software^AG

ARIS
BASIC TROUBLESHOOTING GUIDE

VERSION 10.0 - SERVICE RELEASE 19

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Contents

1 General notices

- § You can install ARIS Server along with ARIS Risk and Compliance on one machine. The ARIS Risk and Compliance installation procedure is described in the **ARIS Risk and Compliance Installation Guide**. For advanced 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 38). 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 (https://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 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, contact your local Software AG sales organization. Please note that this type of manufacturer-specific or customer-specific customization is not covered by the standard Software AG software maintenance agreement and can be performed only on special request and agreement.

- § If you use external libraries, you must ensure that you have installed the latest security-relevant patches.

- § Please consider the legal notices (https://softwareag.com/licenses/default.html).

2 Basic troubleshooting

This document is intended to solve problems with ARIS Server installations that were carried out with the setup program.

If you face problems starting ARIS, read the following pages. Please also refer to the **ARIS Cloud Controller (ACC) Command-Line Tool** and the **ARIS System Monitoring Guide**. To avoid redundancies this document does not re-iterate information available in other technical documents. Documents can also be installed locally (see **ARIS Client Installation Guide**). You can open or download documents from the Documentation Website (https://documentation.softwareag.com/). Documents are also contained in the ARIS installation package (see **Documents > English** folder structure) that is available in the ARIS Download Center (https://aris.softwareag.com/).

2.1 ARIS Download Client cannot be started

PROBLEMS

Starting ARIS Download Client does not work.

Either there is no Java Runtime Environment (JRE) installed on the user's computer, or the file extension **.JAR** is NOT assigned to the JRE.

SOLUTIONS

1. If no JRE is installed on the user's computer, download and install it from http://java.com (https://java.com).

2. 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.

3. Right click the ARIS downloader **JAR** file.

4. Select **Open with**.

5. Assign it with a locally installed Java ™ Platform SE binary Oracle Corporation **JAR** file.

   If a file extension assignment for **.JAR** files is not feasible, the ARIS downloader can be started using the JRE on a command line.

2.2　HTTPS connection fails (SSL) - wrong keystore password (ARIS Publisher)

PROBLEM

If the keystore password is wrong, an error message will be logged for the runnable:

```
SEVERE: Failed to initialize end point associated with ProtocolHandler
["http-bio-23456"]
java.io.IOException: Keystore was tampered with, or password was incorrect
      at
sun.security.provider.JavaKeyStore.engineLoad(JavaKeyStore.java:772)
      at
sun.security.provider.JavaKeyStore$JKS.engineLoad(JavaKeyStore.java:55)
      at java.security.KeyStore.load(KeyStore.java:1445)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getStore(JSSESocketFact
ory.java:429)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getKeystore(JSSESocketF
actory.java:328)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getKeyManagers(JSSESock
etFactory.java:586)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getKeyManagers(JSSESock
etFactory.java:526)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.init(JSSESocketFactory.
java:471)
      at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.createSocket(JSSESocket
Factory.java:218)
      at org.apache.tomcat.util.net.JIoEndpoint.bind(JIoEndpoint.java:400)
      at
org.apache.tomcat.util.net.AbstractEndpoint.init(AbstractEndpoint.java:64
9)
      at
org.apache.coyote.AbstractProtocol.init(AbstractProtocol.java:434)
      at
org.apache.coyote.http11.AbstractHttp11JsseProtocol.init(AbstractHttp11Js
seProtocol.java:119)
      at
org.apache.catalina.connector.Connector.initInternal(Connector.java:978)
      at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
      at
org.apache.catalina.core.StandardService.initInternal(StandardService.jav
a:559)
      at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
      at
org.apache.catalina.core.StandardServer.initInternal(StandardServer.java:
821)
```

```
        at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
        at org.apache.catalina.startup.Catalina.load(Catalina.java:638)
        at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
        at
sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java
:62)
        at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorI
mpl.java:43)
        at java.lang.reflect.Method.invoke(Method.java:497)
        at org.apache.catalina.startup.Bootstrap.load(Bootstrap.java:280)
        at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:454)
Caused by: java.security.UnrecoverableKeyException: Password verification
failed
        at
sun.security.provider.JavaKeyStore.engineLoad(JavaKeyStore.java:770)
        ... 25 more
```

SOLUTION

Provide the proper keystore password using the **connector.https.keystorePass** configure parameter:

By default, Apache Tomcat™ uses **changeit** as both the keystore and the key password. If you follow the general recommendation, your keystore should have different passwords. If you only set the key password, Apache Tomcat™ will also use it as keystore password. Only if key and keystore passwords differ, you must set both parameters.

