Technical Document

System Administrator's Manual

SimCorp Solutions
Based on version 19.04
April 2019

SimCorp

PUBLISHED BY

SimCorp A/S
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Denmark

Published	April 2019
Writer:	Writer
Based on:	19.04

If you have any comments to the contents of this document or suggestions for topics to be included in a future updating of this document, please do not hesitate to send them by mail to: SCDimension.doc@SimCorp.com.

Contents

1 About this Manual

This manual describes system environments, requirements, system configurations, system operation tasks, reference information and known issues of interest to system administrators. Some topics with more detailed explanation in its own documents will be briefly described in this manual with reference to this specific documentation.

Functionality and 3rd party software described in this manual will only be visible in installations where it is purchased/installed.

Examples and set-up suggestions in this manual is in nature - examples. It is necessary to take Individual environment, configurations, business needs etcetera into consideration

Your SimCorp representative can assist you making choices for your specific SimCorp Dimension installation.

1.1 Changes since last Version

The highlight of changes since last version are:

- Requirements sections etc. are updated to match SimCorp Dimension version 19.04.
- Textual changes has been made to improve readability.
- Requirements for the module GAIN from AIM Software GmbH are removed from this manual. Please refer to documentation provided by AIM Software GmbH.

1.2 Referenced and Suggested Documentation

Beside this manual a number of other manuals and documents describe subjects related to the SimCorp Dimension set-up and environment.

The following manuals describe topics that might be relevant to system administrators.

Manual/Document name	Description	Can be obtained
Archiving	Describes how to setup the Archiving workflow from inside SimCorp Dimension.	SimCorp Dimension Documentation
Audit Trail and Four Eyes Principle	Describes how to setup, maintain and clean up Audit Trail and Four Eyes Principle from within SimCorp Dimension	SimCorp Dimension Documentation
Auxiliary Jobs	Describes the Auxiliary jobs concept	SimCorp Dimension Documentation

Manual/Document name	Description	Can be obtained
Batch Jobs	Describes the batch job and batch job group concept.	SimCorp Dimension Documentation
Changes to Tables and Views for SCD 19.04	Describes the changes in tables, report views, domains, record based authorisation, transaction codes and system runtime measurements between first release date of previous SimCorp Dimension version and first release date of SimCorp Dimension 19.04.	SimCorp Dimension Documentation
Check Before Upgrade and Conversion Issues	For each new version of SimCorp Dimension, a document is provided with description of the check before upgrade and conversions topics executed when SimCorp Dimension is upgraded.	SimCorp Dimension Documentation
Communication Server	Explains the Communication Server architecture. Including setup configuration and the mediator.	SimCorp Dimension Documentation
Copying SimCorp Dimension	Explains what to do when you wants to make a copy of SimCorp Dimension	SimCorp Dimension Documentation
Data Cleanup	A number of cleanup jobs are defined in SimCorp Dimension. The description includes if business knowledge is relevant for the job.	SimCorp Dimension Documentation
Data Warehouse Manager	The Data Warehouse concept is described as well as how to setup and configure the Data Warehouse. This includes Oracle Grants etc.	SimCorp Dimension Documentation
Data Extractor	A reporting tool extracting data from SimCorp Dimension. Describes concept, setup, authorisation cleanup etc.	SimCorp Dimension Documentation
Encrypting Oracle Data for SimCorp Dimension	This document explains how Oracle Oracle Net Services encryption and/or Transparent Data Encryption can be used with SimCorp Dimension.	On request from SimCorp
Enabling Dashboards for the Web	Describes the procedures for enabling SimCorp Dimension Dashboards for web	SimCorp Dimension Documentation

Manual/Document name	Description	Can be obtained
Front Office Implementation Guide	Describes the implementation part of Front Office. Front Office is the most intensive module to use services in SimCorp Dimension.	SimCorp Dimension Documentation
How to ship SimCorp Dimension to SimCorp.	Describes how to ship a copy of a SimCorp Dimension installation to SimCorp. It might be relevant for debugging purpose, test etc.	On request from SimCorp
Installing and Upgrading Help	Describes the SimCorp Dimension help including installation options and how to download and install updates.	SimCorp Dimension Documentation and at Client Support
Joining SimCorp Evolution	Describes the SimCorp Dimension cloud platform you can connect to using the SimCorp Connect framework.	SimCorp Dimension Documentation
Memory Usage when using SimCorp Dimension	Describes Memory Usage when using SimCorp Dimension. It is a white paper about memory needs with proposals in how to act.	SimCorp Dimension Documentation
Operational Data Assistant (ODA)	Describes the communication channel, which transfers status and error messages from SimCorp Dimension to SimCorp support system.	SimCorp Dimension Documentation
Oracle Database Vault	Portrays a solution for how Oracle Database Vault can be configured to be used with SimCorp Dimension	On request from SimCorp
Preferred Oracle Configuration for SimCorp Dimension	Describes how to set up the Oracle database according to SimCorp's recommendation for running SimCorp Dimension.	SimCorp Dimension Documentation
Release Notes	Describes the changes and enhancements in the current version of SimCorp Dimension, including New Modules and Major Enhancements.	SimCorp Dimension Documentation
Service Administration	Describes the Service Platform terminology. The manual includes how to configure, maintain, operating and overview the Service Platform.	SimCorp Dimension Documentation

Manual/Document name	Description	Can be obtained
Service Configuration	Lists available SimCorp Dimension service types including description of characteristica and if relevant how to configure.	SimCorp Dimension Documentation
Setting up Reference Data	Describes how to set up a number of reference data – including reference files and mail groups in SimCorp Dimension.	SimCorp Dimension Documentation
System Access	Describes the authorisation system in SimCorp Dimension. For instance the different user types in SimCorp Dimension.	SimCorp Dimension Documentation
System Maintenance	Describes a number of monitoring and configuration topics.	SimCorp Dimension Documentation
System Options	Describes a number of system options in SimCorp Dimension.	SimCorp Dimension Documentation
System Performance	Describes where system performance can be improved, best practice for system performance, archiving cleanup etc. for specific areas of SimCorp Dimension.	SimCorp Dimension Documentation
SimCorp Dimension Upgrade – Understanding the upgrade engine	This paper is for you, who are involved in the technical upgrade of SimCorp Dimension, to gain further insight into the upgrade process and workings.	Client Support
Configuration guide for Oracle Kerberos authentication	Describes how to configure SimCorp Dimension for Kerberos Authentication and how to configure it for the Oracle Database and its clients.	On request from SimCorp – if Active Directory Authentication has been purchased.
How to copy the SimCorp Dimension database	Describes an example of how to copy a SimCorp Dimension database to a new database using Oracle Recovery Manager (RMAN).	On request from SimCorp.

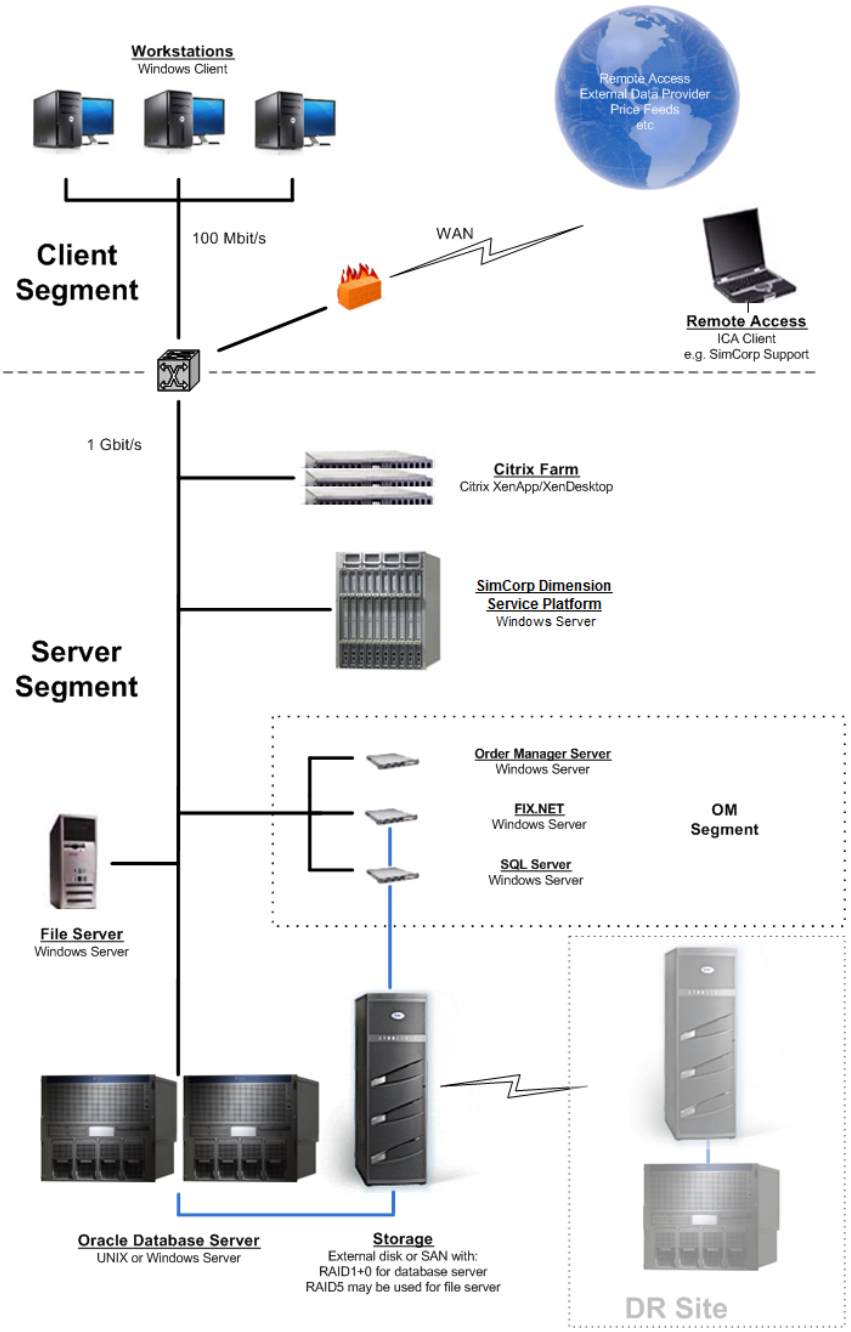
Manual/Document name	Description	Can be obtained
Oracle ADG Preferred installation and configuration for SimCorp Dimension.	This paper provides an example of how to install and configure a physical Oracle standby database for SimCorp Dimension to be setup to utilize Oracle Active Data Guard (ADG) with real-time query feature. The paper was written for Oracle11g, but can also be used for inspiration for same setup in a 12c database.	On request from SimCorp
SimCorp Dimension – Local Installation White Paper	Describes how to install a local installation.	On request from SimCorp
SimCorp Dimension Web APIs	Describes how to sett up and operate SimCorp Dimension Web APIs	SimCorp Dimension Documentation

2 SimCorp Dimension Overview

This chapter provides a technical overview of SimCorp Dimension as well as a short description of basic element and generally used additional components.

SimCorp Dimension uses a distributed mixed client/server and n-tier architecture with a thick client.

A set-up example can be:



The following elements will be described in the following sections:

- File server
- Oracle database server
- Message and User Control System (MUCS)
- Clients (workstations)
- Service Platform and Service Agents
- FIX.NET Server
- Hardware virtualisation
- Network Communication
- External components

2.1 File Server

SimCorp Dimension's program files and various style log files are stored in a central network location. The file server hosts the SimCorp Dimension Central Network Installation folder structure and files. The installation needs to be reachable from all clients and service agents etc. running SimCorp Dimension. SimCorp Dimension is not executed on the server.

2.2 Oracle Database Server

SimCorp Dimension requires an Oracle RDBMS database server to store data. The database can be Oracle Standard Edition 2 or Enterprise Edition. Some functionality will require Enterprise Edition, please see a list of features in SimCorp Dimension Features Requiring Oracle Enterprise Edition on page 30

2.2.1 Database – Overview

The SimCorp Dimension database is split in two:

- SimCorp Dimension metadata describing SimCorp Dimension application data
- SimCorp Dimension application data.

The document ***Preferred Oracle Configuration for SimCorp Dimension*** provides a detailed recommendation on how to configure the database for SimCorp Dimension. This document is available as online documentation in the application and at SimCorp Support Portal.

SimCorp Dimension application data is owned by the data tables owner (datowner). Datowner objects can be kept in one tablespace or divided into more tablespaces. It is recommended to split data in more tablespaces dependent on usage.

The basic tablespaces are listed below with the configuration file parameter name stated in brackets after each tablespace usage:

- Application data (datts)
- Indexes (indexts)

- Audit data (auditts)
- Audit indexes (audixts)

It is possible to place selected tables and indexes in separate tablespaces using the Table Storage Customisation task from inside SimCorp Dimension. Please refer to section Table Storage Customisation on page 117 for more information.

If the installation uses **ORDER MANGER**, **DATA EXTRACTOR**, **COMMUNICATION SERVER** or **DATA WAREHOUSE** separate tablespaces will exist for these.

2.2.1.1 Data Access from outside SimCorp Dimension

Data stored within SimCorp Dimension is protected from update from outside SimCorp Dimension by password protected Oracle role. The Oracle roles are only active when the user is logged on through SimCorp Dimension.

Some message queues and tables used for external interfacing will, of course, allow modification from outside, since their nature is to be a pick-up point for data import.

It is possible to read data from SimCorp Dimension in different ways:

- Read-only access to data tables can be granted through one of the build in Oracle roles.
- External data access (EDA) is a SimCorp Dimension feature that enforces the same data authorisations on the external reading of data as if the user reads the data from inside SimCorp Dimension.
- It is possible to export data from SimCorp Dimension to for example Data Warehouse. The SimCorp Dimension **DATA WAREHOUSE** solution is a data model and the ETL logic to feed the Data Warehouse from SimCorp Dimension. Both of these components are maintained through the SimCorp Dimension installation and patchapply process. The Data Warehouse database is recommended hosted on a separate database server.

2.3 Message and User Control System (MUCS)

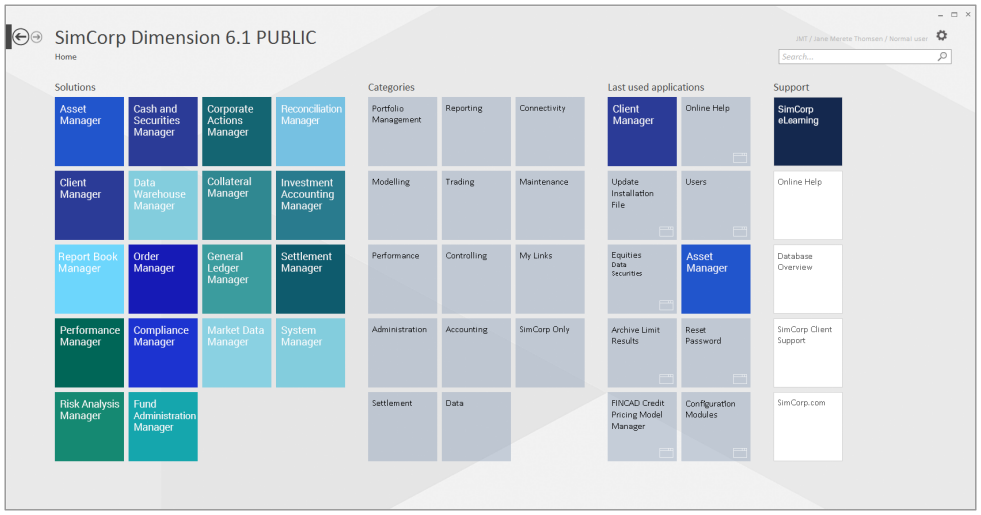
SimCorp Dimension Message and User Control System (MUCS) is a central server process coordinating internal messaging between SimCorp Dimension sessions.

