



ARIS RISK & COMPLIANCE MANAGER **UPGRADE GUIDE**

VERSION 10.0 - SERVICE RELEASE 9

July 2019

Document content not changed since release 10.0.8. It applies to version 10.0.9 without changes.

This document applies to ARIS Risk & Compliance Manager 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.

Copyright © 2010 - 2019 Software AG, Darmstadt, Germany and/or Software AG USA Inc., Reston, VA, USA, and/or its subsidiaries and/or its affiliates and/or their licensors.

The name Software AG and all Software AG product names are either trademarks or registered trademarks of Software AG and/or Software AG USA Inc. and/or its subsidiaries and/or its affiliates and/or their licensors. Other company and product names mentioned herein may be trademarks of their respective owners.

Detailed information on trademarks and patents owned by Software AG and/or its subsidiaries is located at <http://softwareag.com/licenses>.

Use of this software is subject to adherence to Software AG's licensing conditions and terms. These terms are part of the product documentation, located at <http://softwareag.com/licenses> and/or in the root installation directory of the licensed product(s).

This software may include portions of third-party products. For third-party copyright notices, license terms, additional rights or restrictions, please refer to "License Texts, Copyright Notices and Disclaimers of Third Party Products". For certain specific third-party license restrictions, please refer to section E of the Legal Notices available under "License Terms and Conditions for Use of Software AG Products / Copyright and Trademark Notices of Software AG Products". These documents are part of the product documentation, located at <http://softwareag.com/licenses> and/or in the root installation directory of the licensed product(s).

Contents

1	Text conventions.....	1
2	Introduction	2
3	Upgrade to a new version of ARIS Risk & Compliance Manager	3
3.1	Data backup	4
3.2	Run the update setup.....	4
3.3	Data migration (version 10.0 or newer)	5
3.3.1	Prepare database for data migration	6
3.3.2	Back up tenant of the old ARIS Risk & Compliance Manager version	7
3.3.3	Install new version of ARIS Risk & Compliance Manager	7
3.3.4	Restore tenant data in new version.....	8
3.4	Data migration (version 9.x or older).....	8
3.4.1	Migrate data from ARIS document storage (version 9.x or older)	9
3.4.2	ARIS Risk & Compliance Manager database migration (version 9.x or older).....	12
3.5	Migration of event enabling in ARIS Risk & Compliance Manager.....	13
3.6	Prepare system shutdown	13
4	Glossary	14
5	Legal information	15
5.1	Documentation scope	15
5.2	Data protection	16
5.3	Disclaimer	16
6	Index	i

1 Text conventions

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

- Menu items, keyboard shortcuts, dialogs, file names, entries, etc. are shown in **bold**.
- Content input that you specify is shown in **<bold and within angle brackets>**.
- Single-line example texts are separated at the end of a line by the character ↵, e.g., a long directory path that comprises multiple lines.
- File extracts are shown in the following font:
This paragraph contains a file extract.
- Warnings have a colored background:

Warning

This paragraph contains a warning.

2 Introduction

ARIS Risk & Compliance Manager is a Web application. ARIS Risk & Compliance Manager uses Java Servlets and Java Server Pages (JSP) which, in addition to a Java environment (JDK), require a Web, that is, Servlet container (Apache Tomcat) as runtime environment. The data is stored in a relational database system and is exchanged with the application via a JDBC interface. You can use ARIS Risk & Compliance Manager with the **PostgreSQL** database for testing purposes or small environments (up to fifty concurrent users). You need the **Oracle** database system or **Microsoft® SQL Server** for full productive operation.

If an updated version of this document is available, you will find it here (<http://aris.softwareag.com/ARISDownloadCenter/ADCDocumentationServer>).

3 Upgrade to a new version of ARIS Risk & Compliance Manager

From ARIS Risk & Compliance Manager version 9.5, new versions can be updated with the update setup. To update an ARIS Risk & Compliance Manager installation, the following steps must be performed manually. Before running the setup, the ARIS Risk & Compliance Manager and ARIS document storage databases should be backed up.

This description is valid for updates from version 9.x to 9.x and from version 10.0 to 10.x. But you cannot update version 9.x to version 10.0. In this case a new installation of version 10.0 is necessary.

The data migration of ARIS Risk & Compliance Manager can be done as described below. For the data migration of runnables like User Management or ARIS document storage, see the **ARIS Data Migration Guide**.