Follow this procedure to change the key and keystore passwords.

Procedure

1. Start ARIS Cloud Controller on your ARIS Publisher Server.

2. Enter: **stop businesspublisher_<s**, **m**, or **l>**

    The runnable will be stopped.

3. Enter: **reconfigure businesspublisher_<s**, **m**, or **l> connector.https.keyPass=<key password> connector.https.keystorePass=<keystore password>**

    for example **reconfigure businesspublisher_m connector.https.keyPass="g3h31m" connector.https.keystorePass="g3h31m3r"**

    In this example quotes are not strictly necessary. Quotes are necessary for strong passwords containing special characters.

4. Enter: **start businesspublisher_<s**, **m**, or **l>**

The key and keystore passwords are set.

2.3 HTTPS connection fails (SSL) - wrong key password

PROBLEM

If the key password is wrong, an error message will be logged for the runnable:

```
SEVERE: Failed to initialize end point associated with ProtocolHandler
["http-bio-23456"]
java.io.IOException: Cannot recover key
    at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.init(JSSESocketFactory.
java:496)
    at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.createSocket(JSSESocket
Factory.java:218)
    at org.apache.tomcat.util.net.JIoEndpoint.bind(JIoEndpoint.java:400)
    at
org.apache.tomcat.util.net.AbstractEndpoint.init(AbstractEndpoint.java:64
9)
    at
org.apache.coyote.AbstractProtocol.init(AbstractProtocol.java:434)
    at
org.apache.coyote.http11.AbstractHttp11JsseProtocol.init(AbstractHttp11Js
seProtocol.java:119)
    at
org.apache.catalina.connector.Connector.initInternal(Connector.java:978)
    at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
    at
org.apache.catalina.core.StandardService.initInternal(StandardService.jav
a:559)
    at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
    at
org.apache.catalina.core.StandardServer.initInternal(StandardServer.java:
821)
    at
org.apache.catalina.util.LifecycleBase.init(LifecycleBase.java:102)
    at org.apache.catalina.startup.Catalina.load(Catalina.java:638)
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
    at
sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java
:62)
    at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorI
mpl.java:43)
    at java.lang.reflect.Method.invoke(Method.java:497)
    at org.apache.catalina.startup.Bootstrap.load(Bootstrap.java:280)
    at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:454)
Caused by: java.security.UnrecoverableKeyException: Cannot recover key
    at sun.security.provider.KeyProtector.recover(KeyProtector.java:328)
    at
sun.security.provider.JavaKeyStore.engineGetKey(JavaKeyStore.java:138)
    at
sun.security.provider.JavaKeyStore$JKS.engineGetKey(JavaKeyStore.java:55)
```

```
    at java.security.KeyStore.getKey(KeyStore.java:1023)
    at
sun.security.ssl.SunX509KeyManagerImpl.<init>(SunX509KeyManagerImpl.java:
133)
    at
sun.security.ssl.KeyManagerFactoryImpl$SunX509.engineInit(KeyManagerFacto
ryImpl.java:70)
    at javax.net.ssl.KeyManagerFactory.init(KeyManagerFactory.java:256)
    at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getKeyManagers(JSSESock
etFactory.java:597)
    at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.getKeyManagers(JSSESock
etFactory.java:526)
    at
org.apache.tomcat.util.net.jsse.JSSESocketFactory.init(JSSESocketFactory.
java:471)
    ... 18 more
```

SOLUTION

Provide the proper keystore password using the **connector.https.keyPass** configure parameter:

By default, the **loadbalancer** runnable is set to allow both unencrypted HTTP (port 80) and encrypted HTTPS (port 443) access. In order to use TLS (former SSL), the certificate must fit to the load balancer's host name. Otherwise, client connections in particular web browser connections will fail due to an invalid certificate.

OBTAINING A VALID CERTIFICATE

If you want to use TLS, you need a valid certificate for the server on which the load balancer is running. This certificate must be signed by a certificate authority (CA). 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, use 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 must contain two parts:

§ The private key used to encrypt information sent back to the client (file extension **.key**).

§ The server certificate (file extension **.crt**).