2.4 Clients (workstations)

Each user who executes SimCorp Dimension applications and some third party software components will need a Client/workstation. The client can either start SimCorp Dimension from the network version or from a local installed version of SimCorp Dimension. It is still necessary to have access to the network version regardless of the local installed executables.

2.4.1 The SimCorp Dimension Portal

The user entry to SimCorp Dimension is through the SimCorp Dimension Portal:



From the Portal, you can either drill down **solutions**, **categories** and so on or you can make a search in SimCorp Dimension for a task, name or a category etcetera. When a task name is referred to in this manual, it will have the following layout: **User Administration**.

You can create Shortcuts to an item if you right click the item and choose create shortcut.

Please note that favourites are saved in the portal and not in your Internet Explorer browser.

It is possible for each user to create links to destinations outside SimCorp Dimension. The links are placed in the Category MY LINKS. It is possible to provide the user with a list of links from where they can choose. You can create general links in **My Link Administration**. You can limit users only to create links from the list of general links. To limit use of links you needs to mark the parameter `Use whitelist for "My Links"` in **System Environment Configuration.**

You can use an image as background to the portal if you like. This can be done by the System Administrator if an image file called: `PortalBackground.png` is added to the **Data** folder in the **Netroot** installation. The background picture will be visible when the check box **Use image as background** is selected in **Portal Settings**. You can find **Portal Settings** if you click the cogwheel right to the username in the upper right corner of the portal. It is recommended to use an image of an 16:9 aspect ratio with a minimum of 1920 x 1200 pixels width and height. The image will be visible at next logon to SimCorp Dimension. If no image file is placed in the **Data** folder the default SimCorp Dimension image is displayed.

2.4.2 Reporting

You can extract data from SimCorp Dimension in different ways. For example using:

- Data warehouse
- readonly acces to data in Oracle
- print from grids in SimCorp Dimension

Please note that print from grids in SimCorp Dimension is based on Crystal Reports. Wherefore, a runtime version of Crystal Reports needs to be installed. An installation file for this is released as part of the netroot installation.

2.5 Service Platform and service agents

Service Agents are components of SimCorp Dimension, which are deployed on server hardware (physical or virtual) to make the hardware accessible for distributed processing in SimCorp Dimension. They are typically installed as Windows services, but can also run as console applications. All Service Agents together form the Service Platform, to which SimCorp Dimension deploys and maintains services configured as needed.

Each server (physical or virtual) intended for SimCorp Dimension services need to have a service agent installed for each SimCorp Dimension installation that should use the server.

2.6 FIX.NET Server - overview

The FIX.NET Server with SQL Server is used by the SimCorp Dimension **ORDER MANAGER** module. The SQL Server database must be created as a minimum requirement, even if the FIX.NET Server component is not installed/required.

2.7 Hardware virtualisation

It is possible to run SimCorp Dimension Clients/workstations using remote desktop virtualisation/hardware virtualisation. SimCorp Dimension is supported on most versions and types of hardware virtualisation. If a specific versions or a minimum version is required it will be stated in the requirements sections of this manual. Of course, SimCorp cannot provide support for the virtualisation application itself as a platform technology.

2.8 Network Communication

SimCorp Dimension uses TCP/IP protocol for network communication.

SimCorp Dimension is highly dependent on a responsive and fully functional network. When the application is executed from the netroot installation, quite large amounts of executable program code need to be transferred from the file server to the executing host. Even a short loss of network connection may result in program execution failure. Local installation of SimCorp Dimension reduces the network load but a responsive network is still needed for Oracle access, messaging (MUCS) and logging to central log files. 1 Gbit/s on the Client Segment and 1+ Gbit/s on the Server Segment will be sufficient in a standard installation but in high volume installations 10 Gbit/s might be needed.

2.9 External components

SimCorp Dimension depends on and utilises various third party software components. Which will depend on the specific setup and usage of the application. A basic example is a mail system

For information about versions, see the requirements sections.

3 Requirements

Each component in the set-up of the SimCorp Dimension environment has its own set of requirements depending on the application usage. In this chapter you can get information of Requirements and planning guidelines.

Certain requirements to the system environment are standard for SimCorp Dimension clients and services, while others are module specific. The prerequisite software components needed are in general not included with SimCorp Dimension, unless otherwise specified.

3.1 Requirements and planning guidelines

Please note SimCorp Dimension is not supported on hardware or software other than stated in this manual.

Please find an overview of minimum hardware requirements in the following sections. Please note SimCorp Dimension is not supported on hardware or software if it is not supported by the vendor. Even though SimCorp Dimension is supported using the listed components and versions an outcome of the support might be changes to one or more components.

3.1.1 SimCorp Dimension hardware requirements

A hardware configuration will depend on user loads, system profiles etcetera, therefore; it will be necessary to performance test the initial hardware before going live.

Virtualization has many advantages, but also many potential pitfalls ranging from severe performance degradation to process execution stop. Overcommitting hardware is likely to lead to severe performance degradation. Actions like taking snapshots or dynamically moving virtual servers during production (e.g. via load balancing features like VMWare vMotion) suspends active processes for a while and often leads to execution stop due to e.g. loss of database connection. For a few essential servers like database- file- and MUCS-server, physical or one-to-one mapped virtual-on-physical servers are highly recommended.

	Basic SimCorp Dimension installation - Hardware requirements				
	Database Server	**File Server**	**Service Agents 1)**	**Client 2)**	**Printer/Reports**
Memory	24 GB as a minimum, but highly dependent on the configuration and use of SimCorp Dimension . This is described further in the Preferred Oracle Configuration guide (please refer to the section headed “Memory Sizing”)	The recommended amount of RAM is that required by the chosen OS, at a minimum 4 GB	Minimum 4 GB pr. core, dependent on the configured WS size for the SimCorp Dimension service process and the chosen OS. For users of Order Manager: It is recommended to have 8GB available for the Order Manager Server.	Minimum 4GB RAM, higher if recommended for the chosen OS. It should be noted that this is the requirement for SimCorp Dimension alone based on an average user. If user workstations are expected to run several applications in parallel then higher specifications should be considered. For users of Order Manager it is recommended to have 8GB available for the Order Manager client.	

	Basic SimCorp Dimension installation - Hardware requirements				
	Database Server	**File Server**	**Service Agents 1)**	**Client 2)**	**Printer/Reports**
Disk	Internal disks with enough space available for operating system files, Oracle binaries and swap, plus a data storage solution for Oracle data. Please refer to Preferred Oracle Configuration guide, the section on storage, for more information.	One single-language SimCorp Dimension installation requires approx. 3 GB disk storage (in a RAID 5 disk set-up which is recommended), plus space for system log files, which is dependent on configuration. Please refer to section SimCorp Dimension System Log Files on page 196 SimCorp Dimension System Log Fileson page 153 for more information.	Approx. 1,9 GB is required when using **Cache Manager** When using the network installation, Approx. 200 MB is needed on the server for the Crystal Reports Runtime** Approx. 10 GB should be available for temporary files and troubleshooting purpose.	Approx. 1,7 GB is required when using local installation. When using the network installation, approx. 200 MB is needed on the client for the Crystal Reports runtime. Approx. 10 GB should be available for temporary files and troubleshooting purpose. Approx. 3 GB is needed for the help system. Please note it is 3 GB for each language.	During installation of the Crystal Reports runtime approx. 500 MB additional disk space is needed for the installation process.

Network requirements will be 1 Gbit/s on the Client Segment and 1+ Gbit/s on the Server Segment for a standard installation but in high volume installations 10 Gbit/s might be needed.

	Additional SimCorp Dimension components - Hardware requirements				
	Order Manager Server	FIX.NET SQL Server	Help System on IIS server	Web based dashboards	
				Web server	Service platform client
Memory	The minimum recommended amount of RAM is what's required by the OS plus an additional 4 GB RAM for each OM server component.	The minimum recommended amount of RAM is what's required by the OS plus an additional 2 GB to cover the FIX Engine component.	Minimum 4 GB	minimum 2 GB RAM	minimum 16 GB RAM
Disk	Approx. 10 GB needed on local disk for server application, logs and all pre-requisites	500 MB	High performance internal disks with sufficient space for operating system, application files, temporary files, and Help System files for multiple versions and multiple languages. The size of the help system for one language and one version of SimCorp Dimension is approx. 3 Gb. Size on disk will vary depending on the cluster size specified.	35 GB	80GB
Database		Microsoft SQL Server, as listed in the matrix below Database collation should be Latin1_ General_CI_AS			

1) Requirements for the MUCS server will depend on the load but will mostly follow what's stated for Service Agents.

2) Including Order Manager Client.

3.1.2 SimCorp Dimension software requirements

The following table is an overview of components in relation to software. Please find more details in the sections after the table. Please read the content as:

- N means not supported
- Y means supported
- minimum xxx means supported from this version onwards

- maximum means not supported in never version than this
- N/A means not applicable

Some components has a note number if there are additional explanations - please read these notes carefully.

Software Requirements		Basic SimCorp Dimension installation					Additional components			
		Database Server	File Server	Service Agents 1)	MUCS Server	Client 2)	Order Manager Server	FIX.NET Server	Help System on IIS server	Web based dashboards
Operating System	Unix/Linux	Y	N	N	N	N	N	N	N	N
	Windows 7	N	N	Y	N	Y	N	N	N	N
	Windows 8.1	N	N	Y	N	Y	N	N	N	N
	Windows 10 3)	N	N	Y	N	Y	N	N	N	N
	Windows Server 2008 R2	Y	Y	Y	Y	N	Y	Y	Y	N
	Windows Server 2012	Y	Y	Y	Y	N	Y	Y	Y	Y
	Windows Server 2016 4)	N	Y	Y	Y	N	Y	Y	Y	Y
	Windows Server 2019	N	N	N	N	N	N	N	N	N
Microsoft .NET Framework		N/A	N/A	Minimum 4.6.1	N/A	Minimum 4.6.1	Minimum 4.6.1	Minimum 4.6.1	N/A	4.6.x full profile,

Software Requirements		Basic SimCorp Dimension installation					Additional components			
		Database Server	File Server	Service Agents 1)	MUCS Server	Client 2)	Order Manager Server	FIX.NET Server	Help System on IIS server	Web based dashboards
Browser	Internet Explorer 5)	N/A	N/A	N/A	N/A	11	N/A	N/A	N/A	9 or later 6)
	Safari	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7+ 6)
	Chrome	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Latest version 6)
	iOS Safari	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.1+ 6)
Adobe Reader 7)		N/A	N/A	N/A	N/A	8.1.3 or higher	N/A	N/A	N/A	N/A
SAP Crystal Reports Runtime 8)		N/A	N/A	Minimum 13.0.16.1954	N/A	Minimum 13.0.16.1954	N/A	N/A	N/A	N/A
Oracle 9)	18c database	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12c database	12.2.0.1 or 12.1.0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Call Interface	N/A	N/A	12.2.0.0 *)	N/A	12.2.0.0 *)	12.2.0.0 *)	N/A	N/A	N/A

Software Requirements		Basic SimCorp Dimension installation					Additional components			
		Database Server	File Server	Service Agents 1)	MUCS Server	Client 2)	Order Manager Server	FIX.NET Server	Help System on IIS server	Web based dashboards
	ODP.NET	N/A	N/A	4.122.1.20180209*)	N/A	4.122.1.20180209*)	4.122.1.20180209*)	N/A	N/A	N/A
FIX.NET Server 10)		N/A	N/A	N/A	N/A	N/A	19.01, 64-bit	N/A	N/A	N/A
Microsoft SQL Server 11)		N/A	N/A	N/A	N/A	N/A	N/A	Microsoft SQL Server 2008 R2 SP1 or Microsoft SQL Server 2012 or SQL Server 2016	N/A	N/A
IBM MQ 12)		N/A	N/A	8.0.0.7 or higher	N/A	N/A	N/A	N/A	N/A	N/A
Mail system 13)		N/A	Y	N/A	N/A	Y	N/A	N/A	N/A	N/A
Reuters SFC API 14)		N/A	N/A	N/A	N/A	4.6.3	N/A	N/A	N/A	N/A
Microsoft Internet Information Server		N/A	N/A	N/A	N/A	N/A	N/A	N/A	Minimum 7.5	Minimum 7.5
Microsoft XML		N/A	N/A	N/A	N/A	N/A	N/A	6.0	N/A	6.0

*) The Oracle files embedded with SimCorp Dimension originate from Oracle Instant Client 12.2, and the ODP.NET files from Oracle Database Client for Microsoft Windows (x64) with RU 12.2.0.1.20180209.

1) Including Order Cache Manager.

2) Including Order Manager Client.

3) SimCorp Dimension is supported on Current Branch for Business (CBB) and Semi-annual Channel.

4) My Oracle Support article 1307195.1. states “Oracle Database 12.1.0.2 and earlier will not be certified with Windows Server 2016”. For the same reason is the SimCorp Dimension database neither supported on Windows Server 2016. Support for the SimCorp Dimension database is on those OS platforms certified and supported by Oracle.

5) Must be installed in order to use the online help as well as on all clients running **ORDER MANAGER**.

6) To be installed on the client using the Web Based Dashboard at the IIS. For Internet Explore “High” security setting is supported. - Custom security settings: In all but the ”Scripting” section can be set to ”Disable”. In the “Scripting” section the “Active scripting” feature must be set to “Enable” (must be allowed to run JavaScript). All other settings can be set to “Disable”.

7) Adobe Reader Must be installed on clients in order to read the PDF version of the manuals.

8) The stated version is the runtime version included with the SimCorp Dimension installation. Users that develops reports need SAP Crystal Reports. See: Crystal Reports Runtime on page 160

9) Please see Overview of required Oracle RDBMS patches for 19.04 Oracle RDBMS Patches on page 31

10) FIX.NET Server Needs to be installed on either the ORDER MANAGER server or another standalone server. Supplied as a separate prerequisite installation package

11) Microsoft SQL Server Standard, Enterprise and Datacenter editions are all supported for production use. SQL Server express may be used in non-production environments. Please be aware that the FIX.NET Server and the Coric product suite might have different requirements for database collation, which must be considered if both are to be sharing the same SQL Server.

12) SimCorp Dimension includes IBM software in the bin folder to be used by the mediator port called WebSphere. For some MQ authentication methods it is still required to have the IBM MQ software installed locally on the agent machines

13) SimCorp Dimension can send e-mails in various situations during use of the application and during installation and upgrade - please see: Mail System Configuration on page 96 for further information.

14) Reuters SFC API is included with SimCorp Dimension

Security and critical updates from Microsoft are expected to be applied in all production environments. Such updates are applied to SimCorp's quality assurance environment at regular intervals. SimCorp does not test all combinations.

3.2 External Components - Software requirements

	External Components - Software requirements			
	Australian CGT Calculator	**MarkitSERV**	**SCDDIFF**	**Time Zone adjustment**
Operating System	N/A	N/A	N/A	N/A
Microsoft .NET Framework	N/A	N/A	N/A	N/A
Oracle RDBMS	N/A	N/A	Same version as the SimCorp Dimension database	N/A
Oracle instant client	Needs to match JRE 64-bit	N/A	N/A	N/A
Java Runtime Environment(JRE)	8 64-bit	N/A	SE 8 (1.8) 64-bit 1)	N/A
Reuters SFC API	N/A	N/A	N/A	N/A
MarkitSERV Client API	N/A	13.x or 14.1	N/A	N/A
NodaTime Library 2)	N/A	N/A	N/A	2.4.2.0
tz database 5)	N/A	N/A	N/A	2018g

1) JRE Is included and automatically installed with the installation package of SCDDIFF and used as a dedicated JRE installation.