Warning

The migration cannot be undone.

- Data backup (Page 4)
- Run the update setup (Page 4)
- Data migration (Page 8)
 - Migrate data from ARIS document storage (Page 9)*
 - ARIS Risk & Compliance Manager database migration (Page 12)
- **Import of modeled users into User Management (ARIS Risk & Compliance Manager Administration Guide)**
- **Connection to a directory service (LDAP)* (ARIS Risk & Compliance Manager Administration Guide)**
- **Configuration of event enabling in ARIS Risk & Compliance Manager (ARIS Risk & Compliance Manager Administration Guide)**

The steps marked with * are optional depending on the previously used version and the range of functions used.

3.1 Data backup

Perform the recommended steps to back up the data. If you are using ARIS document storage for the first time, there is no need to back up the ARIS document storage data.

Procedure

1. Stop the existing installation.
2. Back up the data in your productive database. If you use Oracle, use **dataPump**.
3. Back up the ARIS document storage CouchDBs.
 - a. To back up the ARIS Risk & Compliance Manager CouchDB, copy the directory **<ARCM 4.x installation directory>\couchdb\var\lib\couchdb** to **<backup directory ARCM 4.x CouchDB>**.
 - b. To back up the Process Governance CouchDB, copy the directory **<APG installation directory>\ads\adsdata\couchdb** to **<backup directory APG CouchDB>**.

The data backup is complete.

3.2 Run the update setup

To install the new version, you no longer have to first uninstall the existing version. All of the settings configured in the setup during the initial installation are automatically transferred. The download folder containing all the created PDF and Excel reports as well as environment and database backups is backed up.

The following parameters can be set in the setup and are automatically transferred during the update setup:

- Modeling approach (risk-based or control-based)
- Mail server configuration (ARIS Risk & Compliance Manager and User Management)
- Event processing (event server, port and EventTypeStore)
- Database configuration

All other changes that you made in the ARIS Cloud Controller console since the setup are transferred as well.

Warning

The update setup also updates ARIS Risk & Compliance Manager installations with customizing. If the customizing contains unsupported changes or additional files, the warning **Update/patch setup not supported** and a list containing the affected files are output in the log file. To ensure that all customized files are available, the customizing must be enhanced again. For detailed information, refer to **ARCM – Installation Guide > Installation of a customer-specific version (Customizing)**.

3.3 Data migration (version 10.0 or newer)

From version 10.0 of ARIS Risk & Compliance Manager, there is a new procedure for the data migration. Use the **back up tenant** and **restore tenant** ARIS Cloud Controller (ACC) commands to migrate all data of the runnables.

Use the **system** user to start the tenant backup. First, check whether the **system** user has the relevant functional privileges in your ARIS 10.0 tenants. By default, the system user has all required privileges. Check if these function privileges are assigned to the system user and assign missing privileges, if necessary:

- Analysis administrator
- ARCM administrator
- Collaboration administrator
- Document administrator
- Database administrator
- License administrator
- Process Governance administrator
- Server administrator
- Technical configuration administrator

3.3.1 Prepare database for data migration

If you use an Oracle or Microsoft SQL database system, provide a second database for the actual migration in parallel to the productive database schema. After data migration, the productive database schema is overwritten with the migrated data. The migration database schema is not deleted automatically after a successful migration. Remove the migration database schema manually. Then restore the tenant data in the new version. If you use a PostgreSQL database, the migration schema is automatically created, and after a successful migration removed again.

ORACLE DATABASE SYSTEM

Procedure

1. Create an Oracle migration schema. For detailed information, refer to **ARCM - Installation Guide > Installation of an Oracle database schema**.
2. Open ARIS Cloud Controller (ACC) console (**Start > ARIS Cloud Controller**).
3. Stop the ARIS Risk & Compliance Manager component with **stop arcm_m**.
4. Execute the following command to configure the migration schema:
reconfigure arcm_m arcm.config.migrationSystem="oracle"
reconfigure arcm_m arcm.config.migrationDriver="oracle.jdbc.OracleDriver"
reconfigure arcm_m
arcm.config.migrationUrl="jdbc:oracle:thin:@<OracleServer>:1521:<SID>"
reconfigure arcm_m arcm.config.migrationUser="<migrationSchemaUser>"
reconfigure arcm_m arcm.config.migrationPwd="<migrationSchemaPassword>"
5. Start the ARIS Risk & Compliance Manager component with **start arcm_m** again.