1. Put the ***.key** file and the ***.crt** file into a ZIP archive.

2. Copy this ZIP file to a local directory that can be accessed by ARIS Cloud Controller (ACC).

3. Start ARIS Cloud Controller (ACC) (page 20).

4. Stop the **loadbalancer** runnable. Enter, for example: **stop loadbalancer_m**

5. Enter the ACC command **enhance loadbalancer_<s, m**, or **l> with sslCertificate local file "<path to the ZIP file>"**

   Example: **enhance loadbalancer_m with sslCertificate local file "c:\\temp\\lbcert.zip"**.

   If you have blanks or special characters in the path, you must put it in quotes and use a double backslash instead of a single slash. Alternatively, use single forward slashes, for example: **"c:/temp/lbcert.zip"**.

6. Start the **loadbalancer** runnable again. Enter, for example: **start loadbalancer_m**

The SSL certificate is available.

If ARIS clients cannot perform connections to servers using TLS certification, you need to provide an additional certificate (page 10) (see: **Basic Troubleshooting Guide**).

2.4 HTTPS connection fails (SSL) - wrong certificate in use (Alfabet)

PROBLEM

The ARIS Server cannot communicate with an external system such as Alfabet.

SOLUTION

Import the certificate used by Alfabet to the Java VM used by the ARIS Server:

Procedure

1. Open a Windows command prompt for **<ARIS installation path>server\jre\bin**.

2. Run the command:

   keytool.exe -importcert -file <pathToCertFile> -alias <certificateAlias> -keystore <ARIS installation path>server\jre\lib\security\cacerts -storepass <keystorePassword>

   The default password for the **cacerts** keystore is **changeit**.

3. To check if the import actually worked open a Windows command prompt for **<ARIS installation path>server\jre\lib\security** and enter:

   keytool -list -keystore cacerts -alias <certificateAlias>

4. Restart the **abs** runnable.

The ARIS Server uses the same certificate as the external system.

2.5 HTTPS connection fails (SSL) - wrong certificate in use (ARIS Publisher Server)

PROBLEM

If you access Publisher exports via HTTPS connections, Process Governance cannot be reached.

SOLUTION

Adapt the system manually:

Procedure

1. Open the **webappserver.cfg** navigate to the <governance> section.

2. Change the <port value="**80**"/> to <port value="**443**"/>.

3. Change the <protocol value="**http**"/> to <protocol value="**https**"/>

4. Import the certificates from the ARIS Server into the JRE certificate store of the ARIS Publisher Server:
   Open a Windows command prompt for **<ARIS installation path>server\jre\bin**.

5. Run the command:

   keytool.exe -importcert -file <pathToCertFile> -alias <certificateAlias> -keystore <ARIS installation path>server\jre\lib\security\cacerts -storepass <keystorePassword>

TLS/SSL is configured.

2.6 ARIS clients cannot connect to servers using TLS/SSL

PROBLEM

A certificate is available but ARIS clients cannot be started using TLS certification.

This may happen due to ARIS clients using Java trust store having trouble verifying the certificate chain.

SOLUTION

An additional certificate must be made available for the load balancer.

1. Download the zip file of the certificate from a certificate authority (CA), for example, GlobalSign.

2. Start ARIS Cloud Controller (ACC).

3. Stop the **loadbalancer** runnable.

4. Enhance the certificate using this command:

5. **enhance <runnable of the load balancer component> with sslCertificate local file "<path to the downloaded zip file>"**, for example:

    enhance loadbalancer_m with sslCertificate local file "c:\\temp\\lbcert.zip".

    Notice the double backslashes. Alternatively, use single forward slashes, for example, **"c:/temp/lbcert.zip"**.

6. Start the **loadbalancer** runnable again.

The TLS certificate is available.

2.7 ARIS clients using TLS/SSL throw Java exceptions

PROBLEM

The **loadbalancer** runnables are configured for the use of TLS/SSL and a certificate is available. Nevertheless, ARIS Client or ARIS Download Client throws the following Java exceptions:

```
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.authentica
teOnServer(UMCLogin.java:218)
at
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authentica
te(UMCLogin.java:113)
at
com.aris.modeling.client.container.serveraccess.AServerContext.getUserTok
en(AServerContext.java:842)
at
com.aris.modeling.client.container.serveraccess.AServerContext.connectBLM
anager(AServerContext.java:773)
cannot be started using SSL certification.
```

REASON

Even with valid certificates (that contain the correct ARIS Server and domain name) purchased from a reliable CA, it may occur that the corresponding root certificate is not available in the JRE currently being used. As a consequence, the JRE is unable to validate the certificate and thus considers it as unknown in the same way it does with certificates that were created internally.