2) Time Zone adjustment is fully integrated in SimCorp Dimension and requires no separate installation.

Note

SimCorp Support requires remote access to the SimCorp Dimension infrastructure. The end point for the support connection should, as a minimum, follow the hardware and software recommendations for a workstation.

3.2.1 File Server - additional requirements information

In addition to the information in the hardware requirement table please note:

- SimCorp Dimension must not be installed directly into a share or at the drive-root.
- Due to incompatibility problems in low-level file I/O, installation of SimCorp Dimension on a virtual mounted PC file system disc on a UNIX box is not supported.
- A SimCorp Dimension session is run by accessing its program files remotely, in real time, the network path to and response time from the file server is essential to the stability of the session. Any loss in network communication to the file server or peak load on the file server could cause a SimCorp Dimension session to fail. It is therefore recommended that SimCorp Dimension is installed on a dedicated file server.
- For systems expecting a large load (in terms of service processing, batch job execution and users sessions), you can place files which are modified/created during execution at another server than the SimCorp Dimension program (read-only) files. See: File Server - Redirection of Common Write Access Folders and HelpSystem on page 105 for further information.
- The file server should be dedicated to service the I/O requests for the SimCorp Dimension sessions.
- If you often experience errors due to instability in the network communication between SimCorp Dimension execution host and the program file server it is recommended to use Local Installation.

3.2.2 Database Server - requirements - additional information

The configuration of a database server is highly depending on the work load and usage pattern. The hardware recommendations in the requirement tables are based on general experience from SimCorp Dimension installations, but since every installation is special, analysis should be made to scale the server as needed.

The storage required highly depends on the transaction volume and the size of audit data. Similarly, the demand for RAM and CPU depends on the usage pattern for the system.

3.2.2.1 Features Requiring Oracle Enterprise Edition

SimCorp Dimension is supported on both Oracle Standard 2 and Enterprise edition. However for SimCorp Dimension version 19.04 the following modules/functionality requires Oracle Enterprise Edition:

- External Data Access
- WebAPI
- Parallel query/execution (see Parallel Options on page 109)

- Active Data Guard/Real Time Query option for reporting (additionally requires the Oracle EE license option “Active Data Guard”)
- Compress external tables during archiving (additionally requires the Oracle EE license option “Advanced Compression”)
- The partitioning modules for SimCorp Dimension tables (additionally requires the Oracle EE license option “Partitioning”)

3.2.2.2 Oracle RAC (Real Application Cluster)

SimCorp Dimension is supported on Oracle RAC. There are some considerations to take in regards to configuration when choosing to use Oracle RAC as a platform for SimCorp Dimension. Please refer to the SimCorp Dimension ***Preferred Oracle Configuration*** guide for more detail. The minimum Oracle software version, patch set and one off patches must be as specified in section Oracle RDBMS Patches below

3.2.2.3 Oracle TAF (Transparent Application Failover)

This feature is not supported by SimCorp Dimension and must not be enabled. If it is enabled, the SimCorp Dimension session will not be able to start.

This Oracle feature only supports simple fail over of stateless applications. SimCorp Dimension database sessions are stateful using PL/SQL package variables, alter session statements and more, none of which are supported with Oracle TAF.

Note

It is not possible to start SimCorp Dimension if TAF is enabled for the session.

3.2.2.4 Oracle Streams Advanced Queuing

Oracle Streams Advanced Queuing is needed for systems configured with a Communication Server (must be configured on the Oracle instance for installations using the Communication Server).

3.2.2.5 Oracle RDBMS Patches

For Oracle 12.2 and 18 SimCorp Dimension is supported on a minimum Release Update (RU) version of the Oracle RDBMS. The below table lists which RU as a minimum must be applied the database.

It is supported to apply a more recent RU than the minimum requirement. SimCorp recommends you follow Oracle’s recommendation and apply the RUs quarterly. SimCorp is continuously testing the SimCorp Dimension version on the latest four available RUs. It is supported to apply a Release Update Revision (RUR) if a special need arises. SimCorp will not be testing RURs.

Please refer to My Oracle Support Assistant: Download Reference for Oracle Database/GI Update, Revision, PSU, SPU(CPU), Bundle Patches, Patchsets and Base Releases (Doc ID 2118136.2) for links to obtain the RU/BP.

For Oracle 12.1 a number of Oracle patches must be applied. The below table lists which Oracle patch set and patches as a minimum must be applied the database.

For Windows platform, the listed bundle patch is the minimum required bundle patch for the specific Oracle patch set. As bundle patches for the Windows platform is accumulative higher bundle patches can be applied if required.

For Unix/Linux platforms, the table lists, which bugs as a minimum must be fixed. These can be applied as one-off patches on the actual Oracle patch set version or can be part of a patch set update (PSU). If a given PSU contains one or more, but not all of the listed bug fixes, one off patches must be applied for those not included in the PSU.

Overview of required Oracle RDBMS patches for 19.04.

Windows platform	Minimum bundle patch 18.4.0. OR 12.2.0.1.180417 OR 12.1.0.2.170418*

All Unix/Linux platforms	Minimum patch set: 18.4.0. OR 12.2.0.1.180417 OR 12.1.0.2. with minimum patches for the following bugs:** • 22173980 WRONG RESULTS (NUMBER OF ROWS) FROM HASH JOIN WHEN "_ROWSETS_ENABLED" = TRUE IN 12C (DEFAULT) • 21540128 FSM PARSER MISHANDLES OVERFLOW IF MULTI-BYTE CHARACTER ENDS ON BUFFER BOUNDARY • 21826068 WRONG RESULTS STILL WHEN _OPTIMIZER_AGGR_ GROUPBY_ELIM=TRUE • EITHER 20634449 WRONG RESULT WITH BIND VAR ON 12.1.0.2 OR 23321926 WRONG RESULTS WITH PARTIAL JOIN EVALUATION OR GROUP BY KEY REDUCTION COLUMN REPLACEMENT • 19787571 COULD GET ORA-7445 [KDSREADAHEAD()] WITH BUFFER CACHE TRACING TURNED ON • EITHER 19703301 ORA-22275: INVALID LOB LOCATOR SPECIFIED FOLLOWING PATCH OR 26111842 TT18.1VALGRIND: FMR (FREE MEMORY READ) IN KOLLGSZ • 19372024 "IF UPDATING" CLAUSE OF UPDATE TRIGGER WORKS INCORRECTLY ON XMLTYPE COLUMN • 19183343 WRONG RESULT RETURNED BY STATEMENT WHEN USING IN LIST • 18430870 ADAPTIVE PLAN AND LEFT JOIN GIVE WRONG RESULT

* Windows DB Bundle Patch 18.4.0.0.181016 has got Oracle patch name 28736070, 12.2.0.1.180417 has got Oracle patch name 27426753 and 12.1.0.2.170418 has got patch number 25632533. For non-Windows platforms Database Release Update 18.4.0.0.181016 has got Oracle patch name 28655784. For latest available RUs please see MOS article: Quick Reference to Patch Numbers for Database PSU, SPU(CPU), Bundle Patches and Patchsets (Doc ID 1454618.1)..

**

22173980 is included in Apr 2016 PSU for Unix/Linux platforms and Engineered systems.

19787571 is included in Jan 2015 bundle patch for Engineered systems.

19703301 is included in Jul 2015 PSU for Unix/Linux platforms, and Mar 2015 bundle patch for Engineered systems.

19183343 is included in Apr 2015 PSU for Unix/Linux platforms and Engineered systems.

18430870 is included in 12.1.0.2.160419 (Apr 2016) Database Proactive Bundle Patch (for Engineered systems)

Please search My Oracle Support for the patches suitable for your platform.

Oracle version numbers explained

An Oracle version consists of a number format like xx.x.x.x.x, for example 12.1.0.2.160219.

The first three numbers represent the release of Oracle, so in this example it is Oracle release 12.1.0, also known as Oracle 12c release 1.

If we include the fourth number, we get the Oracle patch set version. Here it is therefore patch set 12.1.0.2.

The fifth and final number indicates the patch set update (PSU) or bundle patch number, and this number is database OS platform dependent. With no PSU or bundle patch applied we have 12.1.0.2.0, i.e. the same as the patch set. PSUs and bundle patches consist of a collection of bug fixes for the given patch set. Oracle releases PSUs quarterly. For some platforms (e.g. Windows) Oracle releases bundle patches at intervals that are more frequent. The one coinciding with the quarterly released PSU then becomes the PSU for that platform. For example for the Window platform, the Oracle bundle patch with version 12.1.0.2.160119 was the January 2016 Patch set Update. The Jan 2016 PSU for Linux also had version 12.1.0.2.160119. This however is no guarantee the contents (i.e. the bug fixes) are exactly the same on the two platforms. Bundle patches and PSUs are however cumulative, so if you on a platform have applied the Apr 2016 PSU, it will contain all the fixes from the Jan 2016 PSU.

For a given SimCorp Dimension, a given Oracle release is supported. For example 6.0 supports 12.1.0 and only 12.1.0. This implies no other releases are supported in 6.0, meaning 11.2.0. is not supported, as it is less than 12.1.0. Neither would (if it existed) a release 12.2.0 be supported as it is higher than 12.1.0.

A given SimCorp Dimension version requires a minimum Oracle patch set. The minimum patch set version for 6.0 is 12.1.0.2.0. As this is a minimum, 6.0 will also be able to run on a higher patch set version 12.1.0.3, if such existed. It is likewise possible and supported to apply a higher PSU to the patch set version.

During tests and other usage, SimCorp might have identified some outstanding bugs in the minimum patch set, which must be fixed in order for the SimCorp Dimension version to run on this patch set. These are the bug fixes listed in the table in the previous section. On Window platform, the minimum bundle patch includes all these bug fixes.

3.2.3 SimCorp Dimension Clients - local installation

Local Installation is the SimCorp Dimension term for a physical installation of the program files on the client's local hard drive. As opposed to starting the SimCorp Dimension session by remotely accessing the program files on the central network location, the client session is started by accessing the

program files which has been installed locally. Please refer to the ***Local Installation White Paper*** for more information.

3.2.3.1 Printers

SimCorp Dimension has no special printer requirements but a printer driver must be installed to be able to print grids and install and run reports in SimCorp Dimension.

3.2.4 Service platform and service agents - additional requirements information

SimCorp Dimension application service need an operating system and components as described in the requirements table.

It is possible to start more than one SimCorp Dimension service process on the same physical host, provided that the hardware resources support it. The amount of processors and memory must be scaled accordingly.

Service agents must be running as a SimCorp Dimension user of the type **Service user**. It is not supported to start services on service agents running as a user of type **Normal user**.

Note

Constant and uninterrupted network connection is required to ensure stability in long running processes executing from a SimCorp Dimension central network installation. . An increasing number of issues generated by long running processes temporarily losing network connection which the Windows execution environment is not tolerant towards entails SimCorp to recommend to use Cache Manager for Service Platform.

For more information about SimCorp Dimension **SERVICE ADMINISTRATION** please see the user manuals ***Service Administration*** and ***Service Configuration***.

3.2.4.1 Front Office services and hardware requirements

Studies of workloads on a number of SimCorp Dimension services, is basis for the below more detailed description of SimCorp Dimension Front Office solution.

You can find information about which services are necessary for a specific Front Office solution including hardware specifications for hosting the services. When determining the hardware requirements for Front Office functionality, consider the information here as guidance. Please note:

- The values specified in recommended amount of RAM represent the RAM in addition to the amount that is recommended for the operating system.
- Order Manager requires Microsoft SQL Server.

- The recommended hardware numbers are stated as peak performance numbers, where all installation resources are being used simultaneously.

3.2.4.2 Installation size categories and hardware requirements

The following table specifies typical installation sizes based on our customer experiences for minimum, standard, or large installation, targeting front office solutions.

	Installation size		
	Minimum	**Standard**	**Large**
Front Office users	1 - 3	2 - 50	30 - 150+
Portfolios	1 - 100	50 - 1,500	1,000 - 4,000+
Live (open) positions	1 - 20,000	10,000 - 400,000	300,000 - 1.500,000+
Orders (buy/sell) peak per day	1 - 400	300 - 4,000	2,000 - 20,000+
Compliance rules (total)	1 - 600	400 - 10,000	5,000 - 40,000+

Besides the listed items in the table, you must also consider elements, such as:

- Number and sizes of benchmarks.
- Number and complexity of security group codes.
- Decomposition requirements.

3.2.4.3 Installation guidelines per service type

The table in this section shows the hardware specifications required for normal operation of SimCorp Dimension Front Office services. Three installation sizes are listed to represent different scenarios; minimum, standard, and large. For more information about the defined installation size that these represent, see Installation size categories and hardware requirements on the previous page.

The data in the table shows:

- The SimCorp Dimension service name
- How many instances of a particular SimCorp Dimension service typically run in a SimCorp Dimension installation.
- The number of CPUs/cores that are required for each SimCorp Dimension service.
- The required workspace size per service.
- The recommended amount of RAM.

The table provides standard recommendations. Different configurations can be necessary depending on the amount of data, the workflows or any special requirements.

It is recommended to use a sufficient number of calculation services to support preparation of Front Office benchmarks and historical, compliance calculations. You can see the recommendations in the following table for small, standard and large installations.

It is not recommended to use calculation job types (configurations) for the **Calculation service** – since assigning job types can limit dynamic usage and allocation of the calculation capacity.

Failover scenarios are not taken into account. Therefore, consider setting up additional services where appropriate. See ***Front Office Implementation Guide*** for more information.

Real-time Bloomberg service is only relevant when using a central service for Bloomberg data licenses. Server mode means that all clients uses a shared service for Bloomberg. The number of actual services is scaled by setting data sources on the securities. Each **Real-time Bloomberg service** instance only delivers results for one specific data source.

A – (minus sign) in the table is used when it does not make sense to state a value.