The database schema is created.

MS SQL SERVER DATABASE SYSTEM

Procedure

1. Create a MS SQL Server migration schema. For detailed information, refer to **ARCM - Installation Guide > Installation of a Microsoft® SQL Server database schema**.
2. Open ARIS Cloud Controller (ACC) console (**Start > ARIS Cloud Controller**).
3. Stop the ARIS Risk & Compliance Manager component with **stop arcm_m**.
4. Execute the following command to configure the migration schema:
reconfigure arcm_m arcm.config.migrationSystem=" MSSQL"
reconfigure arcm_m arcm.config.migrationDriver="
com.microsoft.sqlserver.jdbc.SQLServerDriver"
reconfigure arcm_m arcm.config.migrationUrl="
jdbc:sqlserver://<SQLServer>:1433;Database=<databaseName>"
reconfigure arcm_m arcm.config.migrationUser="<migrationSchemaUser>"
reconfigure arcm_m arcm.config.migrationPwd="<migrationSchemaPassword>"
5. Start the ARIS Risk & Compliance Manager component with **start arcm_m** again.

The database schema is created.

3.3.2 Back up tenant of the old ARIS Risk & Compliance Manager version

Back up the tenant data of the installed ARIS Risk & Compliance Manager before you migrate the data to the new ARIS Risk & Compliance Manager version.

Procedure

1. Open ARIS Cloud Controller.
 - a. To open ARIS Cloud Controller in a Windows operating system, click **Start > ARIS Cloud Controller**. If you changed the agent user credentials, enter the password.
 - b. To open ARIS Cloud Controller in a Linux operating system, run the **acc.sh** shell script instead. If **aris-acc-`<number>` deb** or **rpm** file (depending on the Linux operating system) is installed, ARIS Cloud Controller is available.
2. Make sure that all runnables are running. If any of them is not running, enter the command **startall** and wait until all runnables are in the status **STARTED**.
3. Back up the data with the command **backup tenant `<tenantName>` to `<pathToStoreTheBackup` username=system password=manager**. Example **backup tenant default to "C:/tenantBackup" username=system password=manager**.

The backup of the tenant data is performed.

3.3.3 Install new version of ARIS Risk & Compliance Manager

Install the new version of ARIS Risk & Compliance Manager. For detailed information, see the chapter **Installation of ARIS Risk & Compliance Manager** of the **ARIS Risk & Compliance Manager - Installation Guide**. You are recommended installing and configure ARIS Risk & Compliance Manager on a second machine.

3.3.4 Restore tenant data in new version

After the installation of the new version, restore the tenant data in the new version.

Procedure

1. Open ARIS Cloud Controller (ACC) console (**Start > ARIS Cloud Controller**).
2. Make sure all runnables are running. If any of them is not running, enter the command **startall** and wait until all runnables are in the **STARTED** status.
3. Create all additional tenants before you restore them.
4. If you use an external database management system, create schemes and assign them to these tenants. For detailed information, see the ARIS Server Installation Guide.
5. Restore the data using the command **restore tenant <tenantName> from <pathToStoredTenantBackup username=system password=manager**.

Example **restore tenant default from**

"C:/tenantBackup/Backup_Tenant_default.acb" username=system password=manager.

The tenant data is restored in the new version.

3.4 Data migration (version 9.x or older)

You must migrate your existing data in order to use it in a newer version of ARIS Risk & Compliance Manager. This also applies when upgrading within a main release, for example, from version 9.7 to 9.8.

The data migration consists of two parts:

- Migration of ARIS document storage (relevant only when updating from version 4).
- Migration of the ARIS Risk & Compliance Manager database. Databases from versions older than 3.1 SR4 are no longer supported. If you want to migrate an older version, contact the Software AG support team.

To perform the migration, commands in the Windows prompt (CMD) and commands in ARIS Cloud Controller (ACC) must be run. The running environment (CMD or ACC) appears before the respective command to be run. ARIS Cloud Controller (ACC) is available in the Windows Start menu once the installation procedure is complete (**Start > ARIS > Administration > ARIS Cloud Controller**). The Windows prompt is part of the operating system (**Start > Accessories > Command Prompt**).