SOLUTION

Add the certificate to the certificate store of the JRE in use. This depends on whether users use a locally installed ARIS Client or ARIS Download Client.

INSTALLED ARIS CLIENT

If an ARIS Client is installed locally, the certificate must be placed into the JRE of the installed ARIS Client. The installed ARIS Client uses its own JRE (see <ARIS installation path>client\jre\). You must distribute the certificate to every single machine from which ARIS Client will be started.

ARIS DOWNLOAD CLIENT

If ARIS Download Client is started using an **ARIS downloader JAR** file but not the Java applet, you can easily roll out an enhanced **cacerts** file as follows:

1. To roll out the certificate for ARIS Download Client, open your file browser and navigate to the JRE installation path, for example, c:\Program Files (x86)\java\jre**bin**. This directory contains the **keytool.exe** file.

2. To update the required **certs** file located in the <JRE installation path>\lib**security** directory, 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>**

   This placeholder represents a name you give to your certificate. Name it in a way that you can easily identify your certificate from the selection in the cacerts keystore.

   § **<keystorePassword>**

   This placeholder represents the password to the cacerts keystore. Do not use a different password as the default value **changeit**.

3. Copy the **cacerts** file, that was changed (<JRE installation path>\lib**security**), into this location:

   "<ARIS installation path>\server\bin\work\work_abs_<s|m|l>\base\webapps\abs\downloadClient\config

   If users start ARIS Download Client using an **ARIS downloader JAR** file, this **cacerts** file is downloaded and used.

Users must restart their ARIS Download Client. Sometimes users are required to restart their browsers. This forces Java to re-read the cacerts keystore.

If an error message is thrown like the following, the certificate is signed for the wrong ARIS Server name. In this case, you must provide the correct certificate.

```
Jul 01, 2018 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.authentica
teOnServer(UMCLogin.java:218)
```

```
at
com.aris.modeling.common.serverremoteapi.cscommon.umc.UMCLogin.authentica
te(UMCLogin.java:113)
at
com.aris.modeling.client.container.serveraccess.AServerContext.getUserTok
en(AServerContext.java:842)

…
```

2.8   Using TLS/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 TLS/SSL.

SOLUTION

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

Procedure

1. Start ARIS Architect

2. Log in to 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 TLS/SSL-mode.

6. Save the changes.

The problem should no longer occur.

2.9 Server started but no access to ARIS

PROBLEM

After you have started the server you still cannot access ARIS.

SOLUTION

Open the ARIS Cloud Controller (ACC) 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.

2.10 HTTPS connection fails (Linux)

PROBLEM

To make ARIS accessible under a privileged port on a Linux system, a user with root privileges has redirect the ports, for example, the HTTP port **80** or the HTTPS port **443**.

If you have forced the **loadbalancer** runnable to use HTTPS using an ACC command, such as:

reconfigure loadbalancer_m +HTTPD.EnforceHTTPS="true"

connections cannot be established. This is because users are forwarded to **https://<server name>:1443/** instead of **https://<server name>**.

SOLUTION

Open the ARIS Cloud Controller (ACC) and enter:

reconfigure loadbalancer_m HTTPD.redirect.https.port=":443". You must enter a colon followed by the port number.

Users are forwarded correctly.

2.11 Runnables do not start

PROBLEM

§ Runnables are still in **STARTING** state.

§ Runnables are in the **DEACTIVATED** state.

SOLUTION

Kill the runnable using the **kill** command. For example **kill abs_m**. Try starting it again with the **start** command, for example, **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.

If a runnable is **DEACTIVATED**, activate the runnable again.

2.12 Resolving port conflicts

PROBLEM

You have killed and restarted (page 15) 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, for example, 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 for messages indicating port conflicts.

2. Find out the ports used by an ARIS runnable using the ACC command **show instance <instanceId>**:

   Example:

   ```
   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
   -Xrunjdwp:transport=dt_socket,address=9704,server=y,suspend=n
           JAVA-Dcom.sun.management.jmxremote.port=9604
           JAVA-Dcom.sun.management.jmxremote.ssl=false
           CATALINA_PORT=10080
           JAVA-Dcom.sun.management.jmxremote.authenticate=false
           JAVA-XX\:MaxPermSize=256m
           JAVA-Dcom.sun.management.jmxremote=/enabled
           JAVA-Xmx=8g
           zookeeper.connect.retry.time.ms=30000
           zookeeper.bundle.type=abs
           zookeeper.session.timeout.ms=60000
           CATALINA_AJP_PORT=11080

   START command was issued at Jun 5, 2013 8:47:11 AM
   Average startup time: 192915msec
   Autostart: OFF
   Desired state: STARTED
   ACC+ localhost>
   ```

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

   netstat –ao |more

4. Look for lines containing the port number(s) of the 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 the program using its PID that is using that port.