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
98	Analytics	1	1	500	2	1	1	500	2	1	1	1000	4
92	APL worker	1	1	500	2–4	2	1	500	2–4	6–12	1	1000	4
89	Asset manager calculation	1	2	500	4	2	4	500	4	2	6	500	8
335	Asset manager conversion service	1	1	500	2	1	1	500	2	1	1	500	2
231	Automatic recalculation of Portfolio Calculations	1	1	500	4	2	1	500	4	4	1	1000	4
222	Business rules alert	1	1	–	4	1	1	–	4	2	1	–	4
215	Calculation service, job type "Asset Manager message"	0	–	–	–	1–2	–	500	4	2	1	1000	4
215	Calculation service, job type "Benchmark Calculation"	1	1	500	2–4	2	1	500	2–4	4	1	1000	4

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
215	Calculation service, job type "Compliance historical calculation"	1	1	500	4	2	1	1000	4–8	5–20 *	1	1000	8
215	Calculation service, job type "Compliance reporting helper table update"	1	1	500	4	2	1	500	4	4	1	500	4
215	Calculation service, job type "Front office decomposition"	0	–	–	–	2	1	500	2–4	4	1	1000	4
215	Calculation service, job type "Front office modelling calculation"	1	1	500	4	2	1	500	4	3	1	1000	4
215	Calculation service, job type "Rebalance"	1	1	500	2–4	2	1	500	2–4	4	1	1000	4
79	Commission	1	1	500	2	1	1	500	2	1	1	1000	4

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
51	Compliance broker restrictions	1	1	–	4	1	1	–	4	1	1	–	4
42	Compliance engine front end	1	1	–	4	1	1	–	4	2	1	–	4
308	Compliance online	1	1	–	4	1	1	–	8–16	1	2	–	24
61	Compliance order manager integration	1	1	–	4	1	1	–	4	2	1	–	4
59	Compliance post–trade	1	1	–	4	1	1	–	4–8	1–2	1	–	8
41	Compliance pre–trade	1	1	–	4	1	1	–	4–8	2–4	1	–	12
319	Composite rating update	1	1	800	2–4	1	1	800	2–4	2–3	1	1000	4
94	Data adaptor	1	1	–	4	2	1	–	4	4	1	–	4
232	Data clean–up	1	1	500	4	1–2	1	500	2–4	1–3	1	1000	4
NA	FIX.NET	1	1	–	1	1	1	–	1	1	1	–	2
60	Forecast cash flow	1	1	500	2–4	2	1	500	4–8	3–6	1	1000	8
208	Front office holding	1	1	500	4	2	1	800	2–4	4–8	1	1000	4

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
213	Group code update	1	1	800	2–4	1	1	800	2–4	2–3	1	1000	4
200	Message queue	1	1	800	2–4	2	1	800	8	3	1	1000	8
307	Order Manager–Cache transaction data for widgets	1	1	–	4	1	1	–	1	1	1	–	2
70	Order Manager–Elvin	1	1	–	1	1	1	–	1	1	1	–	1
64	Order Manager–Order	1	4	–	1	1	8	–	8	1	16	–	8
67	Order Manager Management	1	1	–	2	1	1	–	8	1	1	–	8
217	Order Manager message	1	1	500	4	2	1	500	8	2	1	1000	8
224	Performance analytics	1	1	–	2	1	4	–	8	2	4	–	12
309	Performance date	1	1	500	2–4	1	1	500	2–4	1	1	500	2–4
84	Pricing and key ratios service	1	1	800	2–4	1	1	800	2–4	1	1	1000	4

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
325	Pricing and key ratios priority request	1	1	500	2–4	2	1	500	2–4	4	1	1000	4
333	Pricing and key ratios worker service	1	1	500	2–4	2–4	1	800	2–4	6–12	1	1000	4
65	Real-time Bloomberg, (when running in server mode)	One service for each data source	1	–	4	One service for each data source	1	–	4–8	One service for each data source	1	–	4–8
68	Real-time infrastructure	1	1	–	4	1	1	–	4–8	1	1	–	4–8
223	Risk analytics	1	1	–	4	1	4	–	8	2	4–8	–	12
221	Risk PKR	1	1	800	2–4	2–3	1	800	2–4	3–5	1	1000	4
305	Securities finance forecast	1	1	800	4	2	1	800	8	3–4	1	1000	8
216	STP service, job type "Transactions"	1	1	500	4	2	1	500	4	3	1	1000	4
50	Trade status	1	1	–	2–4	1	–	–	4	1	1	–	4

Service ID	Service type	Minimum				Standard				Large			
		No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)	No. of services	CPUs per service	WS size per service (MB)	RAM per service (GB)
95	Web API	1	1	–	2	1	1	–	2	1	1	–	2

* The number of services depends on number, type and scope of compliance rules, and required batch run times.

3.2.5 Hardware virtualisation/desktop virtualisation

SimCorp Dimension is supported using hardware virtualisation/desktop virtualisation as described below and in SimCorp Dimension hardware requirements on page 21.

3.2.5.1 Citrix XenApp and XenDesktop

Requirements for the Citrix server are very dependent on the number of remote users and their use of applications. The users share operating system as well as SimCorp Dimension installation, but they need additional memory and CPU power to execute both OS components and applications.

The SimCorp Dimension user capacity on a Citrix server depends on the user's work intensity in terms of load on memory, CPU, network and other resources. As an overall consideration, to be used as a starting point for dimensioning the Citrix servers: even though it is theoretically possible to create a functional minimum set-up smaller than this, there should be at least 2 GB memory per user and 1 CPU core per 2-4 users in order to achieve acceptable performance.

The recommendation to users of **Asset Manager** and **Manager applications** with multiple applets are at least 4 GB memory and 1 CPU with 4 cores per user, where the CPUs are allowed to be shared across users. Parts of the **Asset Manager** uses parallel processing therefore the use of multiple CPU cores per user might improve performance. For some users the improved response times can be significant.

Please see the white paper ***Memory usage when running SimCorp Dimension*** for more information about memory usage with SimCorp Dimension.

SimCorp Dimension is also supported on Citrix XenDesktop, which is the SimCorp main platform for testing the client components of SimCorp Dimension.

Unlike Citrix XenApp Citrix XenDesktop provides a Windows client to the user, who is then not working on a Windows Server. In addition, no operating system features are shared between concurrent sessions, which speak for better stability and better performance predictability. When using XenDesktop the individual operating system increase the memory requirements and a minimum of 4 GB is recommended.

3.2.5.2 VMware

SimCorp has support for clients running SimCorp Dimension under VMware's ESX Server virtualisation platform. SimCorp cannot provide support for VMware itself as a platform technology.

SimCorp is not aware of, nor has any reason to suspect, that SimCorp Dimension doesn't work on any of the other virtualisation platforms, but cannot commit to verifying the trouble free operation of SimCorp Dimension on other virtualization platforms than VMWare.

Most of SimCorp's third-party suppliers support the product when using virtualised environments but not all suppliers fully support their products in the VMware environment. SimCorp cannot guarantee the timely correction

of all issues found in these third-party components in a virtualised environment.

SimCorp regards the VMware platform as any other hardware platform hosting SimCorp Dimension components. The virtualisation does add to the level of complexity that must be professionally managed in the system operations to guarantee the service levels and error free operation of SimCorp Dimension.

The processing that the virtual machine is expected to host, will obviously affect the requirements to that virtual machine just as it would on a traditional hardware platform. Sporadic degradation in performance of the platform with regards to available memory, available CPU capacity and increased I/O or network latency will result in the same issues in SimCorp Dimension that they would without the virtualisation.

One of the cost-saving benefits of a virtualised environment is the increased mobility of the virtual machines allowing a better utilisation of the hardware through time-sharing. Using this many-to-one ratio between virtual machines and physical host requires the hardware sizing has been done with consideration for the maximum load from the concurrent running machines. The load on the physical machine has to be planned such that resource shortages with regards to e.g. CPU, memory, disk I/O capacity and network capacity are avoided. The planning not only has to consider how many virtual machines the physical machine will host concurrently, but also what type of SimCorp Dimension processing those virtual machines will be used to execute.

Especially the database- and file servers are sensitive to intermittent increases in i/o- or network latency and attention to avoiding a set-up where this situation could occur is advised.

The System Performance Check functionality in SimCorp Dimension can be used to verify that access to database and files are within the acceptable limits for the SimCorp Dimension product in the normal case, but are unlikely to reveal intermittent increase in response times.

Issues with SimCorp Dimension will be handled exactly as they would be in a physical environment when the issue is not related to the execution environment.

When the issue is suspected to be caused by the execution environment, where the few cases that have been reported to SimCorp so far have all been caused by over-commitment of the physical host, SimCorp will request one or more of the following actions in falling order of likelihood:

- Documentation with regards to the load on the virtual machine, load on the physical machine and properties of the virtual machine.
- Reproduction of issues, suspected to be symptoms of resource shortages caused by virtual machines sharing the same physical host, on a physical host which is not shared.

In the very rare case where the issue is suspected to be caused by the virtual environment not exactly mirroring the equivalent native

environment, SimCorp may request a reproduction of the issue in a corresponding physical environment. If the issue cannot be reproduced on the physical environment, SimCorp will make reasonable efforts to address the issue, but is unable to guarantee a timely solution

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Note

The use of the default VMware NIC type (E1000e) for Windows 8.x and Windows Server 2012 might cause performance degradation and/or data corruption. (See: https://kb.vmware.com/s/article/2058692?lang=en_US#q=2058692. This in turn might lead to slow startup of SimCorp Dimension. If you experience such issues, please use the VMware VMXNET3 NIC type instead.

3.2.6 Component Specific additional Requirements

This section shows the requirements for SimCorp Dimension modules with special needs as well as the requirements for third party software components delivered by SimCorp.

Note

The client is responsible for providing the system environment necessary for running SimCorp Dimension. Licenses for software elements and other prerequisite software are not included with SimCorp Dimension unless specifically mentioned.

3.2.6.1 .NET Framework versions

The .NET Framework (.NET) is a runtime environment that allows partially compiled code to be fully compiled as part of the application execution process.

.NET is being widely utilised by SimCorp Dimension and should be properly installed. Even though it comes as standard with newer versions of Microsoft Windows, it can still be installed separately (for instance as a different version than the one that came with the Windows version in use) and should still be treated as a system environment component that needs some attention from the system administrator.

Refer to Microsoft documentation http://msdn.microsoft.com/en-us/library/hh925568.aspx to see how to look up installed .NET versions.

SimCorp operates from the assumption that service packs for a given version of the .NET are backwards compatible and that the application of the service pack is not necessarily required in production environments. It is therefore strongly recommended to test an update to .NET in a SimCorp Dimension test environment before a production environment is updated.

Note that SimCorp Dimension may have been developed and release tested at a lower .NET version than the latest release of .NET at the time of release of SimCorp Dimension version. SimCorp Dimension will be partially tested for use on new releases of .NET. Severe findings will be

communicated. Do not hesitate to ask SimCorp before a .NET version is updated.

3.2.6.2 APT ServerXml Interface

APTServerXML is a separate product to be purchased and installed by the client. SimCorp has made an interface that works through a Communication Server set-up.

Since APTServerXML is a separate product supported by a separate vendor it might be considered appropriate to install it on a separate server. If so, the utilised SimCorp Dimension Communication Servers could also be installed on the same server hardware. For more information on advantages and disadvantages of such a solution please contact your SimCorp representative.

SimCorp Dimension is only supported with APTServerXML versions that are supported by Vendor.

3.2.6.3 Australian CGT Calculator

As the Oracle Instant Client is also being utilised, it is important to ensure that both the JRE and the Instant Client are 64-bit.

Note

Due to an error in the 64-bit JRE installer it may happen that the registry settings made by the installer, showing paths to the installed files, do not correspond with the actual placement of the files. In case of any problems it is recommended to check this and correct the settings as needed.

3.2.6.4 GAIN

The corporate actions data management module CADM is powered by the GAIN data management platform. The module is developed by and purchased from AIM Software GmbH. SimCorp A/S is in partnership with AIM Software GmbH for providing a combined solution for scrubbing corporate actions notifications to provide the Golden Copy information for the Corporate Actions Manager to be used in corporate actions Straight Through Processing.

The GAIN data management platform consists of:

- GAIN database server
- GAIN application servers
- GAIN clients

For a more detailed description of prerequisite, the set-up and how to install GAIN please refer to documentation provided by AIM Software GmbH.

Note

Please note that the Gain solution needs two Communication Servers.

Changes to the database set-up from best practice is not part of the maintenance support. If changes are necessary it needs to be done in corporation with AIM and SimCorp before implemented.

3.2.6.5 MarkitSERV Interface

MarkitSERV is a separate product to be purchased and installed by the client. SimCorp has made an interface that works through a Communication Server triggered by auxiliary jobs in SimCorp Dimension.

Please refer to ***MarkitSERV Interface*** documentation for an overview of the MarkitSERV interface solution. SimCorp only handles the set up between the synchronised IBM MQs and the Communication Server parts in SimCorp Dimension. The remaining part of the configurations is outside the scope of SimCorp Dimension support.

3.2.6.6 Order Manager

ORDER MANAGER (OM) is a SimCorp Dimension module for Front Office use.

A Bloomberg (Anywhere) Terminal must be installed and operational on client workstations in order to access market data within **ORDER MANAGER**, and for dealer limits to operate. The Bloomberg real-time interface running with **ORDER MANAGER** requires that it is installed on physical machine and not any virtual platform. Please refer to the user manual ***Bloomberg Realtime Interface*** for more information.

While SimCorp Dimension **ORDER MANAGER** is supported on Citrix not all Bloomberg interfaces are available on Citrix. Please see Bloomberg documentation for further information.

For further information on the Order Manager components, please refer to the ***Bloomberg Realtime Interface*** user manual and the manual ***Front Office Implementation Guide*** available in the online help and from Client Support site.

3.2.6.7 SimCorp Connect (Cloud)

SimCorp Connect is the access point to the cloud solution for SimCorp Dimension applications. To be able to address the SimCorp Dimension cloud solution you need to sign an agreement with SimCorp and afterwards prepare your environment for the solution.

Beside a browser on the unit to use the application in question, you will need a signed certificate.

3.2.6.8 SCDDiff

The configuration data comparison tool **SCDDIFF** is available as separate products with different features. It can be installed on and run from a

SimCorp Dimension client or server, also, if needed, from a network share, and needs access to one or more SimCorp databases (for analysis and comparison) - it also needs access to store its own data and comparison data in the Oracle RDBMS.

Since **SCDDIFF** compares SimCorp Dimension configuration data as stored in the SimCorp Dimension database or databases, it is by definition compatible with the same Oracle versions as specified for SimCorp Dimension.

For more information on **SCDDIFF** please contact your SimCorp representative.

3.2.6.9 SimCorp Dimension Web APIs

SimCorp Dimension Web APIs are hosted on the **Service Platform** and are designed for intranet use.

The Web API service hosts two configurable endpoints, a SOAP endpoint and a REST endpoint using the OData v4 standard.

The endpoints are secured by SSL (https), so a certificate needs to be installed where the Service Platform Web API Service is executed.

The certificate can:

- be issued by a trusted Certificate Authority - and be issued for multi domain use
- be a self-signed certificate issued within the organization.

Note

Please note that the certificate must use the “Subject Alternative Names” field to white-list the fully qualified domain name for the service platform host. This is required to prove the identity of the host towards endpoint consumers.

The endpoints are configured to be available on specific ports. Please make sure these ports are solely used for the Web API service.

The Web API service authenticates all calls as being from well-known SimCorp Dimension users. Basic or Windows (single sign-on) authentication can be configured.

Two concrete Business APIs are currently available: The Data Retrieval API and the Front Office API. Please see Installation guidelines per service type on page 37 for further information.

3.2.6.10 SimCorp Dimension Web Based Dashboards

SimCorp Dimension Web Based Dashboards use Microsoft Internet Information Server (IIS) and are placed in another zone than the intranet zone (DMZ).

The connection from SimCorp Dimension to the IIS uses a SimCorp Dimension service running on the Service Platform. For authentication purposes several options exists:

- Integrated Security. The IIS should be placed in a DMZ together with an Active Directory that has trust on an Active Directory in the intranet. The IIS can then authenticate users using their windows identity and forward the authenticated identity to SimCorp Dimension for authorisation. If users should be able to login remote, a VPN access to the DMZ must be established.
- Forms Identity. Allows remote logins from the internet using a SimCorp Dimension account.

To enable secure communication of the dashboard solution the following certificates are used.

- HTTPS CERT (A server certificate used for https communication with the web browsers). This certificate should be issued by a trusted Certificate Authority and be issued for multi domain use if using integrated security.
- IIS CERT (A client certificate used by the web server to authenticate against the SimCorp Dimension). This can be a self signed certificate issued within the organisation.
- SCD CERT (A server certificate used by the SimCorp Dimension service to authenticate toward the web server). This can be a self signed certificate issued within the organisation.

For more information about SimCorp Dimension Web based Dashboards, see the ***Enabling Dashboards for the Web*** user manual.

3.2.6.11 XpressInstruments

XPRESSINSTRUMENTS is optional modules allowing users of SimCorp Dimension to model financial instruments.

The CPU must support the SSE2 instruction set. This is a requirement for all client hosts from where **XPRESSINSTRUMENTS** is used. For more information about SSE2 please refer to: http://www.intel.com/support/processors/sb/CS-030123.htm.