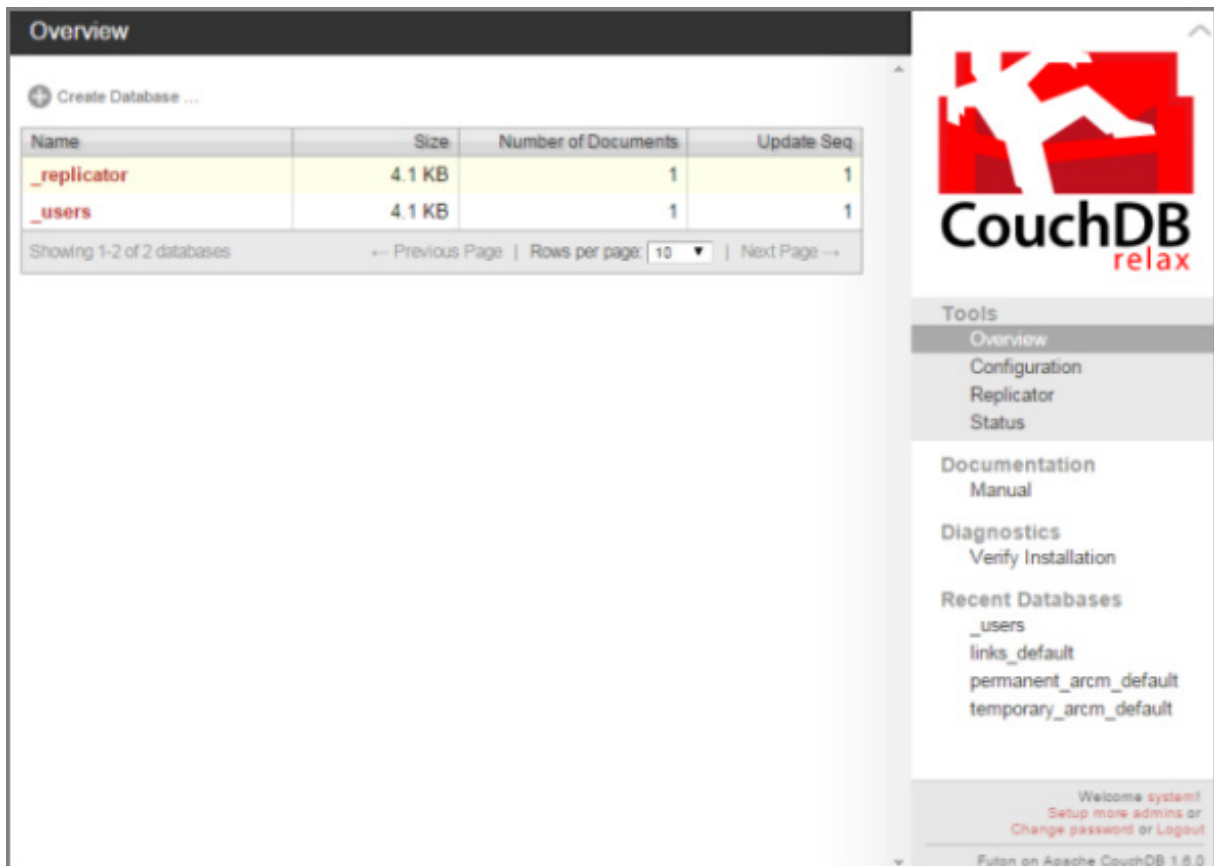
3.4.1 Migrate data from ARIS document storage (version 9.x or older)

Migrate the data from ARIS document storage in order to use it in a newer ARIS Risk & Compliance Manager version. If you are using ARIS document storage for the first time or are updating it based on a 9.x version, you do not need to perform the migration. If you are switching from version 4.x to the latest version, you must migrate the data from ARIS document storage. In the 4.x versions, there were separate installations of ARIS document storage for ARIS Server with a connection to Process Governance and ARIS Risk & Compliance Manager. As of version 9, there is only one common ARIS document storage.

The next section describes the steps for merging and migrating the two document repositories.

Procedure

1. Stop the ARIS Risk & Compliance Manager ACC runnable: **stop <arcm-runnable>**. All other runnables must be running.
2. Check the CouchDB content (**http://<your host>:19975/_utils/** - basic authentication, login data of a user who has the **Document administrator** function privilege).
3. The CouchDB content now appears as follows:



The screenshot shows the CouchDB Relax Overview page. The main content area displays a table with the following data:

Name	Size	Number of Documents	Update Seq
_replicator	4.1 KB	1	1
_users	4.1 KB	1	1

Below the table, it indicates "Showing 1-2 of 2 databases" and provides navigation options: "Previous Page", "Rows per page: 10", and "Next Page".

