> <li>▪ MACHINE_STATE_CPU_LOAD_HIGH</li> <li>▪ MACHINE_STATE_CPU_LOAD_OK</li> <li>▪ MACHINE_STATE_MEMORY_USAGE_HIGH</li> <li>▪ MACHINE_STATE_MEMORY_USAGE_OK</li> </ul>

## 1.5 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 1).
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, enter the changed credentials.



## 1.6 Provide JDBC drivers

If you set up ARIS 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:\ojdbc<number>.jar**.
2. Start ARIS Cloud Controller (ACC) (page 1).
3. Stop the server runnables. Enter:  
**stop abs\_l** or **stop businesspublisher\_l**.
4. Provide the JDBC driver using the **enhance** command. 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\_l with webappsClasspath local file "d:\ojdbc<number>.jar"**  
The file has been made available. The source file can be deleted.
5. Start the server runnables. Enter, e. g.:  
**start abs\_l**

The driver will be available.

## 1.7 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 1).
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.

## 1.8 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 1).
2. Enter **reconfigure <runnable> +JAVA-Xmx=<memory requirement>**".

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.

## 1.9 Provide SAP JCo for Process-driven Management for SAP® Solutions

If you use SAP Solution Manager 7.1 and the SAP synchronization 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 automatically provide **sapjco3.jar** for ARIS Download Client and ARIS Server. Make sure that all users of ARIS Download Client copy the needed **sapjco3.dll** file to their local machines. For installed clients and the server **LOCAL** the **sapjco3.jar** file and the **sapjco3.dll** file must be provided manually.

### Procedure

1. Download **SAP JCo 3.0.x** 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:/sapjco3<number>.zip**.
3. Start ARIS Cloud Controller (ACC) (page 1).
4. Stop the **abs** runnable: e. g., enter **stop abs\_m**.
5. Provide **sapjco3.jar** for download clients and ARIS Server using this command:  
**enhance abs\_<s, m, or l> with webappsClasspath local file <path to the saved zip file>**,  
e. g.  
**enhance abs\_m with webappsClasspath local file d:/sapjco3<number>.zip**
6. Start the runnable: e. g., enter **start abs\_m**.

**sapjco3.jar** will be available for download clients and ARIS Server. The source file can be deleted.

All users of download clients must copy the **sapjco3.dll** file. Please provide SAP® JCo for installed clients or the server **LOCAL** too.

After you have performed an update setup you need to enhance SAP JCo again. If you are using HD server, enhance JCO also for the **hds** runnable as described for the **abs** runnable.

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>).

## 1.10 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.

Using SSL with ARIS Publisher must be configured in a different way.

### 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 1).
4. Stop (page 8) the **load balancer** runnable.
5. Enter the ACC command **enhance loadbalancer\_<s, m, or l> with sslCertificate local file "<path to the ZIP file>"**, e. g.:

**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 8) 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.

## 1.11 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 1). 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 <network 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.

## 1.12 Create a tenant

After the installation of ARIS Connect the **default** tenant is available. If you need additional tenants to provide different sets of databases, users, configurations or ARIS methods you can easily create tenants. If you are going to create additional tenants for ARIS10.0 in order to migrate data from ARIS 9.8.7 or later, make sure to use identical names in both ARIS versions. You can also create tenants using the ARIS Administration's command line tools or Tenant Management.

### Prerequisites

- ARIS Server installation
- Users need the **User administrator** function privileges:
- If you do not use the standard database system, make sure to create additional schemes in your Oracle or Microsoft SQL database management system and assign the tenants (page 27) to these schemes (see ARIS Server Installation Guide).
- If you recreate a deleted tenant and you use ARIS document storage, make sure to have deleted the Document index (Elasticsearch) (see ARIS User Management Command-Line Tool).

### Procedure

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

You can even change parameters for the new tenant. You must specify additional parameters in case you use an external database management system, e. g.:

```
create tenant test01 dba.user="system" dba.user.pwd="manager"  
dbinstance.id="db0000000000">default.tbl.space="ARISDATA"  
temp.tbl.space="TEMP" schema.name=aris_<tenant ID>"  
schema.pwd="*ARIS!1dm9n#yy">
```

The tenant **test01** will be created.

3. The administrator must import licenses, create users and user groups and assign privileges and licenses 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 20).

## 1.13 Back up a tenant

You can back up a tenant data (page 23) using the ARIS Cloud Controller (ACC). Please note that no user can work on this tenant during the backup process.

### Warning

Tenant data is fully backed up only if the user executing the commands has sufficient privileges for all components in every tenant. User administration audit events are not part of the tenant backup. Extensions, e.g., SSL certificates (page 17), SAP® Java Connector, and JDBC drivers (page 14), added using the **enhance** ACC command are not backed up.

### Prerequisites

- ARIS Server installation
- Users need the function privileges: Analysis administrator, ARCM administrator, Collaboration administrator, Database administrator, Document administrator, License administrator, Process Governance administrator, Server administrator, Technical configuration administrator, User administrator, and Dashboard administrator.