4 Configuration and setup

This Chapter contains more detailed information and explanations about configuration and set-up. Please read this as an addition to the previous chapters.

SimCorp Dimension provide you with a variety of configuration parameters. Most of these configuration parameters are stored in the configuration file called Cnf.ini. Cnf.ini is placed in the data folder as a sub folder to the netroot folder. It is recommended to change parameters from within SimCorp Dimension if possible. This way the application will check for known restrictions for the parameter, the right character set is used and it prevents unintended characters to be saved that might disrupt application start-up.

4.1 Configuration File

When a SimCorp Dimension session is started, the system reads the configuration file (Cnf.ini) located in the Data folder. This file contains configuration parameters including information about database connectivity, alternative placement of folders needing write access etc.

In the following table you will find an overview of valid configuration parameters there might be present in the Cnf.ini file. The table contains links to more detailed information about some of the parameters where it is considered relevant.

Note

The Windows users performing changes to Cnf.ini must have permission to update the file.

After copying an installation parameters should be carefully examined to prevent mix of installations.

Please be careful when updating the configuration parameters, as wrong values could lead to a malfunctioning system. A number of parameters should only be changed in agreement with SimCorp. The below overview is for reference only.

It is necessary to make a new workspace, using the task **Update Workspace**, after change of parameters in cnf.ini. If **Update Workspace** is not made Service Agents will connect to the environment from before the cnf.ini update. The workspace is automatic updated as part of **Patch-Apply**. You will need to restart the Service platform after a workspace update. You can find more information about how to restart the Service Platform in the ***Service Administration*** user manual.

Parameter	Cnf.ini section	Description	More info
aodefnocpuscheduled	config	Parallel degree when using scheduler for tables larger than the threshold specified in aopallelthresholdsize. Is used when aoparallel=1. Example: `aodefnocpuscheduled=4`	Align Objects Settings on page 110
aofullcopyquota	config	aofullcopyquota is used to limit concurrent full copy of tables thus the amount of temporary space not exceeding this value in MB. Default value is 0, meaning no limit. If set differently the value must never be less than the size of the largest table. Is used when aoparallel=1 This setting can be used both with and without specifying a 'Staging Tablespace' in aofullcopytablespace. `Aofullcopyquota=30000`	Align Objects Settings on page 110
aofullcopytablespace	config	aofullcopytablespace: Specify the staging tablespace Align Object must use when full copying tables Please note if the staging tablespace functionality is used during upgrade, the settings used for the upgrade will not be written to the Cnf.ini. Example: `Aofullcopytablespace=stage`	Align Objects Settings on page 110
aoparallel	Config	Determines if Align Object operations should be done using the Oracle Scheduler. Example (0 disables the use 1:enable is default): `aoparallel=0`	Align Objects Settings on page 110
aoparallelthresholdsize	config	Threshold size in number of rows for when to use parallel degree. Default is 250000. Example: `aoparallelthresholdsize=300000`	Align Objects Settings on page 110
AplCoreName	DyalogAPL	Defines path where APL core files are stored. aplcorename defines the APL core name too. Example: `AplCoreName=\\loghost\aplcores\MAIN_VER_TEST_aplcore*.dat`	Align Objects Settings on page 110
archcompressfiles	config	Specify if Oracle compression is allowed to be used compressing external files. Example: `archcompressfiles=1`	Archiving Related Parameters on page 84

Parameter	Cnf.ini section	Description	More info
archdir	config	Oracle directory for archiving. Example: `archdir=SCARCHDIR`	Archiving Related Parameters on page 84
archparallelinsert	config	The degree of parallelism and the number of files to use when archiving. Example: `archparallelinsert=4`	Archiving Related Parameters on page 84
archparallelselect	config	The degree of parallelism to be used when querying the data to archive. Example: `archparallelselect=4`	Archiving Related Parameters on page 84
Aspclog	config	Used to split SimCorp Dimension folders for each ASP client. Allows use of the two case sensitive tokens: **aspcik** and **aspc**. Used similar to SimCorp Dimension **log** in SimCorp Dimension for example **Reference files**. SimCorp Dimension **log** is used if not set. Example: `aspclog=\\SCFILE\SCDimension\redirect\aspclog`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
aspcontext	config	The name of context that is used with ASP. The context holds the ASPCIK for the current session. Example: `aspcontext=CLIENTCONTEXT`	
Aspctmp	config	Used to split SimCorp Dimension tmp folders for each ASP client. Allows use of the two case sensitive tokens: **aspcik** and **aspc**. Used similar to SimCorp Dimension **tmp**in SimCorp Dimension for example **Reference files**. SimCorp Dimension **tmp** is used if not set. Example: `aspctmp=\\SCFILE\SCDimension\redirect\aspctmp`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
auditts	config	Tablespace for audit trail. Example: `auditts=SCAUDIT`	Database Connectivity Information on page 78

Parameter	Cnf.ini section	Description	More info
audixts	config	Tablespace for audit trail indexes. Example: `audixts=SCAUDIX`	Database Connectivity Information on page 78
batchwssize	config	Specifies the Workspace size in kilo bytes to be used for batch jobs at startup. Used if the size is different from default. Example: `batchwssize=409600`	White paper: ***Memory usage when running SimCorp Dimension***
CertificateHash	cloud	The thumbprint of the client certificate installed on the server communicating with the SimCorp Connect service. Is used to identify the SimCorp Dimension installation against this service. Example: `59 45 f5 10 1a 79 03 d8 b8 6e 62 a4 24 bc 8c aa 09 4f 0d 30`	User Manual: ***Joining SimCorp Evolution***
cloudtilesallowed	config	Determines if Cloud tiles should be present on SimCorp Dimension Portal for users. If set to 0: Cloud tiles will not be available. If set to 1: Cloud tiles will be available. Default is 0=not available. Example: `cloudtilesallowed=1`	
comsrv	lib	Path to Communication Server files. Example: `comsrv=\\SCFILE\SCDimension\Prod\ComSrv`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
ConnectionType	cloud	The type of connection used by SimCorp Evolution. Valid values are: 1) Not connected 2) Direct connection to cloud applications 3) Connection using cloud proxy Example: `ConnectionType =2`	User Manual: ***Joining SimCorp Evolution***
custtabgen	config	This parameter is solely used by SimCorp and should not be present. (must always be “yes” - if present)	

Parameter	Cnf.ini section	Description	More info
DatabaseTimeZone	config	Translation of times stamps across time zones. Time zones must be named like they are in the tz database. Example: `DatabaseTimeZone=Europe/Copenhagen`	Time Zone Adjustment on page 76
datowner	config	Data tables owner. Example: `datowner=SCDAT`	Database Connectivity Information on page 78
datpwd	config	The password of the data tables owner. In rare cases used in support situations.	
datts	config	Data tables owner default tablespace. Example: `datts=SCDAT`	Database Connectivity Information on page 78
dbalterparallel	config	If set to 1 allows changes to tables to execute in parallel for specific maintenance actions as e.g. patchapply. Cnf.ini file Example: `dbalterparallel=1`	Parallel Options on page 109
dbaudit	config	Enable audit trail. Example: `dbaudit=1`	Database Connectivity Information on page 78
dbchecknopred	config	Cost-Based Optimizer should not generate extra predicates from CHECK constraints. Example: `dbchecknopred=1`	CHECK Constraints on page 135
dbconnecthost	config	Database host name (Disabled if `dbname` is used). Example: `dbconnecthost=DK01SNT503`	Database Connectivity Information on page 78
dbconnectport	config	Database host port (Disabled if `dbname` is used). Example: `dbconnectport=1723`	Database Connectivity Information on page 78
dbconnectprotocol	config	Database connection protocol (Disabled if `dbname` is used)..: `dbconnectprotocol=TCP`	Database Connectivity Information on page 78

Parameter	Cnf.ini section	Description	More info
dbconnectservice	config	Database connection service (Disabled if `dbname` is used)... Example: `dbconnectservice=SCDSERVER`	Database Connectivity Information on page 78
dbconnectsid	config	Database connection SID (Disabled if `dbname` is used). Example: `dbconnectsid=T5032132`	Database Connectivity Information on page 78
dbconstvalidate	config	Validate constraints upon creation or perform validation by executing the batch job Validate Basic Constraints. Example: `dbconstvalidate=0`	Database Connectivity Information on page 78
dbdisablesameracnode	config	Has only effect in RAC installation. Normally it is ensured that all sub sessions of a SimCorp Dimension session uses the same RAC node. This may be switched off by setting this parameter to 1.	Normally this should only be used when debugging database connection problems
dbgrant	config	Grant to public or only between system and data table owners. Default is no grant to public and is seldom used Example: `dbgrant=0` dbgrant=1 poses a security risk and the parameter is deprecated and is planned to be removed in version 6.6	Database Connectivity Information on page 78
dbidxpctfree	config	Save space for Primary Key Index. Possible values are: 0 This is the original behaviour where PCT_FREE=10 This should only be used if advised so by SimCorp 1 Uses PCT_FREE=0 takes effect if index is rebuild as consequence of another action. (Default behaviour) 2 Uses PCT_FREE=0 Forces to rebuild index if PCT_FREE differs from 0. Example: `dbidxpctfree=2`	Align Objects Settings on page 110
dbindexmon	config	Enable index monitoring. Example: `dbindexmon=1`	Index Monitoring on page 135

Parameter	Cnf.ini section	Description	More info
dbindexparallel	config	Allow indexes to be created in parallel. Example: `dbindexparallel=1`	Parallel Options on page 109
dbmaxcursors	config	Max reusable cursers. Example: `dbmaxcursors=30`	White paper: ***Memory usage when running SimCorp Dimension***
dbmaxfetchalloc	config	Max fetch size in bytes. Example: `dbmaxfetchalloc=5000000`	White paper: ***Memory usage when running SimCorp Dimension***
dbname	config	Data base source name. Example: `dbname=SCPROD`	Database Connectivity Information on page 78
dbocistmtcache	config	Controls the number of prepared statements which will be cached on the client PC. Default is 400. Example: `dbocistmtcache=800` This parameter should only be present in Cnf.ini as a result of a performance optimisation project performed in cooperation with SimCorp.	White paper: ***Memory usage when running SimCorp Dimension***
dboptusefeedback	config	When a table lacks statistics Oracle might try a different execution next time the same SQL is executed resulting in a non-consistent behavior. INLIST_XXX and INLISTS_XXX_SINGLE are Global Temporary Table (memory tables) without statistics, so SQLs with these tables can potentially be hit by this. In order to disable optimizer feedback (OPT_PARAM) please set dboptusefeedback to 0. Default value is 1. Example: `dboptusefeedback=0`	
dbparalleldegree	config	Parallel degree used when executing select in parallel. Example: `dbparalleldegree=4`	Parallel Options on page 109

Parameter	Cnf.ini section	Description	More info
dbpeekbinddex	config	Control bind peeking in the Data Extractor. Example (enable): `dbpeekbinddex=1`	Bind Peeking on page 118
dbpeekbindmain	config	Control bind peeking (but not in the Data Extractor or the report generator). Example(disable): `dbpeekbindmain=0`	Bind Peeking on page 118
dbsessioncachedcursors	Config	This parameter should only be present in Cnf.ini as a result of a performance optimisation project performed in cooperation with SimCorp	White paper: ***Memory usage when running SimCorp Dimension***
dbstat	config	Enable statistics. If set to `1` the 'Database Performance Maintenance' activity can be used, if set to `0` it cannot. Example: `dbstat=1`	Database Connectivity Information on page 78
dbstatparallel	config	Allows SimCorp Dimension to take advantage of parallel execution during database statistic gathering. Example: `dbstatparallel=1`	Parallel Options on page 109
dbuseplsql	config	Chooses if copying tables uses PL/SQL or SQL. The parameter is used in installation/upgrade programme and by the data extractor in specific situations. Default is to use SQL. `dbuseplsql=0`	
defaultpwd	config	If present, this password will be used when resetting other users passwords, and when create new users. It is recommended to set this parameter to state a common password when a Password Verification Function (an Oracle feature) is present.	
dexrole	config	Role with permissions to DEX schema objects. Example: `dexrole=SCDEXROLE`	Database Connectivity Information on page 78
DiagnosticsServicePort	cloud	Port used for diagnostics scenarios in Cloud Proxy service. Usually set to 0. `DiagnosticsServicePort=0`	User Manual: ***Joining SimCorp Evolution***
dicint	config	This parameter is solely used by SimCorp and should not be present.	

Parameter	Cnf.ini section	Description	More info
dicniu	config	This parameter is solely used by SimCorp and should not be present.	
DisableAuthSvc	config	Used by the Service platform. If set to 1, the authentication service will not be started by the main service agents and the command line utility ScdSvcCtl will not work without authentication service started. Default is 0. Example: `DisableAuthSvc=1`	
Disablecloudauthsvc	config	Determines if Cloud authentication service is used. Default will ensure that 'Cloud authentication service' is loaded by the service platform. Default is 0. An example that prevents service platform from loading Cloud authentication service: `DisablecloudauthSvc=1`	
dump	lib	Path to error dump files. Example: `dump=\\SCFILE\SCDimension\Prod\Tmp\Dump`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
dwhsubst1	config	Used to generate dynamic tnsnames in Data Warehouse schema types.	User manual ***Data Warehouse Manager***
dwhsubst2	config	Used to generate dynamic tnsnames in Data Warehouse schema types.	User manual ***Data Warehouse Manager***
Exttabdir	config	The name of the Oracle directory where external tables used for Data Extractor External tables are created.	User manual ***Data Warehouse Manager***
Exttablogdir	config	The name of the Oracle directory where the log file from the conversion of files to external tables in connection with Data Extractor is placed.	User manual ***Data Warehouse Manager***

Parameter	Cnf.ini section	Description	More info
helpsystem	lib	Path to the folder where extracted Help System files are placed. This parameter is needed for installation and updates of the help system when placed at a file share. Example: `helpsystem=\\SCFILE\SCDimension\helpsystem`	SimCorp Dimension help system - Configuration and Setup on page 98
helpurl	config	If the help system files are installed on an IIS Server it is necessary to state the URL path. Example `helpurl=http://onlinehelp/HelpSystem/1901/`	Help system on an IIS server on page 99
HttpProxyBasePort	cloud	Lowest TCP port used for the on-premise HTTPS proxy traffic for SimCorp Evolution. Used in combination with **HttpProxyNumPorts** Example: `HttpProxyBasePort=44380`	User Manual: ***Joining SimCorp Evolution***
HttpProxyNumPorts	cloud	Number of consecutive TCP ports used for the on-premise HTTPS proxy traffic for SimCorp Evolution. Used in combination with **HttpProxyBasePort.** If set to 1 only one port is used (that being the number stated for) **HttpProxyBasePort.** The use of multiple ports means that each user can have multiple active simultaneous sessions. Example: `HttpProxyNumPorts =10`	User Manual: ***Joining SimCorp Evolution***
icon	config	The colour of the spot on icons shown in the upper left corner of all SimCorp Dimension windows and of the SimCorp Dimension icon shown in the Windows task Notification area. Example: `icon=blue`	Colour Coding Shortcut and Icon for Installation Variants on page 79
iconcolinforms	config	The menu bar area of all SimCorp Dimension windows can be coloured in the colour chosen by “icon” parameter. Example: `iconcolinforms=1`	Colour Coding Shortcut and Icon for Installation Variants on page 79