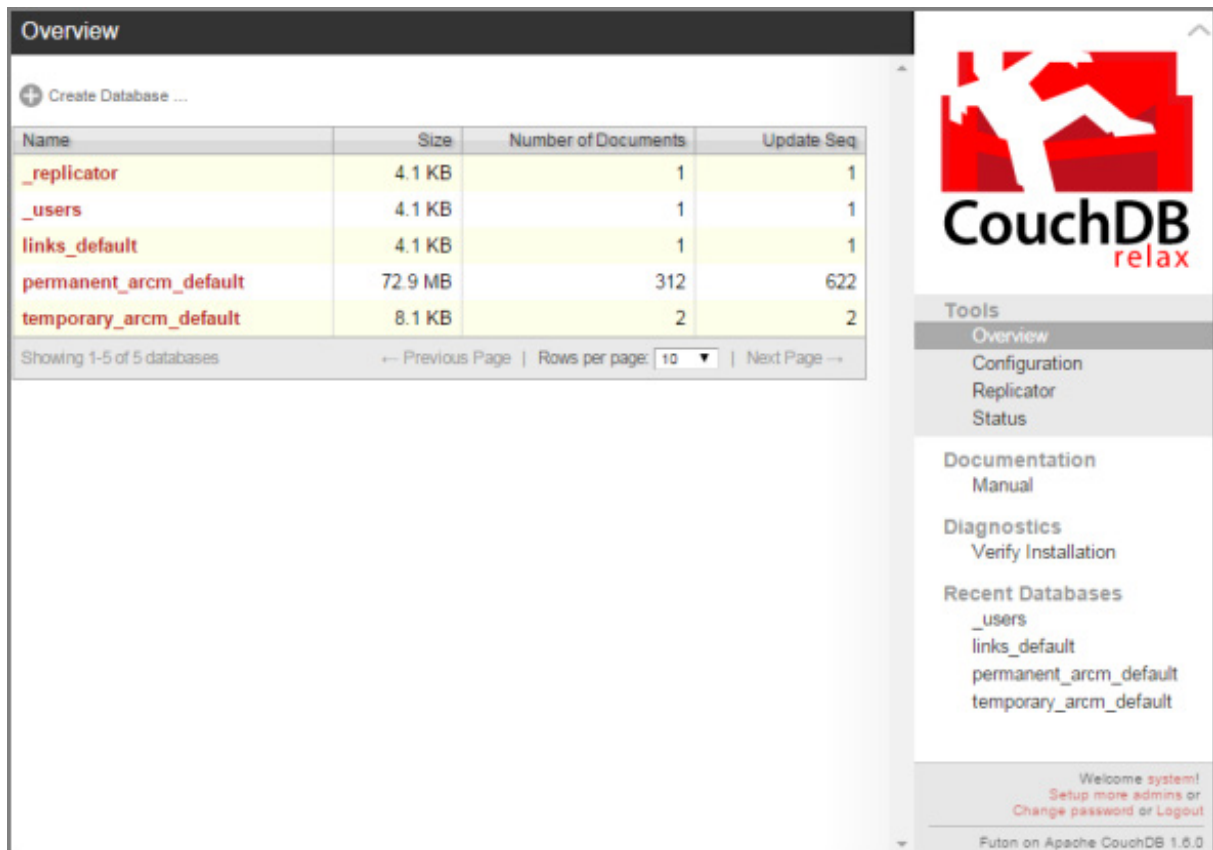
The right sidebar contains the following sections:

- Tools**
 - Overview
 - Configuration
 - Replicator
 - Status
- Documentation**
 - Manual
- Diagnostics**
 - Verify Installation
- Recent Databases**
 - _users
 - links_default
 - permanent_arcm_default
 - temporary_arcm_default

At the bottom of the sidebar, there is a welcome message: "Welcome system! Setup more admins or Change password or Logout". The footer of the page reads "Futon on Apache CouchDB 1.5.0".