After you have stopped the program causing the conflict or redirected ports (see **ARIS Cloud Controller (ACC) Command-Line Tool**), all ARIS runnables will start up properly.

2.13   Log files are not available

PROBLEM

After transferring projects/branches or performing SAP synchronization all actions are logged. The files can be opened after each action and will be saved automatically. If log files are not saved in project or solution configurations in ARIS Architect, make sure that, in ARIS document storage configuration, the **txt** file extension is configured as valid extension.

SOLUTION

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

Procedure

1.   Start ARIS.

2.   Click ⠿ **Application launcher** > 🔧 **Administration**. The ▦ **Configuration** view is shown.

3.   Click **Document storage**.

4.   Select **Quota and restrictions**.

5.   Click 🖊 **Edit**.

6.   Make sure that **txt** is listed in the **Valid file extensions** field, and that the **txt** file type extension is **not** restricted.

7.   Click 💾 **Save**.

Log files with **txt** extensions can be transferred.

2.14   Reduced performance when using Oracle databases

To ensure optimum performance when you are using ARIS with an Oracle database, we recommend that you recalculate the database statistics regularly (https://docs.oracle.com/cd/B28359_01/server.111/b28274/stats.htm#PFGRF003).

2.15 Reduced performance when using Postgres databases

To ensure optimum performance when you are using ARIS with the standard database system, we recommend that you regularly shrink the database. This prevents the used disk space constantly increases. To do so, execute the **vacuumdb.exe** file (<ARIS installation directory>\server\bin\agentLocalRepo\.unpacked\<build number>_PostgreSQL-run-prod-<ARIS version>-windows64-runnable.zip\postgresql\bin). For detailed information, read the instructions provided by the manufacturer (https://www.postgresql.org/docs/9.2/routine-vacuuming.htm).

2.16　　How to start ARIS Cloud Controller (ACC)

ACC is a command-line tool for administrating and configuring an ARIS installation. ACC communicates with ARIS Agents on all nodes. You can use it in multiple modes (see **ARIS Cloud Controller (ACC) Command-Line Tool**). You can open or download documents from the Documentation Website (https://documentation.softwareag.com/). Documents are also contained in the ARIS installation package (see **Documents > English** folder structure) that is available in the ARIS Download Center (https://aris.softwareag.com/).

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 (https://softwareag.com/training). If you use ACC commands without this knowledge or without 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 **#** 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 a command line parameter, you must be careful when escaping strings in your command, for example, double-quote-delimited parameters. The operating system command shell will consume the double quotes, leaving your string parameter un-escaped. So please escape the quote characters and special characters.

Examples

If you issue the command in command mode, for example:

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

You must enter:

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

If you enter:

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

ACC will return an error message, for example:

```
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.
```

This also affects passwords and names containing special characters. If you try to back up your tenants using the following command, make sure to escape the quote characters and the special character **&** used in the password **User&12345**.

If your username or password includes any special character, add a backslash (****) before the character for ACC to process the special character as a string. That is, if there is an ampersand (**&**), in your password, add a backslash before the ampersand.

```
./acc.bat -h localhost -u Clous -pwd g3h31m -p 18011 -c
../generated.apptypes.cfg backup tenant default username=\"admin\"
password=\"User\&12345\"
```

To get information about the usage of ACC commands, enter **help** or **help <command>**.

WINDOWS OPERATING SYSTEM

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 user name and/or the password.

LINUX OPERATING SYSTEM

To start ACC under a Linux operating system, execute the **acc10.sh** shell script instead. To do so, enter: **su -c acc10.sh aris10**. After the ARIS Server installation has completed on a Linux operating system, the **aris10** user is locked and has no password. Command-line tools (**sh** files), such as **ARIS Server Administrator** or **ARIS Cloud Controller** can only be started by the **aris10** user related to the ARIS Agent.

§   To unlock the **aris10** user, enter: **passwd -u aris10**

§   To interactively enter a password, enter: **passwd aris10**

§   To start the command-line tools, enter: **su -c acc10.sh aris10** or **su -c arisadm.sh aris10**

§   To execute these command-line tools as an ARIS user that has no **root** privileges, you must enter the password of the **aris10** user.