Parameter	Cnf.ini section	Description	More info
indexts	config	Tablespace for indexes. Example: `indexts=SCINDX`	Database Connectivity Information on page 78
inlistkeepthreshold	config	Use only keep tables when the inlist is longer than the threshold. Default value is 0 - means no threshold. Example: `inlistkeepthreshold=1` This parameter should only be present in Cnf.ini as a result of a support situation and in cooperation with SimCorp.	
InternetProxyEndpoint	cloud	If an internet web proxy is required to make outbound HTTPS requests for SimCorp Evolution, this parameter specifies the internet proxy endpoint. Example: `InternetProxyEndpoint=http://[INTERNET_PROXY_NAME]:[INTERNET_PROXY_PORT]`	User Manual: ***Joining SimCorp Evolution***
LdapDomain	Config	List of Active Directory domains used by the authentication service. You can use multiple domains if you list the domains separated by semicolon. The LDAP global catalogue will be used If the parameter is absent or left empty. The domains will be scanned in listed order until the information is found. Example: `LdapDomain=afirm.com;afirm1.com`	SimCorp Dimension integration to Active Directory (AD) on page 128
LdapPrefix	Config	Prefix used for Active Directory integration. Example `LdapPrefix=SCD1901_`	SimCorp Dimension integration to Active Directory (AD) on page 128
log	lib	Path to Log files. Example: `log=\\SCFILE\SCDimension\Prod\Log`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105

Parameter	Cnf.ini section	Description	More info
Logfile	config	Specifies if the SCD.log should be shrunk without a copy of the old file (values in bytes). Example: `LogFile=<logfilename> [,<i64LogMax>,<i64LogShrink>]`	SimCorp Dimension System Log Files on page 196
logfilename	config	Specifies if the name of the logfile should be changed. Default is scd.log. The name must not contain any special characters or Unicode. Example: `logfilename=systemlog.scd`	SimCorp Dimension System Log Files on page 196
LogonMsg	config	Specifies the body text from the Logon Message functionality. The parameter is used together with the two parameters: `LogonMsgActive` and `LogonMsgHeader` Default is empty or not present. Example `LogonMsg=This testinstalltion will be deleted end of May\n \nPlease contact IT if you needs the installation after May\n\nRegards ITEndof message`	Logon Message on page 86
LogonMsgActive	config	Specifies if Logon Message is active and the content specified for the parameters `LogonMsgHeader` and `LogonMsg` are displayed for users as part of logon to SimCorp Dimension. Default is 0 (or not present). Example: `LogonMsgActive=1`	Logon Message on page 86
LogonMsgHeader	config	Specifies the header shown when Logon Message is used and active. The parameter is used together with the two parameters `LogonMsgActive` and `LogonMsg`. Default is empty or not present. Example: `LogonMsgHeader=Please remember this is a temporary test installation`	Logon Message on page 86
LogRotateSize	Config	Specifies if log-file should be rotated (rotatesize in bytes). Example: `LogRotateSize=5242880`	SimCorp Dimension System Log Files on page 196

Parameter	Cnf.ini section	Description	More info
logsingleline	Config	Specifies if log entries should be single line, default is 0=”multiple lines”. Example: `LogSingleLine=0`	SimCorp Dimension System Log Files on page 196
LogWriter1	Config	Specifies target for Unified logging writer. Values can be either `database` or `file`. Requires the parameter `UnifiedLogging` to be set to either 2, 3 or 4. `Example: LogWriter1=database`	Unified Logging on page 201
LogWriter2	config	Specifies target for Unified logging writer. Values can be either `database` or `file`. Requires the parameter `UnifiedLogging` to be set to either 2, 3 or 4. Example: `LogWriter2=file`	Unified Logging on page 201
maxws	DyalogAPL	Specifies the Workspace size in kilo bytes to be used for ordinary users at start up. Used if the size is different from default. Please note: The size cannot not be lower than 30% of the workspace build into the system. Example: `maxws=409600`	White paper: ***Memory usage when running SimCorp Dimension***
memdumpenabled	config	All Cnf.ini parameters prefixed by memdump are used for collecting information in troubleshooting scenarios. memdumpenabled enables memory dump creation from within SimCorp Dimension. (0 disables the functionality. 1 enables it. 0 is default) Example(: `memdumpenabled=1`	Please refer to standard Windows documentation
memdumpflags	config	Advanced usage only. Integer value bitwise or’ed from the MINIDUMP_TYPE from Microsoft (https://msdn.microsoft.com/en-us/library/windows/desktop/ms680519(v=vs.85).aspx Default value is 0 (MiniDumpNormal). Requires `memdumpenabled=1` and `memdumpuncpath` not to be set. Example where MiniDumpWithDataSegs(0x1 = 0n1) and MiniDumpScanMemory (0x10 = 0n16) are set: `memdumpflags=17`	

Parameter	Cnf.ini section	Description	More info
memdumpfmtstr	config	Format string for alternative dump tool. The format string should contain a placeholder ”PID” which will be replaced with the current process id. Requires `memdumpuncpath` to be set to alternative tool and `memdumpenabled=1.`	
memdumpoutputdir	config	UNC path to memory dump output directory. Requires `memdumpenabled=1.` Example: `Memdumpoutputdir=\\server\share\temp`	
memdumptype	config	Controls the information and thereby size of a created memory dump. Used when `memdumpenabled =1`. Default value is 1. Possible values are: 1 = full dump 2 = mini dump 3 = custom Example: `memdumptype=2`	
memdumpuncpath	config	UNC path for alternative dump tool. In advanced cases, the tooling from SimCorp may not be enough so an alternative tool like procdump from SysInternals\Microsoft can be downloaded and specified here. Default value is empty. Example: `memdumpuncpath=\\server\share\procdump.exe`	
mqtabrole	config	Specifies the name of the role to grant to non SimCorp Dimension users who should be able to update some specific interface tables from outside SimCorp Dimension. Example: `mqtabrole=SCDUTILROLE`	Data Protection on page 130

Parameter	Cnf.ini section	Description	More info
Mucs	config	Specifies the MUCS server and port. Example: `mucs=DK01WP4017,5223`	SCD.LOG Entries Useful to Know on page 202 Start MUCS Server on page 150, MUCS - Error Handling on page 155 MUCS Failover Configuration on page 153
Mucsfailover	config	Specifies the failover MUCS. Example: `mucsfailover=SRV02,5660`	MUCS Failover Configuration on page 153
Mucsfailoveremail	config	Email address to which an email should be sent when the failover MUCS takes over. Example: `mucsfailoveremail=jbs@afirm.com`	MUCS Failover Configuration on page 153
MucsLogFile	config	Specifies if the MUCS.log should be shrunk without a copy of the old file (values in bytes). Example: `MucsLogFile=<logfilename> [,<i64LogMax>,<i64LogSkrink>]`	SimCorp Dimension System Log Files on page 196
MucsLogRotateSize	config	Specifies if MucsLogFile should be rotated (rotatesize in bytes). Example: `MucsLogRotateSize=5242880`	SimCorp Dimension System Log Files on page 196
netroot	Lib	UNC path to the Central Network Installation. Example: `netroot=\\servername\sharename\prod\`	Netroot

Parameter	Cnf.ini section	Description	More info
omauthentication	config	Authentication method used when connecting to the SQL Server instance. Options are: • 0 – Windows authentication • 1 – SQL authentication Default is 0, Windows authentication: Windows Authentication will use the account defined against the FIX.NET Server service. SQL Authentication will use the user name specified in **omsqlserverusername** config entry. The parameter can be changed from **Order Manager Configuration** window.	Database Connectivity Information on page 78
omfixdatabasename	config	Name of the FIX engine database (Initial Catalog) located on the SQL Server Example: `omfixdatabasename=FIX` The parameter can be changed from **Order Manager Configuration** window.	Database Connectivity Information on page 78
omfixservicehostname	config	Physical location of the FIX.NET Server service. This can be either a server name or its IP address and must include the instance name if one was defined when SQL Server was installed. Example: `omfixservicehostname=SQLSERVER\FIX` The parameter can be changed from **Order Manager Configuration** window.	Database Connectivity Information on page 78

omsqlserverhost	config	Physical location of the SQL Server. This can be either a server name or its IP address. Add the database instance name separated by '\' if an instance name was specified during the SQL Server installation. Examples:
		`omsqlserverhost=DatabaseServer1`
		or
		`omsqlserverhost=DatabaseServer1\Test`
		The parameter can be changed from **Order Manager Configuration** window.
			Database Connectivity Information on page 78

omsqlserverusername	config	SQL Server defined user name for database connectivity. Must have permissions to the FIX engine database. The parameter can be changed from **Order Manager Configuration** window.	Database Connectivity Information on page 78

Parameter	Cnf.ini section	Description	More info
omwsdatastorehostnames	config	Physical locations of Event Store nodes. Can be either server name or IP address. Product setup must include minimum 3 nodes and should be odd number of nodes. Example: `omwsdatastorehostnames=Servername1, Servername2, Servername3` The parameter can be changed from **Order Manager Configuration** window	
omwsdatastoredirectorypaths	config	Directory path for corresponding Event Store node defined with parameter **omwsdatastorehostnames**. Directory path can be a local directory or networked directory path. Example: `omwsdatastoredirectorypaths=c:\db,c:\db,c:\db` The parameter can be changed from **Order Manager Configuration** window	
omwsworkflowcomport	config	Port on which Order Manager - Workflow Service allows OM client to talk with OM workflow service architecture without need to access config by database or API. Example: `omwsworkflowcomport=5556` The parameter can be changed from **Order Manager Configuration** window	
protected	lib	Path to Protected files. Example: `protected=\\SCFILE\SCDimension\Prod\Protected`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
rconnect	lib	Path to **OPERATIONAL DATA ASSISTANT** (Remote Connect) files. Example: `rconnect=\\SCFILE\SCDimension\Prod\Rconnect`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105

Parameter	Cnf.ini section	Description	More info
rep	lib	Path to Report files. Example: `rep=\\SCFILE\SCDimension\Prod\Rep`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
reportrole	config	Role for select access for use by report users. Example: `reportrole=SCREPROLE`	Oracle User Privileges on page 140
SCConnectEndpoint	cloud	Endpoint of the SimCorp Connect service used by SimCorp Evolution connectivity: Example: `SCConnectEndpoint=https://auth.simcorpcloud.com`	User Manual: ***Joining SimCorp Evolution***
SCConsultGroup	config	Parameter to use an active directory group to limit which users who can use the parts of SimCorp Dimension that requires "Password of the week" (PoW). Only Windows users belonging to the active directory group stated is allowed to login using PoW. Example: `SCConsultGroup=DOMAIN\ADgroupname`	Use Active Directory to limit access to functionality covered by Password of the Week on page 85
SCDDiffLibBin	config	Directory for SCDDiff binary. If nothing specified the default folder<root>\AddOns\SCDDiff\go will be used. Example: `SCDDiffLibBin=\\SCFILE\SCDimension\Prod\SCDdiff`	SimCorp Dimension System Log Files on page 196
SCDDiffLibRes	config	Directory for SCDDiff result file. If nothing specified the default folder<root>\AddOns\SCDDiff\go will be used. Example: `SCDDiffLibRes=\\SCFILE\SCDimension\Prod\SCDdiff`	SimCorp Dimension System Log Files on page 196
Scdlogsplit	config	Specifies if the system log file should be split or not, default is 0=”no splitting”. Example: `ScdLogSplit=1`	SimCorp Dimension System Log Files on page 196

Parameter	Cnf.ini section	Description	More info
SCProxyEndpoint	cloud	Endpoint of SimCorp Cloud Portal that connects to SimCorp Evolution services, without routing all traffic through an on-premise Cloud Proxy service. It is not recommended to have all traffic routed through an on-premise Client Proxy service - please use this Cloud Portal instead. Example: `SCProxyEndpoint =https://facade.simcorpcloud.com`	User Manual: ***Joining SimCorp Evolution***
selfservicedisable	config	Disables the "Forgot password" button on logon screens for Password authenticated users. Default value is=0 meaning the button is default enabled. Example: `selfservicedisable=1`	
selrole	config	Role for select access for use by other users. Example: `selrole=SCSELROLE`	Database Connectivity Information on page 78
serverwssize	Config	Specifies the Workspace size in kilo bytes to be used for services at startup. Used if the size is different from default. Please note that the size cannot be lower than 30% of the build in workspace minimum. Example: `serverwssize=409600`	White paper: ***Memory usage when running SimCorp Dimension***
shutdownbyuser	config	List of Windows users who are allowed to shutdown SimCorp Dimension sessions, or blocklogon, from a command line. Example: `shutdownbyuser=TPG, JWR, ABC`	Shutdownbyuser and Shutdownfrompc on page 85
shutdownfrompc	config	List of PCs from which it is possible to shutdown SimCorp Dimension sessions, or blocklogon, from a command line. Example: `shutdownfrompc=P389WS`	Shutdownbyuser and Shutdownfrompc on page 85
specroleprefix	config	Prefix used for database roles for special privileges. The prefix cannot be empty. `Example specroleprefix=SCD`	Oracle User Privileges on page 140

Parameter	Cnf.ini section	Description	More info
StandbyDBConnstr	config	If the parameter StandbyNameMode = 1 it is necessary to state the connection string. The connection string must be in uppercase and must not contain CR/LF or TAB characters. Example: `(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST = DK01SU0903)(PORT = 1521)))(CONNECT_DATA = (SID = U1031101)))`	Oracle Active Data Guard on page 138
StandbyDBName	config	Enabling the use of Standby Database. Example: `StandbyDBName=IMSDEV_ADG`	Oracle Active Data Guard on page 138
StandbyNameMode	config	Defines if the Database name(0) or Connection string(1) will be used for connecting to the Standby database. (In System Environment Configuration it is the radio button in Standby DB configuration section 0=Database name 1= Connection string) Default is 0, Database name. Example: `StandbyNameMode=1` If StandbyNameMode=1 StandbyDBConnstr needs to be used.	Oracle Active Data Guard on page 138
state	config	The name (Installation type) of the SimCorp Dimension installation. Example: `state=PROD`	Naming the SimCorp Dimension Installation on page 80
supportsite	config	Show the link to SimCorp Support Portal address. (default value: `Supportsite=https://simcorp.force.com/`)	Incidents and Service Requests on page 204
Svcauthmode	config	Configures how authentication is handled between clients and services on the service platform. (Default is 1, Default Windows Authentication). Example: `SvcAuthMode=0`	
SvcDirectoryService	config	Lists the main service agents on which the system services will be started. Example of the semi colon separated list of machine names and ports: `SvcDirectoryService=dk01svb001,64294;dk01svb002,64295`	`System Environment Configuration` at the Services tab.