4. Start the Windows prompt (CMD) and switch to the directory **<ARCM installation directory>\server\bin\work\work_adsadmin_m\tools\bin**.
 - a. Start the ARIS Risk & Compliance Manager CouchDB migration:
 CMD: **y-admintool.bat migrate -r arcm -s "<backup directory ARCM 4.x CouchDB>" -t "<ARCM installation directory>\server\bin\work\work_couchdb_m\data**
 - b. Start the Process Governance CouchDB migration:
 CMD: **y-admintool.bat migrate -s "<backup directory Governance CouchDB>" -t "<ARCM installation directory>\server\bin\work\work_couchdb_m\data"**

In the CouchDB overview, new databases should now be displayed with documents:



The screenshot shows the CouchDB Overview page. The main content is a table with the following data:

Name	Size	Number of Documents	Update Seq
_replicator	4.1 KB	1	1
_users	4.1 KB	1	1
links_default	4.1 KB	1	1
permanent_arcm_default	72.9 MB	312	622
temporary_arcm_default	8.1 KB	2	2

Below the table, it says "Showing 1-5 of 5 databases" and "Rows per page: 10".

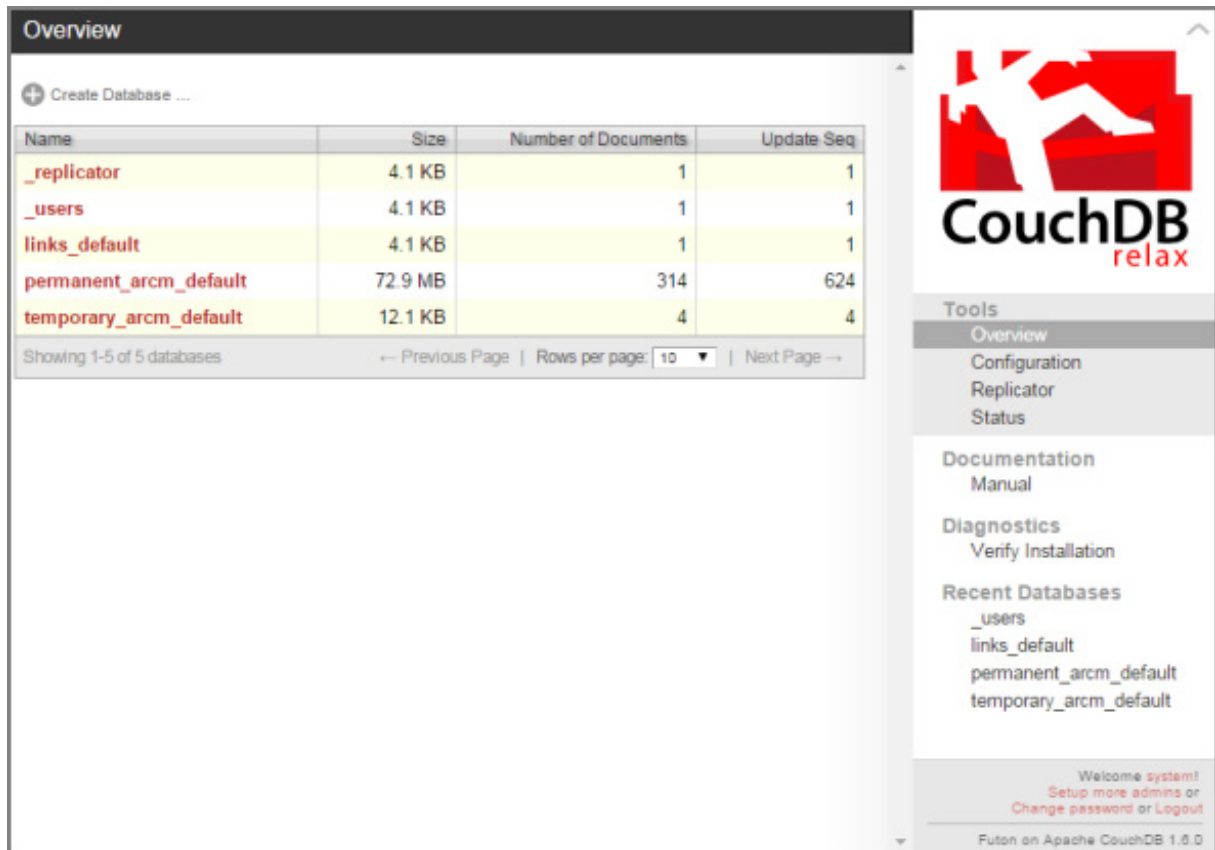
The sidebar on the right contains the following sections:

- Tools**
 - Overview
 - Configuration
 - Replicator
 - Status
- Documentation**
 - Manual
- Diagnostics**
 - Verify Installation
- Recent Databases**
 - _users
 - links_default
 - permanent_arcm_default
 - temporary_arcm_default

At the bottom of the sidebar, there is a welcome message: "Welcome system! Setup more admins or Change password or Logout". The footer of the page says "Futon on Apache CouchDB 1.6.0".