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.

### Procedure

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

4. 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 do not need to stop the Process Governance runnable to back up or restore Process Governance data. To avoid inconsistencies, you can't back up or restore Process Governance data while a process is still running. During a backup or restore, Process Governance is not accessible to avoid inconsistencies.

You can restore (page 21) this tenant using this zip file. Using the **restore tenant** command will copy the content to an existing tenant. Process Governance backup archives greater than 2 GB might lead to insufficient TEMP space issue when restoring them into ARIS with Oracle back end. For such large backups, extend the temp tablespace size before restoring operation executed.

You can manage tenants also using the ARIS Administration's command line tools or Tenant Management.

## 1.14 Restore a tenant

You can restore a tenant data (page 23) or copy the content of this tenant (page 24) to a different ARIS server. You need to have access to the relevant back-up zip file containing the data of a tenant:

### Warning

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

All current data of a running tenant will be deleted and replaced by the data of the backup file. The tenant name and current user data will be untouched. If users were deleted after the tenant has been backed up, these users will be available again. Make sure to delete those users.

Process Governance backup archives greater than 2 GB might lead to insufficient TEMP space issue when restoring them into ARIS with Oracle back end. For such large backups, extend the temp tablespace size before restoring operation executed.

### Prerequisites

- You need access to the relevant back-up zip file.
- ARIS Server installation
- Users need the function privileges:

Analysis administrator

ARCM administrator

Collaboration administrator

Database administrator

Document administrator

License administrator

Process Governance administrator

Server administrator

Technical configuration administrator

User administrator

Dashboard administrator

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.



### Procedure

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

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. Make sure to change the standard user's passwords again.

The tenant is restored.

You can also create tenants using the ARIS Administration's command line tools or Tenant Management.

## 1.15 What data is backed up and restored?

If you back up tenants, the current state of the following data is saved in different folders in the tenant backup zip file.

Tenant data is fully backed up only if the user executing the commands has sufficient privileges for all components in every tenant. Extensions, e.g., SSL certificates (page 17), SAP® Java Connector (page 16), and JDBC drivers (page 14), added using the **enhance** ACC command are not backed up. In ARIS 10 all started runnables are automatically taken into account when executing tenant backup/restore commands.

Backup/restore	Required function privileges	Component (runnable)
Data from ARIS Administration, e.g., users, privileges,	User administrator Technical configuration administrator	ARIS Administration/User Management (umcadmin_<s, m, or l>)
Licenses	License administrator	
System database Contains filters, templates, and font formats, but also ARIS Method and all evaluation scripts, macros and scheduled reports.	Server administrator	Modeling & Publishing (abs_<s, m, or l>)
ARIS databases	Database administrator	
Ad hoc analyses and queries	Analysis administrator	Analysis (octopus_<s, m, or l>)
ARIS document storage data Documents and access privileges	Document administrator Technical configuration administrator	ARIS document storage (adsadmin_<s, m, or l>)
Process Governance data	Process Governance administrator	Process Governance (apg_<s, m, or l>)
Collaboration data	Collaboration administrator	Collaboration (ecp_<s, m, or l>)
ARIS Risk & Compliance Manager data	ARCM administrator	ARIS Risk & Compliance Manager (arcm_<s, m, or l>)
Dashboards	Dashboard administrator	ARIS Aware (dashboarding_<s, m, or l>)

## 1.16 Copy a tenant to a different server

You can copy the content of a backed up tenant to a different ARIS Server. This procedure can also be used to migrate data in case of an upgrade installation. 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

Extensions, e.g., SSL certificates (page 17), SAP® Java Connector (page 16), and JDBC drivers (page 14), added using the **enhance** ACC command are not backed up.

### Prerequisites

- You need access to the relevant back-up zip file
- ARIS Server installation
- Users need the function privileges:

Analysis administrator

ARCM administrator

Collaboration administrator

Database administrator

Document administrator

License administrator

Process Governance administrator

Server administrator

Technical configuration administrator

User administrator

Dashboard administrator

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.

## Procedure

1. Create a tenant (page 19) on the ARIS Server where the tenant will be copied to and import the licenses.
2. Start ARIS Cloud Controller (ACC) (page 1).
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=<user name of a user holding the required privileges> password=<this user's password>**  
You must enter the user credentials of the server's ARIS Administration you have created the new tenant. If you are about to migrate data, you might use the standard name and password **system/manager**.

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, as well as user credentials. The current user data will be untouched. If users were deleted after the tenant has been backed up, these users will be available again. Please make sure to delete those users.

In case of a migration process the default credentials will automatically be in use. To prevent unauthorized access to the ARIS system, after installation or data migration, always change the passwords of the **arisservice** user, the **guest** user, the **system** user and the **superuser** user on all operational tenants, as well as on the infrastructure tenant (master).