Parameter	Cnf.ini section	Description	More info
SvcDisableLoadBalancing	config	It is possible to disable load balancing system wide by setting the parameter SvcDisableLoadBalancing. If the parameter is set to 1 no warnings will be displayed on client or server side. Example: `SvcDisableLoadBalancing=1`	User manual ***Service Administration***
SvcEncryptMode	config	Configures: Use of encryption in communication between clients and services. Example: `SvcEncryptMode=1`	User manual ***Service Administration***
SvcLongRunning	config	Specifies expected response time in milliseconds for long running service calls. Default is 1200000 milliseconds. Will only be used if SvcServiceMetricsEnabled=1. Example: `SvcLongRunning=1000000`	User manual ***Service Administration***
SvcNearRealtime	config	Specifies the expected response time in milliseconds for NearRealtime service calls. Default is 500 milliseconds. Will only be used if SvcServiceMetricsEnabled=1 Example: `SvcNearRealtime=600`	User manual ***Service Administration***
SvcOnlineRequest	config	Specifies the expected response time in milliseconds for Service calls for regular online requests. Will only be used if SvcServiceMetricsEnabled=1 Default is 5000. Example: `SvcOnlineRequest=4000`	User manual ***Service Administration***
SvcServiceMetricsEnabled	config	Specifies if service call metrics are collected. (Default is 1, enabled). Example `SvcServiceMetricsEnable=0`	User manual ***Service Administration***
SvcServiceSegment		This parameter is solely used by SimCorp and should not be present.	User manual ***Service Administration***

Parameter	Cnf.ini section	Description	More info
SvcSharedLoadData	config	Used by service agents when calculating the resource index of the agent (used by service platform to find most suitable service agent to start a service on). When enabled (1) the number of services running on all services agents (across installations and versions) on the machine will be used in the calculation of the resource index. This will result in a better index when having multiple agents installed on the same machine/server. Default is 0 (disabled) to enable: `SvcSharedLoadData=1`	`System Environment Configuration` at the Services tab and User manual ***Service Administration***
Swapisinandcusip	Config	Sets CUSIP as the primary security identification, and ISIN as the secondary in many screens Default is 0=ISIN. Example `swapisinandcusip=1`	
sysowner	config	System tables owner. Example: `sysowner=SCSYS`	Database Connectivity Information on page 78
systemprofile	Config	Profile for system users. Example: `systemprofile=SCSYSTEMPROFILE`	Database Connectivity Information on page 78
systs	config	System tables owner default tablespace. Example: `systs=SCSYS`	Database Connectivity Information on page 78
TelemetryDisabled	config	Specify if telemetry data should be send to the cloud or not. Default is False (0) meaning telemetry data will be send to the cloud. Example to set to True: `TelemetryDisabled=1`	
tmp	lib	Path to Temporary files. Example: `tmp=\\SCFILE\SCDimension\Prod\Tmp`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105

Parameter	Cnf.ini section	Description	More info
tnsadmin	Config	Path to the Oracle tnsnames.ora and sqlnet.ora files. Will set TNS_ADMIN to this path locally for the session at SimCorp Dimension startup for the duration of the session. Example: `Tnsadmin=\\dom.net\share\TNS_Admin`	Database Connectivity Information on page 78
transport	lib	Path to Transport queues. Example: `transport=\\SCFILE\SCDimension\Prod\Transport`	File Server - Redirection of Common Write Access Folders and HelpSystem on page 105
trdarcts	config	Order Manager archive tablespace. Example: `trdarcts=SCTRDARCTS`	Database Connectivity Information on page 78
trdindexts	config	Order Manager index tablespace. Example: `trdindexts=SCTRDINDEXTS`	Database Connectivity Information on page 78
trdowner	config	Order Manager schema owner. Example: `trdts=SCTRD`	Database Connectivity Information on page 78
trdts	config	Order Manager data tablespace. Example: `trdarcts=SCTRDTS`	Database Connectivity Information on page 78
UnifiedLogging	config	The mode of log operation (default is 3). Possible values are: 1: Traditional (file only) 2: Traditional + unified (file and database, when viewing logs the file will be used) 3: Unified + Traditional (file and database, when viewing logs the database will be used). 4: Unified (database only). Example: `unifiedlogging=2`	Unified Logging on page 201
urlprotocol	portal	Portal address bar starting name. Example: `urlprotocol=scprod`	The URL Protocol Name on page 81

Parameter	Cnf.ini section	Description	More info
Usecloudhelp	config	Allows you to use Cloud Help updated by SimCorp. Default 0 `Usecloudhelp=1`	SimCorp Dimension help system - Configuration and Setup on page 98
useeventlog	config	Allows messages to be send to Windows Event log. If set to 1, messages are send to Windows Event log – SCD log file is still used. Default is 0 `useeventlog=1`	SimCorp Dimension System Log Files on page 196
useosaut	config	Allow for single sign-on using the OS credentials or Kerberos authentication for automatic login on. Default is 0 =use passwordSimCorp Dimension. Example: `useosaut=2`	Unattended Logon on page 120
userprofile	config	Profile for users. Example: `userprofile=SCUSERPROFILE`	Database Connectivity Information on page 78 Overview of Design and Solution - User Management on page 119
userrole	config	Role for users. Example: `userrole=SCROLE`	Database Connectivity Information on page 78
userts	config	Default tablespace for users. Example: `userts=SCUSERS`	Database Connectivity Information on page 78
UseStandbyDB4DEX	config	Enabling the use of Standby Database for SimCorp Dimension Data Extractor (Default is 0: Disabled). Example: `UseStandbyDB4DEX=1`	Oracle Active Data Guard on page 138
UseStandbyDB4Rep	config	Enabling the use of Standby Database for reporting purpose. Example: `UseStandbyDB4Rep=1`	Oracle Active Data Guard on page 138

Parameter	Cnf.ini section	Description	More info
usewhitelistformylinks	config	Determines if Custom Links functionality in SimCorp Dimension Portal should be whitelisted. if set to0: Users will be able to create customised links. If set to1: Users can only create links picked from a predefined list . (Default is: 0). Example: `usewhitelistformylinks=0`	Clients (workstations) on page 16
XPLookAndFeel	DyalogAPL	Change how SimCorp Dimension APL windows appear. Default is enabled (1) meaning that if you choose an Aero theme or basic Windows7 the windows will be shown as such. If disabled (0) the windows will be shown in “old style” despite the chosen Windows Theme. Example: `XPLookAndFeel=0`	XPLookAndFeel on page 82

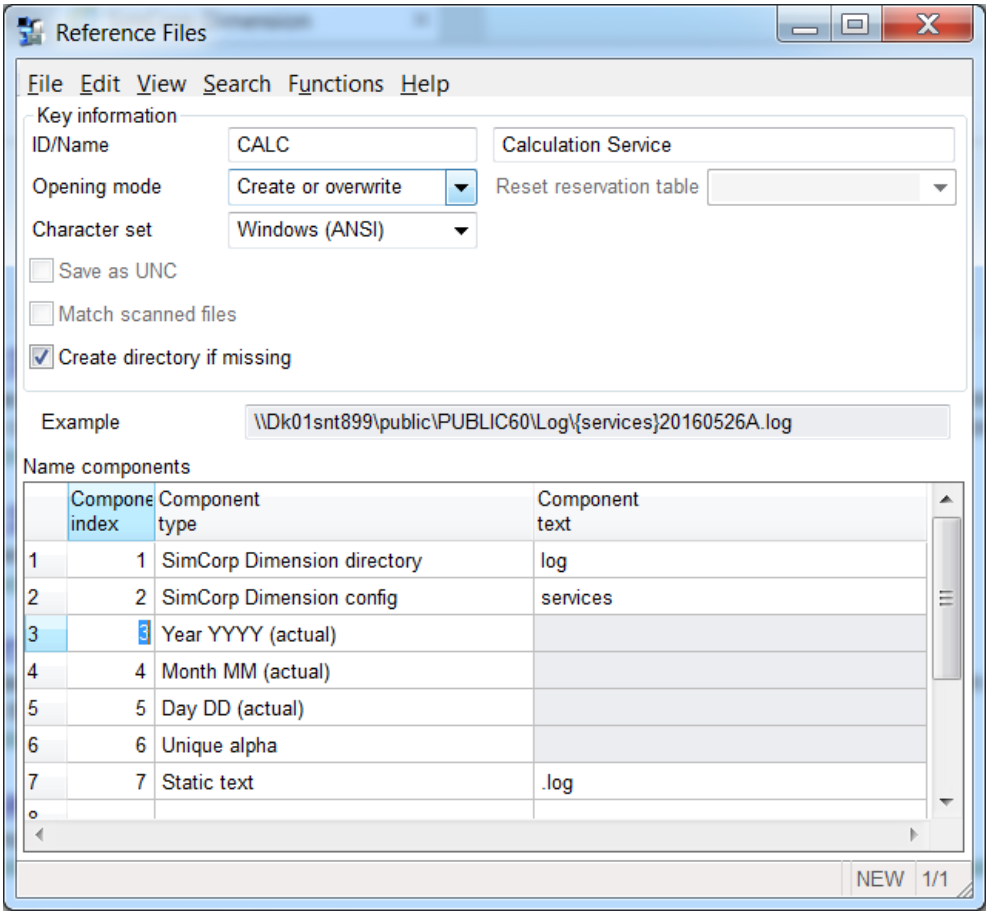
4.1.1 Reference Files

You can use Reference files in SimCorp Dimension. The reference file names are stored in the database and you can choose to use SimCorp Dimension **directory component type** that is a reference to a parameter in the Cnf.ini file. If you use entries in the reference file setup, that can be changed in the Cnf.ini file, a change will take effect in the reference file immediately. If you don’t want to use **directory component type** in the reference files you will need to correct each reference file manually after a copy/move of a SimCorp Dimension installation to avoid the source and target installations being mixed. You can setup reference files in the menu in SimCorp Dimension called **Reference Files**.

4.1.1.1 Log Reference Files from the Application

Different processes in SimCorp Dimension use the reference file utility to store log files.

The use of Reference File Names is explained in the SimCorp Dimension ***Setting up Reference Data*** User Manual. Pay special attention to the **Component type SimCorp Dimension directory** that makes it possible to define log paths relative to the current SimCorp Dimension installation (test, prod etc). Definition of the actual path is done in the Directories tab Additional definitions field of the **System Environment Configuration** task. Please see Configuration and setup on page 51 for more information on changing system environment settings.



Note

The Windows user starting the SimCorp Dimension process must have the appropriate permission to write to the folders mentioned.

It is always possible when using **Component type SimCorp Dimension directory** to reference any of the standard installed SimCorp Dimension folders, such as Log, Tmp.

It is good practice to keep the number of objects in the network installations Log folder to a minimum. Therefore, if the Log folder is used for reference files it is recommended to create sub folders for these and then define these in the **Additional definitions** field of **System Environment Configuration,** or alternatively reference the standard folder (for instance Log) with **Component type SimCorp Dimension directory** and a **SimCorp Dimension config** entry for the sub folder, for example `Services`, assuming a folder Services has been created as `..\Log\Services`.

4.1.2 Time Zone Adjustment

Adjustment of times across time zones is an optional module. Through this feature it is possible to convert times automatically, based on location.

This has been utilised in system events, for instance:

- Messages sent via the Communication Server
- Files imported into SimCorp Dimension
- Reports
- Windows in SimCorp Dimension

The implications of the time zone translation feature are:

- Database time zone must be configured and kept as defined. Errors due to wrong configuration might not be correctable
- It is possible to set user time zone if this cannot be derived automatically from Windows
- Time zones must be named like they are in the tz database

A common time stamp is applied to business data according to that of the database server. This common time is applied to the following:

- Logs files
- Data extracts

A ToolTip appears in all windows with time stamps, which shows when a local time stamp is being used.

4.1.2.1 Set up the Database Time Zone

To convert times automatically, based on location the database time zone needs to be stated in the Cnf.ini file. The Olson name standard is used.

Note

There is no default value for the Database TimeZone parameter. Instead, if the parameter is not set the time zone functionality will be disabled.

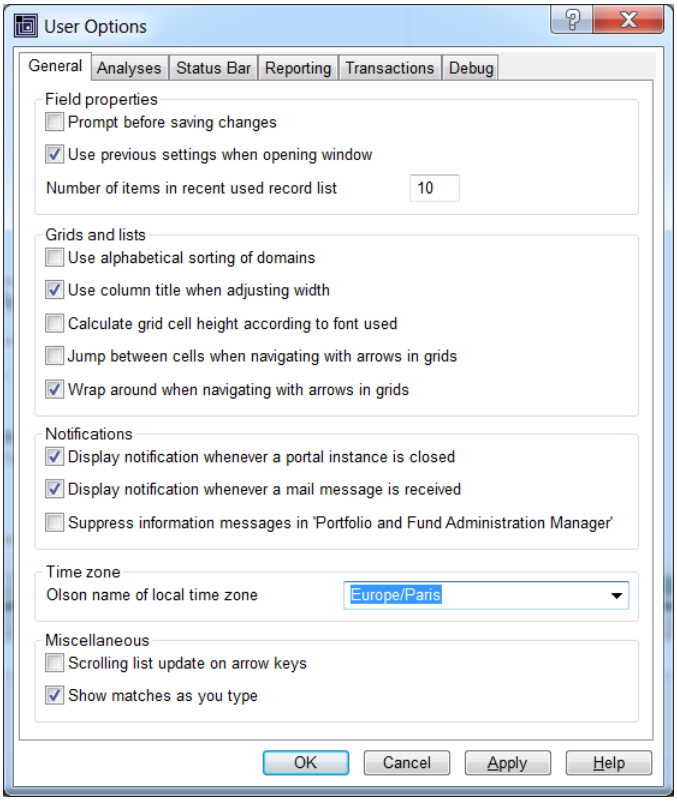
```
…
;Database time zone
DatabaseTimeZone=Europe/Paris
```

The database time zone will appear in the **Database Parameters** task on the **Connection** tab.

Note

The Cnf.ini parameter should not be changed when first added. If it is changed dates shown will be wrong for data stored in the database before the parameter has changed.

Setting the Olson time zone of the user in the **User Options** can be used e.g. when the system can't derive it from the Windows setting, or if a user is working on a remote PC that is using another time zone than the user is working on.



In order to initiate the local time zone setting it is then necessary to re logon to SimCorp Dimension.

Please refer to Olson Time Zones – e.g. http://en.wikipedia.org/wiki/Tz_database to see a list of time zones.

The NodaTime Library is based on the tz database, also known as the zoneinfo database or the Olson database, which is a compilation of information about the world's time zones. The Olson database is maintained by https://www.iana.org/. The NodaTime library is maintained by Jon Skeet, https://nodatime.org/.

4.1.3 Database Connectivity Information

Database connectivity is determined through informations in the [config] section of the Cnf.ini file. Please see the table containing all valid parameters for the configuration file. Database connectivity parameters are stated as part of the installation of SimCorp Dimension and needs to be examined carefully after a copy of an installation.

When `tnsadmin` is defined, SimCorp Dimension sessions will at start up automatically set TNS_ADMIN to this path, locally for the session. This eliminates the need for TNS_ADMIN to be created at the client PC. The entry overrides any TNS_ADMIN specified either in registry or as a

environment variable. If the entry is not specified or left empty TNS_ADMIN will not be set at session start up.

Instead of specifying `dbname=` in the Cnf.ini file, which additionally requires either the tnsadmin Cnf.ini entry defined or a `TNS_ADMIN` string value to be present in the Windows registry, a few more parameters can be specified in the Cnf.ini file. The following parameters should then be present:

```
dbconnecthost=...
dbconnectport=...
dbconnectprotocol=...
```

and either:

```
dbconnectservice=....
```

or

```
dbconnectsid=...
```

If both are defined, then only `dbconnectservice=` is used.

If `dbname=` is defined the `dbconnect` parameters will be ignored.

Example where `dbname=` is not defined:

```
[config]
state=PROD
icon=green

; dbname : database source name
dbname=
; dbconnecthost, dbconnectport, dbconnectprotocol and
dbconnectservice or dbconnectsid : alternative data
source specification
dbconnecthost=DK01SNT503
dbconnectport=1723
dbconnectprotocol=TCP
dbconnectservice=
dbconnectsid=T5032132
```

4.1.4 Colour Coding Shortcut and Icon for Installation Variants

To make it easier to distinguish between different installations of SimCorp Dimension it is possible to add a coloured dot to the SimCorp Dimension shortcut icon. The change of shortcut icon is done from Properties of the shortcut using Change Icon. The file to use is scd.exe found in the bin folder of the netroot installation.

If the shortcut icon are not visible in Windows 10 it might be caused by the Group Policy "Allow the use of remote paths in file shortcut icons". The solution is to use regedit and create the registry element. Please note this will only occur if you use scd.exe from the netroot not i if you use SimCorp Dimension local installation.