5. Start the CouchDB reindexing process:
 CMD: **y-admintool.bat -t default reindex -u <USER> -p <PASSWORD>**
 Replace **<USER>** and **<PASSWORD>** with the login data of a user who has the **Document administrator** function privilege.

6. After reindexing, the number of documents has increased:



The screenshot shows the CouchDB Relax Overview page. The main content is a table listing databases with their names, sizes, number of documents, and update sequences. The table is as follows:

Name	Size	Number of Documents	Update Seq
_replicator	4.1 KB	1	1
_users	4.1 KB	1	1
links_default	4.1 KB	1	1
permanent_arcm_default	72.9 MB	314	624
temporary_arcm_default	12.1 KB	4	4

Below the table, it says "Showing 1-5 of 5 databases" and "Rows per page: 10".

The right sidebar contains the CouchDB Relax logo and a "Tools" menu with the following items:

- Overview
- Configuration
- Replicator
- Status
- Documentation
 - Manual
- Diagnostics
 - Verify Installation
- Recent Databases
 - [_users](#)
 - [links_default](#)
 - [permanent_arcm_default](#)
 - [temporary_arcm_default](#)

At the bottom of the sidebar, there is a "Welcome system!" message with links for "Setup more admins or Change password or Logout". The footer of the sidebar says "Futon on Apache CouchDB 1.0.0".

The migration of data from ARIS document storage is complete.

3.4.2 ARIS Risk & Compliance Manager database migration (version 9.x or older)

Migrate the existing database to use it in a newer version of ARIS Risk & Compliance Manager.

Prerequisite

The **system** user has the **Document administrator** function privilege. The migration of the document link cannot be performed without this function privilege. If required, assign this function privilege before carrying out the migration and remove it again later.

Procedure

1. Open ARIS Cloud Controller (ACC) console (**Start > ARIS Cloud Controller**).
2. Stop the ARIS Risk & Compliance Manager component with **stop arcm_m**. All other runnables must be running.
3. Enter the command **reconfigure <arcm-runnable> dbms.autoStartMigration=true** to activate the data migration.
4. Use the **start <arcm-runnable>** command to start the data migration. Starting the runnable can take some time, depending on the data volume. The CouchDB content now appears as follows:

Name	Size	Number of Documents	Update Seq
_replicator	4.1 KB	1	1
_users	4.1 KB	1	1
config_default	4.1 KB	1	1
links_default	0.6 MB	312	312
permanent_arcm_default	72.9 MB	314	624
temporary_arcm_default	12.1 KB	4	4

Showing 1-6 of 6 databases -- Previous Page | Rows per page: 10 | Next Page --

CouchDB relax

Tools

- Overview
- Configuration
- Replicator
- Status
- Documentation
 - Manual
- Diagnostics
 - Verify Installation
- Recent Databases
 - _users
 - links_default
 - permanent_arcm_default
 - temporary_arcm_default

Welcome system!
 Setup more admins or
 Change password or Logout

Futon on Apache CouchDB 1.8.0

5. Enter the command **stop <arcm-runnable>** to deactivate the automatic migration.
6. Then enter **reconfigure <arcm-runnable> dbms.autoStartMigration=false**.
7. Use the **start <arcm-runnable>** command to start ARIS Risk & Compliance Manager for productive operation.

The data migration is completed.

3.5 Migration of event enabling in ARIS Risk & Compliance Manager

If event enabling is activated in ARIS Risk & Compliance Manager, verify that the Universal Messaging server instance of the addressed Software AG installation is also updated to the related version. See the latest version of the webMethods Product Suite documentation **Upgrading Software AG Products**, especially the chapters **Prepare to Migrate Product Assets** and **Migrate Software AG Event Routing**.

The **Upgrading Software AG Products** guide is available at

techcommunity.softwareag.com

(<https://techcommunity.softwareag.com/pwiki/-/wiki/Main/Upgrade>) and

empower.softwareag.com

(<https://empower.softwareag.com/Products/Documentation/techcommunitydoc.asp>).