§   To copy files manually into the **ARIS** directory, as the **aris10** user use the commands: **su aris10** and **sudo aris10**

     As an ARIS user that has no **root** privileges, you must make sure that the files have the correct ownership (**aris10**).

§   To lock the **aris10** user again enter: **passwd -l aris10**

2.17 Command-line parameters are not passed correctly

PROBLEM

If you pass a command to a command-line tool, such as ARIS Cloud Controller, special characters used in names, passwords, or user names may cause issues.

The command is not executed and error messages are displayed, such as:

```
line 1:209 no viable alternative at character '&'
line 1:217 mismatched input '<EOF>' expecting EQ
```

SOLUTION

When passing commands directly as a command line parameter, you must be careful when escaping strings in your command, for example, double-quote-delimited parameters. The operating system command shell will consume the double quotes, leaving your string parameter un-escaped. So please escape the quote characters and special characters.

Examples

If you issue the command in command mode, for example:

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

You must enter:

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

If you enter:

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

ACC will return an error message, for example:

```
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.
```

This also affects passwords and names containing special characters. If you try to back up your tenants using the following command, make sure to escape the quote characters and the special character **&** used in the password **User&12345**.

If your username or password includes any special character, add a backslash (****) before the character for ACC to process the special character as a string. That is, if there is an ampersand (**&**), in your password, add a backslash before the ampersand.

```
./acc.bat -h localhost -u Clous -pwd g3h31m -p 18011 -c
../generated.apptypes.cfg backup tenant default username=\"admin\"
password=\"User\&12345\"
```

3 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 System Requirements**. You can open or download documents from the Documentation Website (https://documentation.softwareag.com/). Documents are also contained in the ARIS installation package (see **Documents > English** folder structure) that is available in the ARIS Download Center (https://aris.softwareag.com/).

Please consider the legal notices (https://softwareag.com/licenses/default.html).

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.

3.1 Update Setup

§ Use the **reconfigure** ACC command to change settings, such as ports.

§ Make sure that no file in the installation directory is locked. Therefore, close all Command Prompts pointing into the ARIS installation folder. If the prerequisites are not met and files are not writable, the setup fails because files cannot be updated. In this case, your installation cannot be automatically restored and ARIS may no longer run. To restore your installation, you must take further action.

§ Make sure to exit ACC before running the update setup.

§ If the ARIS help link does not work anymore (404 error) after the update of a custom configuration, the help URL is broken. You can easily fix it 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 broken URL the **/connect/** entry is missing, for example:

`/static/help/{locale}/handling/ca/index.htm#52910.htm`
Add **/connect/**. The URL must look like in this example:

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

3.2   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 (for example, self-created reports).

3.3   Right-to-left (RTL)

Languages written in right-to-left (RTL) or top-to-bottom scripts are not fully supported yet. Arabic or Hebrew can be used with ARIS, but not all features support RTL.

Localized RTL content and text used for user interface elements are displayed correctly. Furthermore, ARIS also supports mirroring of the user interface. Mirroring is automatically activated when an RTL language is selected. Models are not affected.

Mirroring is not yet available for the following products, functions and ARIS plugins:

- § ARIS Architect/ARIS Designer
- § ARIS Aware
- § ARIS Risk and Compliance
- § ARIS for SAP® Solutions
- § ARIS UML Designer
- § Administrative components as Tenant Management and Process Governance administration

3.4   Tenant names

For tenant names please only use up to 25 lowercase ASCII characters and numbers. The name must begin with a character. Special characters, such as _ and characters, for example, in Chinese, Cyrillic or Arabic cannot be used.

4 Glossary

Here you can find the definitions of the technical terms used in the technical ARIS manuals.

A

ADMINISTRATION (DOCUMENTATION STRUCTURE)

This area contains manuals that describe, how to adapt an installed system regarding the available system environment, for example, increasing the size of the main memory or how to change a port number.

ARIS AGENT

Required service on every machine (node) on which an ARIS server component (runnable) runs. It allows the remote installation, configuration, operation of ARIS runnables.

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.

ARIS MODELING ENVIRONMENT

The ARIS modeling environment is the area of an application where you can model your company-wide process architecture. ARIS modeling environments help you model processes quickly with automatic modeling functions and allows you to use data in other ARIS applications. For example, ARIS Architect, ARIS, or ARIS Advanced provide an ARIS modeling environment.