You can also create tenants using the ARIS Administration's command line tools or Tenant Management.

## 1.17 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 Server installation
- Users need the function privileges:

Analysis administrator

ARCM administrator

Collaboration administrator

Database administrator

Document administrator

License administrator

Process Governance administrator

Server administrator

Technical configuration administrator

User administrator

Dashboard administrator

The function privileges depend on the license. Therefore, you may not be able to assign all of the function privileges shown.

### Procedure

1. Back up (page 20) the tenant in order to be able to restore (page 21) data again.
2. Start ARIS Cloud Controller (ACC) (page 1).
3. Enter:

**delete tenant <Tenant name> username=<user name of a user holding the required privileges> password=<this user's 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.

The tenant will be deleted.

You can also manage tenants using the ARIS Administration's command line tools or Tenant Management.

## 1.18 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 (see ARIS Server Installation Guide). Additionally created tenants must be assigned to the database schema.

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

Discover the database service ID (<dbserviceID>):

list external services

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.

2. Create the new tenant:

create tenant <tenant name>

The new tenant is available on ARIS Server.

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

#### ENABLE VALIDATIONQUERY FOR EXTERNAL POSTGRESQL CONNECTION

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

The database connection is configured.



## 1.19 Reconfigure settings

Settings entered during the setup process can be adjusted. Use the **reconfigure** ACC command (page 30) 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 1) 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 Server installation.

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.

**#Database connection parameters (in this example an Oracle database system is used)**

bp.ado.database="**com.sag.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 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 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 18) (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.

```
# 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.databa  
se.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** 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.

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.

## 1.20 Configure the service 'Create static ARIS Publisher export' for Process Governance

Settings entered during the setup process can be adjusted. Use the **reconfigure** ACC command (page 30) to change settings. When performing an update setup all modifications made manually in CFG or XML files will be lost. You can configure, that the **Create - Static ARIS Publisher export** service supports the port information.

### Procedure

1. Start ARIS Cloud Controller (page 1) on your <\_apg\_server>.

2. To stop the runnable enter:

**stop apg\_<s,m or l>**

3. Enter the following:

reconfigure apg\_m

JAVA-Dcom.idsscheer.age.serviceenabling.staticExport.wsServer="<myARIShost>: <port>  
/aris/apgstatic"

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\_apg\_<s, m or l>. If typing errors happened during the setup process the affected values must be adjusted.

4. To start the apg\_<s, m or l> runnable again, enter:

**start apg\_<s,m or l>**

This **apg\_<s, m or l>** runnable is reconfigured.

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.

## 1.21 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 1).
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
```

ARIS Server can be started using the Oracle cluster.

## 1.22 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 1).
2. Enter:  
**register external service smtp host="YourMailServerAddressWithDomain"**  
**port=25**
3. Check that setting entering:  
**list external services**
4. If you have installed ARIS Server just restart the server entering:  
**stopall startall**

SMTP mail server configuration is set.

## 1.23 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 Server and have installed ARIS Risk & Compliance Manager later you can reconfigure your ARIS Risk & Compliance Manager runnable to your productive ARIS Server installation. This will make ARIS Risk & Compliance Manager available to all users of your productive system and only one ARIS document storage will be in use.

1. Start ARIS Cloud Controller (page 1) on your ARIS Risk & Compliance Manager installation.
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 Server installation, enter:

**reconfigure arcm\_<s,m or l>**

**zookeeper.connect.string="<ARISServer>\\:14281"**

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 Server name, e.g.

**http://arissserver/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 or remove (page 35) them.

## 1.24 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 35) or shutting them down.

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 1).
2. To deactivate the runnable enter:

**deactivate <runnable>**

e. g:

**deactivate simulation\_m**

The **simulation** runnable will not be started, until you have activated it again (page 35).

## 1.25 Activate runnable

You can activate runnables that have been deactivated (page 34). This is required before starting an update setup.

### Procedure

1. Start ARIS Cloud Controller (page 1).
2. To activate the runnable enter:

**activate <runnable>**

e. g:

**activate simulation\_m**

The **simulation** runnable can be started again.

## 1.26 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 34) in order to use the ARIS Administration of the ARIS Server, you might shut down all other runnables of your ARIS Risk & Compliance Manager installation or remove them from your installation.

If you do so 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 34) instead.

1. Start ARIS Cloud Controller (page 1) 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\_l**

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

**start arcm\_l**

Only the arcm runnable is running on this ARIS Risk & Compliance Manager server.

## 2 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.

Some restrictions may apply when working with process administration, ARIS Administration, ARIS document storage, and ARIS Process Board, and when generating executable processes. Process Governance has been tested and approved for 1000 parallel process instances. However, the number may vary depending on process complexity, e.g., if custom reports are integrated. ARIS document storage was tested with 40.000 documents. We recommend monitoring the number and overall size of stored documents and if needed some documents should be archived.