If ARIS Risk & Compliance Manager is not installed on the same host as the Software AG installation, follow the steps described in **The configuration of event enabling in ARIS Risk & Compliance Manager** in the **ARIS Risk & Compliance Manager Administration Guide**.

3.6 Prepare system shutdown

Before you stop ARIS Risk & Compliance Manager for updates or maintenance, we recommend preparing the system for shutdown.

Procedure

1. Open ARIS Cloud Controller (ACC) console (**Start > ARIS Cloud Controller**).
2. Enter the command **drain arcm_m** to make ARIS Risk & Compliance Manager inaccessible for all users. Furthermore, running server tasks are still completed, but tasks in the queue are no longer started.
3. Use the **list** command to check the **Extended state** of the ARIS Risk & Compliance Manager runnable. As soon as all running server tasks are completed, ARIS Risk & Compliance Manager is in **drained** state.
4. Stop the ARIS Risk & Compliance Manager component with **stop arcm_m**.

The system is shut down.

Now, perform the tasks because of which you shut down the system. Then start the ARIS Risk & Compliance Manager component with the command **start arcm_m** again.

4 Glossary

GLOBAL UNIQUE IDENTIFIER (GUID)

Unique, cross-database identifier for ARIS elements.

JAVA DATABASE CONNECTIVITY (JDBC)

Interface facilitating communication between a Java application and a database.

MULTI-PURPOSE INTERNET MAIL EXTENSION MAPPING (MIME MAPPING)

Links a file name extension with the data file type, for example, text, audio, image.

ORACLE SERVICE ID (SID)

Unique identifier required by Oracle to identify the database instance.

SIMPLE MAIL TRANSFER PROTOCOL (SMTP)

Transfer protocol specifically designed for exchanging mails. It specifies, for example, how two mail systems interact and what control messages are used for this purpose.

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 Software AG's consulting services, you require extensive knowledge of the system to be installed, its intended purpose, the target systems, and their various dependencies. Due to the number of platforms and interdependent hardware and software configurations, we can only describe specific installations. It is not possible to document all settings and dependencies.

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

If you need help installing third-party systems, 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 a description refers to a specific ARIS product, the product is named. If this is not the case, names for ARIS products are used as follows:

Name	Includes
ARIS products	Refers to all products to which the license regulations of Software AG standard software apply.
ARIS Clients	Refers to all programs that access shared databases via ARIS Server, such as ARIS Architect or ARIS Designer.
ARIS Download clients	Refers to ARIS clients that can be accessed using a browser.

5.2 Data protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR).

Where applicable, appropriate steps are documented in the respective administration documentation.

5.3 Disclaimer

ARIS products are intended and developed for use by people. Automatic processes such as generation of content and import of objects/artefacts using interfaces can lead to a huge data volume, processing of which may exceed the available processing capacity and physical limits. Physical limits can be exceeded if the available memory is not sufficient for execution of the operations or storage of the data.

Effective operation of ARIS Risk & Compliance Manager requires a reliable and fast network connection. A network with an insufficient response time reduces system performance and can lead to timeouts.

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

The system has been tested in the **Internal control system** scenario with 400 users logged in simultaneously. It contains 2,000,000 objects. To guarantee adequate performance, we recommend operating with not more than 500 users logged in simultaneously. Customer-specific adaptations, particularly in lists and filters, have a negative impact on performance.

6 Index

A

ARIS document storage • 9

D

Database migration • 12

G

GLOBAL UNIQUE IDENTIFIER (GUID) • 14

I

Install the new version • 3

 Back up data • 4

 Run update setup • 4

Introduction • 2

J

JAVA DATABASE CONNECTIVITY (JDBC) • 14

M

Migrate data (from version 10.0) • 5

 Back up tenant of old version • 7

 Install new version of ARIS Risk &
 Compliance Manager • 7

 Restore tenant data in new version • 8

Migrate data (up to version 9.x) • 8

 Migrate ARIS Risk & Compliance Manager
 database (up to version 9.x) • 12

 Migrate data from ARIS document storage
 (up to version 9.x) • 9

Migration of event enabling • 13

MULTI-PURPOSE INTERNET MAIL
EXTENSION MAPPING • 14

O

ORACLE SERVICE ID • 14

P

Prepare system shutdown • 13

S

SIMPLE MAIL TRANSFER PROTOCOL (SMTP)
• 14