'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. The user can only be deleted individually. Enable the **Generate, if not available** option (⠿ **Application launcher** > 🔧 **Administration** > **Configuration** > **User management** > **Users** >) so that the user is automatically generated again at startup with the last saved password.

C

COLLABORATION DATABASE

The **postgresECP_<s,m or l>** runnable handles the internal database storing Collaboration content available in ARIS.

CUSTOMIZING (DOCUMENTATION STRUCTURE)

This area contains manuals that describe, how to adapt an installed system to meet company-specific needs that changes a standard system to an individual system. The result of these changes is that the standard update process no longer works. An update to the next minor version must be done manually, because executing setup programs would overwrite the individual adjustments: they would have been lost.

D

DISTRIBUTED INSTALLATION

Byword for multi node installation. Using installation programs and performing manual tasks to establish an executable system on several servers.

Multi node installation, that is, 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 (https://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.

DOWNLOAD CLIENT

Client that is started via browser link.

If ARIS Server is installed, all authorized users can start ARIS Download Client within their browsers. All necessary files are downloaded from the ARIS Server to a local directory. Users do not need a local ARIS Client installation.

Depending on the browser used, the ARIS Download Client is started or a program icon is saved on your computer that you can use to start the ARIS Client.

G

'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 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). The user can only be deleted individually. Enable the **Generate, if not available** option (⊞ **Application launcher** > ⚙ **Administration** > **Configuration** > **User management** > **Users** >) so that the user is automatically generated again at startup with the last saved password.

GUID

Globally **U**nique **Id**entifier (GUID).

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

I

INSTALLATION

Using installation programs and performing manual tasks to establish an executable system on one (single node) or several (multi node) servers.

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.

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

MIGRATION

Installing a new major version and including the previous content.

Example: Upgrade from version **9.8 Service Release 7** to version **10.0**.

MODELING DATABASE

The **postgres_<s,m or l>** runnable manages 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.

MULTI NODE INSTALLATION

Using installation programs and performing manual tasks to establish an executable system on several servers.

Distributed ARIS installation extending across 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 (https://softwareag.com/training).

N

NODE

Virtual or physical machine on which ARIS Agent is installed to host ARIS runnables.

O

OTP

One-**T**ime **P**ad (**OTP**).

This one-time pad is a symmetric encryption method for transferring secret messages. This encryption method is characterized by the fact that it uses a key of the same length as the message itself.

The OTP is information-theoretically secure and has proven to be impossible to crack – provided that it is used properly.

P

PROVISIONING

Setting up an installed system via ARIS Cloud Controller (ACC) commands.

R

RUNNABLE

ARIS server component providing functionality to the ARIS clients. Runnables are physically installed on a node.

Depending on the ARIS server type different runnables are used to provide full functionality. Runnables can be managed using ARIS Cloud Controller (ACC). The InstanceID of the ARIS Server program component is used as the name for the runnable.

S

SAML

Security **A**ssertion **M**arkup **L**anguage (**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 it enables web-based authentication scenarios including single sign-on across all ARIS runnables.

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.

SINGLE NODE INSTALLATION

An ARIS server installation delivered by an ARIS server setup.

<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.

SSL

Secure **S**ocket **L**ayer (**SSL**).

Security software to encrypt data that are exchanged between programs.

SINGLE SIGN-ON (SSO)

With **SSO** or **single sign-on** the user only needs to authenticate himself once with his user name and password to access all services, programs and computers without logging in again.

If services, programs, and computers request a new authentication when accessed by the user the authentication is carried out by the underlying SSO mechanism.

'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 enable this function privilege for other users. Users of the **superuser** type do not use up a license. They manage 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. The password of the superuser is very important, as it is the only user who cannot be deleted. You can change all user data except for the user name. The superuser can recreate the other default users (**system**, **arisservice**, **guest**) if they were deleted.

SYSTEM DATABASE

This database manages the content of the **configuration** and **evaluations** nodes displayed on ARIS Architect's **ARIS Administration** tab, for example, filters, templates and font formats as well as ARIS method content and scripts.

The database is created during the first ARIS Client login of a user. This content is available in all ARIS databases within this tenant. The system database can be backed up and restored.

SYSTEM LANGUAGE AND LOCALE IDS

The locale ID (LCID (https://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, for example, code page=1252. The language group is preceded by a minus sign (-), for example, -1252.

Examples are listed in the table below. 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

System language	LCID
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
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

System language	LCID
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
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

System language	LCID
Japanese - Japan	1041
Korean - Korea	1042
Latvian - Latvia	1062
Lithuanian - Lithuania	1063
Norwegian - Norway (Bokmal)	1044
Norwegian - Norway (Nynorsk)	2068
Polish - Poland	1045
Portuguese - Brazil	1046
Portuguese - Portugal	2070
Romanian - Romania	1048
Russian - Russia	1049
Serbian - Serbia (Cyrillic)	3098
Serbian - Serbia (Latin)	2074
Slovak - Slovakia	1051
Slovene - Slovenia	1060
Spanish - Argentina	11274
Spanish - Bolivia	16394
Spanish - Chile	13322
Spanish - Colombia	9226
Spanish - Costa Rica	5130
Spanish - Dominican Republic	7178
Spanish - Ecuador	12298
Spanish - El Salvador	17418
Spanish - Guatemala	4106
Spanish - Honduras	18442
Spanish - Mexico	2058
Spanish - Nicaragua	19466
Spanish - Panama	6154

System language	LCID
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

'SYSTEM' USER

The **system** user is created automatically. By default, the system user has all function privileges. 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. 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.

Having more than one system user can avoid problems, if, for example, your single system user has forgotten his password. You can create additional system users or copy the existing system user. If your only system user was deleted accidentally, create a new one by using the superuser. The user can only be deleted individually. Enable the **Generate, if not available** option (⠿ **Application launcher** > ⚙ **Administration** > **Configuration** > **User management** > **Users** >) so that the user is automatically generated again at startup with the last saved password.

T

TENANT

A tenant is a container providing its own ARIS Administration and ARIS data set, such as configuration, ARIS method, databases, scripts, etc.

Each tenant provides users with a particular set of functionalities and specific data depending on their licenses and privileges.

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 cannot access data from other tenants. A tenant is a kind of logical ARIS installation. Tenants do not share any data.

TLS

Transport **L**ayer **S**ecurity (**TLS**).

TLS is known under the name of **S**ecure **S**ockets **L**ayer (**SSL**). It is an encryption protocol to ensure a secure data transfer through the Internet.

U

UPDATE

Adjusting an installed system to the next minor version including the previous content.

Example: Update the version **10.3** to version **10.4**.

UPGRADE

Synonym for Migration:

Installing a new major version and including the previous content.

Example: Upgrade from version **9.8 Service Release 7** to version **10.0**.

5 Legal information

5.1 Documentation scope

The information provided describes the settings and features as they were at the time of publishing. Since documentation and software are subject to different production cycles, the description of settings and features may differ from actual settings and features. Information about discrepancies is provided in the Release Notes that accompany the product. Please read the Release Notes and take the information into account when installing, setting up, and using the product.

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

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

If you need help installing third-party systems, contact your local Software AG sales organization. Please note that this type of manufacturer-specific or customer-specific customization is not covered by the standard Software AG software maintenance agreement and can be performed only on special request and agreement.

5.2 Support

If you have any questions on specific installations that you cannot perform yourself, contact your local Software AG sales organization (https://www.softwareag.com/corporate/company/global/offices/default.html). To get detailed information and support, use our websites.

If you have a valid support contract, you can contact **Global Support ARIS** at: **+800 ARISHELP**. If this number is not supported by your telephone provider, please refer to our Global Support Contact Directory.

ARIS COMMUNITY

Find information, expert articles, issue resolution, videos, and communication with other ARIS users. If you do not yet have an account, register at ARIS Community.

PRODUCT DOCUMENTATION

You can find the product documentation on our documentation website.

In addition, you can also access the cloud product documentation. Navigate to the desired product and then, depending on your solution, go to **Developer Center**, **User Center** or **Documentation**.

PRODUCT TRAINING

You can find helpful product training material on our Learning Portal.

TECH COMMUNITY

You can collaborate with Software AG experts on our Tech Community website. From here you can, for example:

§ Browse through our vast knowledge base.

§ Ask questions and find answers in our discussion forums.

§ Get the latest Software AG news and announcements.

§ Explore our communities.

§ Go to our public GitHub and Docker repositories and discover additional Software AG resources.

PRODUCT SUPPORT

Support for Software AG products is provided to licensed customers via our Empower Portal (https://empower.softwareag.com/). Many services on this portal require that you have an account. If you do not yet have one, you can request it. Once you have an account, you can, for example:

§ Download products, updates and fixes.

§ Add product feature requests.

§ Search the Knowledge Center for technical information and tips.

§ Subscribe to early warnings and critical alerts.

§ Open and update support incidents.