The change to the shortcut icon only adds the coloured dot to the shortcut. To add a colour to the SimCorp Dimension application windows it is necessary to register this on the **General** tab in **System Environment Configuration**:

This defines the colour of the icon shown in the upper left corner of all SimCorp Dimension windows and the colour on the SimCorp Dimension icon shown in the Windows Task Notification area. If “Use in windows” is selected, the menu bar area will be filled with same colour.

The colour corresponds to the Icon entry in the [config] section and the mark in “use in windows” corresponds to the [config] entry “iconcolinforms” in the configuration file. The codes for the possible colours are shown in the table below:

Icon colour	Code
Black	black
Blue	blue
Dark blue	darkblue
Dark green	darkgreen
Dark grey	darkgrey
Dark red	darkred
Green	green
Light blue	lightblue
Light grey	lightgrey
Red	red
Violet	violet
White	white
Yellow	yellow

4.1.5 Naming the SimCorp Dimension Installation

The State entry in the [config] section in the configuration file gives the name of the SimCorp Dimension installation, as shown in the SimCorp Dimension main window in the Windows caption bar, for instance PROD, TEST or NEW.

If the name (state) is changed, you will need to run a number of Scd.exe jobs in right order, if those script are note executed SimCorp Dimension will show the error: “Fatal Error Workspace belongs to another installation”. Please see the manual ***Copying SimCorp Dimension*** for more information.

Note

Please inform customer service if the installation name (state) is changed as patches and new installation files must be generated based on the new installation name. Omitting this step may prevent patching, ins-file updates and upgrading.

The name (state) must follow the following restrictions:

- only contain alphanumeric characters A to Z, 0 to 9 and the underscore character (“_”).
- start with an alphanumeric character.
- not exceed 20 characters
- not contain spaces or special characters (for instance, #, &, *).
- The following words are reserved and may not be used:
  - SIMCORP
  - SCD
  - TMS
  - VER## (for instance, VER65)

If the name of the installation is reflected in the installation file (…\Data\Ins.ini, entry installation=) it will not be possible to change the name of the installation.

4.1.6 Netroot

A netroot entry in the **[lib]** section gives the UNC path to the location of the SimCorp Dimension Central network installation. This entry is used when there are clients using SimCorp Dimension **Local Installations**. Even If no clients are currently planned to run SimCorp Dimension **Local Installation**, it is still required that this entry is present. Please do not use Netroot as abbreviation for other purposes.

4.1.7 The URL Protocol Name

When opening the SimCorp Dimension Portal, the URL protocol name can be shown if you click to the right of **Home.** The URL protocol name is the starting point for the SimCorp Dimension module hierarchy and can be used in, for example, shortcuts or Favourites to specific tasks.

The URL protocol name is registered in the configuration file under the [**portal**] section. For example:

```
Portal
urlprotocol=scprod
```

Changing the URL protocol name must be done from **System Environment Configuration**.

Please be aware that the following rules must be applied when changing the URL protocol name:

- The URL protocol name can only consist of lower case alphabetic letters from a – z and/or numbers from 0 – 9
- No spaces or special characters are allowed in the URL protocol name
- The URL protocol name must be unique to the installation, meaning that they must, for instance, be different for Production and Test installations

By default, the URL protocol is named 'sc' plus the installation name in lower case, for instance 'scprod'. If there is a character in the installation name which is not allowed in the URL protocol name, it will be removed in the default generated name.

Note

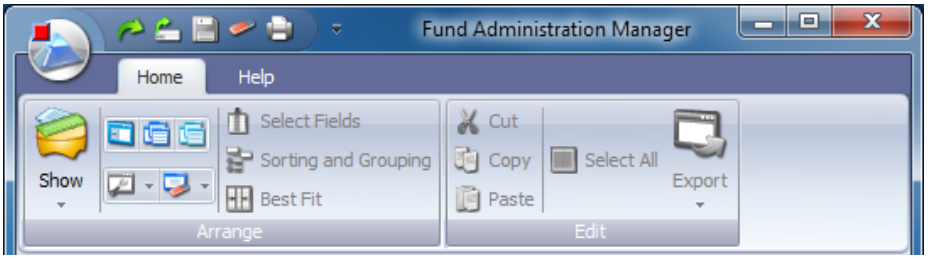
If the URL protocol name is changed (for example as part of an upgrade) then existing user Favourites and shortcuts will not work any longer and will need to be redefined.

4.1.8 XPLookAndFeel

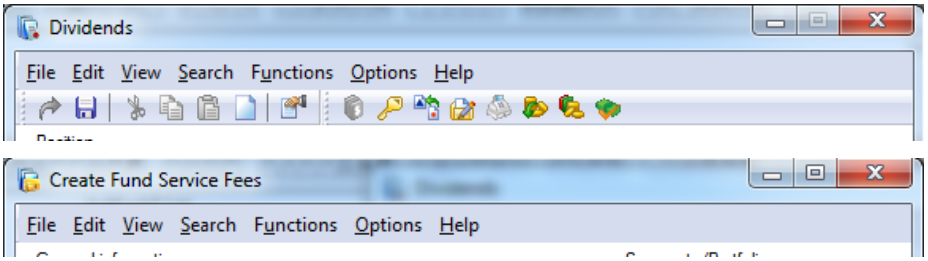
APL and .Net are two development tools used developing SimCorp Dimension. These tools will in many cases be able to produce user functionality with almost identical user experience by utilising the Microsoft Windows user interface model.

In cases where it makes sense to differentiate between windows made with the two tools, they are recognisable by, for instance, their use of menus.

.Net windows will usually be equipped with a ribbon type menu, combining a menu with toolbars, like:

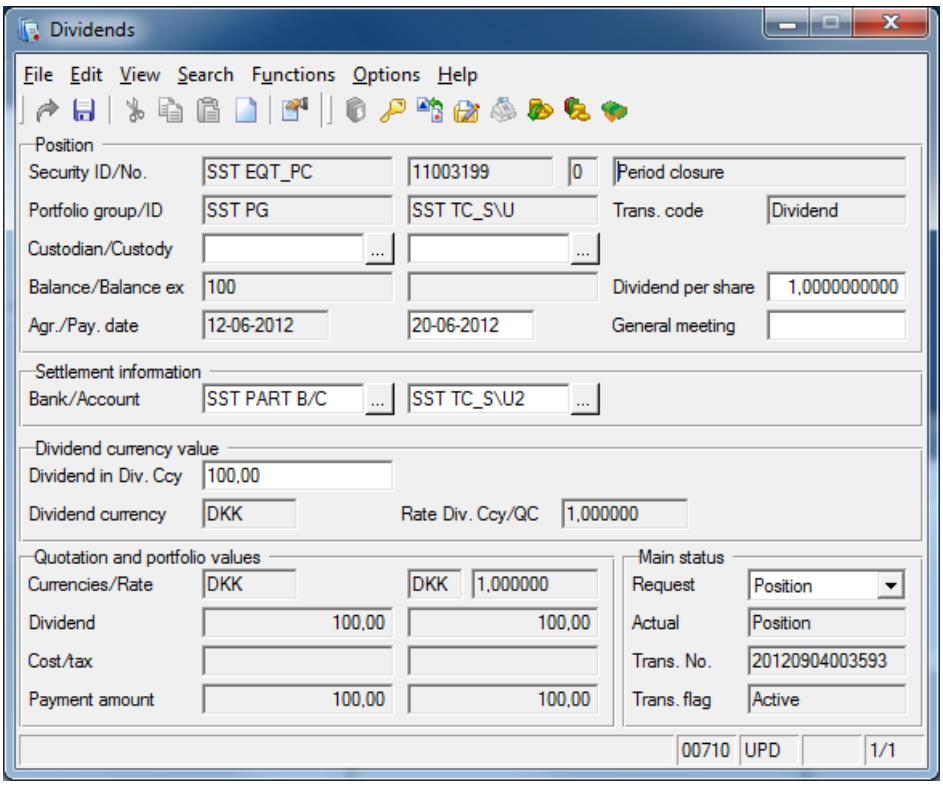


APL based windows will usually be equipped with a menu like the below examples, either with or without a toolbar:



APL based windows will reflect the Windows theme chosen in Windows Control Panel. The window below shows how SimCorp Dimension looks with a Windows theme “Aero Themes”. Using the Basic and High Contrast Theme “Windows 7” will look almost the same, except from the “look through” effect on title bar.

Using other Windows basic and High Contrast Themes will make the same window look like this:



It is possible to force SimCorp Dimension to overrule the Windows themes and show windows as the latter for all users. The parameter to overrule the Windows themes is called `XPLookAndFeel` and is found in the Cnf.ini file.

4.1.9 Archiving Related Parameters

The following are examples of parameters (specified in the `[config]` section of the Cnf.ini file) related to archiving of data from SimCorp Dimension:

```
;archdir : Oracle directory for archiving

archdir=SCARCHDIR

;archcompressfiles : specify if compressed external
; files should be used (COMPRESSION ENABLED)
; 0=Not Enabled, 1=Enabled

archcompressfiles=1

;archparallelselect : the degree of parallelism
;to be used when querying the data to archive

archparallelselect=4

;archparallelinsert : the degree of parallelism and the
;number of files to use when archiving

archparallelinsert=4
```

Note

When archiving audit data the parallel options are only applicable if an Audit Translation Service has been defined and is running.

Note

Remember to check directory path for the Oracle directory containing SimCorp Dimension archive data after a copy between e.g. Prod and Test. If the path differs between the production and the test system, the directory object must be recreated in test, to point to the correct location.

See also Audit Trail below.

4.1.10 Audit Trail

Description and detailed technical requirements of the solution for Audit Trail and audit archiving can be found in the SimCorp Dimension ***Audit Trail & Four Eyes Principle*** User Manual and ***Archiving*** User Manual.

To use the audit archiving solution an Oracle directory must be created with read and write access granted to the SimCorp Dimension data owner (datowner). You can create the directory during the upgrade or you can

create it manually afterwards. In the latter case, please refer to the ***Archiving*** User Manual.

Note

SimCorp Dimension supports database table partitioning on the audit tables. This allows a faster clean up of tables after archiving. Please refer to section Partitioning on page 114 for more information.

4.1.11 Shutdownbyuser and Shutdownfrompc

In the **[config]** section of the Cnf.ini file it is possible to specify the following entries:

```
shutdownbyuser=<user>[,<user>,..]
shutdownfrompc=<pcname>[,<pcname>,..]
```

These options determine which Windows users are allowed to shutdown/blocklogon or from which PC's it is possible to shutdown/blocklogon SimCorp Dimension sessions from a Command line (please refer to section Scd.exe on page 190 for more details).

If both shutdownfrompc and shutdownbyuser are set, information is 'AND'-ed together. Example: if the following entries are in the Cnf.ini file, only the Windows user TPG can execute the `scd.exe -shutdown` command, and only if the command is run on a PC with the host name P389WS:

```
[config]
…
shutdownbyuser=TPG
shutdownfrompc=P389WS
…
```

Attempts to use `scd.exe –shutdown` by any other Windows users or from any other PC will not be executed and result in an error.

If only the shutdownbyuser is specified, then Windows user TPG can run the command from any PC. If only shutdownfrompc is specified, then any user (with appropriate Windows permissions to SimCorp Dimension) can run the command, but only from a PC with host name P389WS.

If there are no entries for these parameters (the default situation) in the Cnf.ini file, then all users (with appropriate Windows permissions to SimCorp Dimension) can run the `scd.exe –shutdown` command and it can be run from any PC.

4.1.12 Use Active Directory to limit access to functionality covered by Password of the Week

Password of the week is an additional password added to functionality in SimCorp Dimension, where you need to possess special knowledge and where SimCorp should be consulted.

Password of the week is used:

- When you logon as the **usertype SimCorp Consultant.**
- When you start SimCorp Dimension in programmer mode.

Users of **usertype SimCorp Consultant** can be added by a user with user type **System Administrator**. A **SimCorp Consultant** user created in SimCorp Dimension acts like a **normal user** meaning you can add authorisation to the user and the user is created with Oracle user login. Unlike **normal user** a **SimCorp Consultant** user needs to state an extra password (Password of the Week) generated in SimCorp.

For debug purposes SimCorp Dimension can be started in programmer mode. All users created within SimCorp Dimension can start SimCorp Dimension in programmer mode but it will require you to state the extra password (Password of the Week).

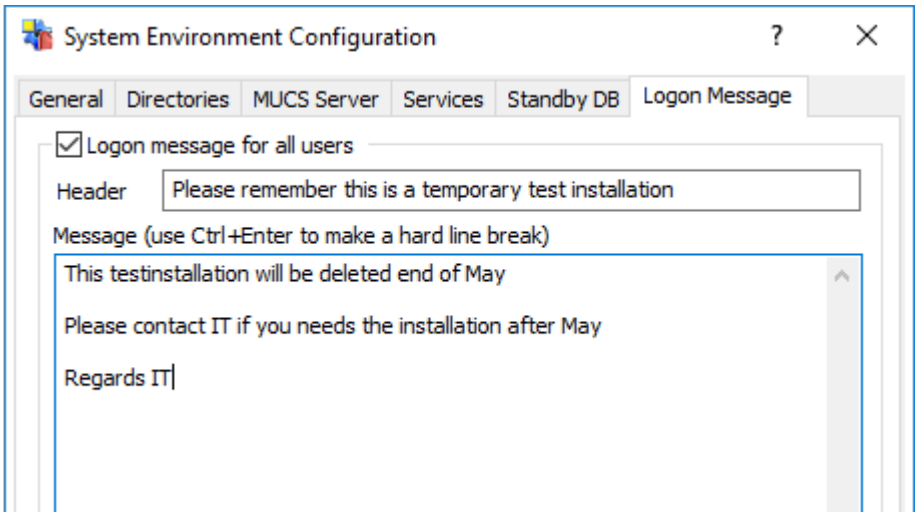
You can limit users with access to Password of the Week functionality to member of a specific Active Directory group. To do so please add the Cnf.ini parameter **SCConsultGroup** to the Cnf.ini file and state the name of the Active Directory group containing users, who should be able to use functionality covered by Password of the Week. Please see Configuration File on page 51 too.

If the parameter **SCConsultGroup** is specified in Cnf.ini:

- It is only possible to log on using PoW if you are part of the specified Active Directory Group.
- It is only possible to start in programmer mode (where PoW always is needed) if the **usertype** is **SimCorp Consultant**.

4.1.13 Logon Message

SimCorp Dimension provides the possibility to add a permanent popup text shown for users at logon. The functionality is visible in **System Environment Configuration** at the tab called **Logon Message**.



Data at the tab **Logon Message** matches three parameters in the **[config]** section of the Cnf.ini file as shown:

```
LogonMsgActive=1

LogonMsgHeader=Please remember this is a temporary test
installation

LogonMsg=This testinstallation will be deleted end of
May\n\nPlease contact IT if you needs the installation
after May\n\nRegards IT
```

Users who need to use **System Environment Configuration** needs appropriate access to the Cnf.ini file placed in \\Netroot\data folder.

Note

Please note that input to Cnf.ini is limited to ANSI characters.

4.2 File Server - configuration and setup

The file server is the basic server for the SimCorp Dimension folder structure. The following sections will describe the folder structure, needed permissions, how to redirect folders that needs write access, how to handle SimCorp Dimension documentation and what to consider about virus scans.

4.2.1 File Server - folder structure

SimCorp Dimension consists of a number of folders, placed in the netroot folder. The exact set of folders will vary with the choice of SimCorp Dimension modules.

Some of the folders can contain sub-folders some of those with sub-folders.

The SimCorp Dimension netroot folder should reside in a dedicated folder for example: `\\server\share\scRootFolder`.

4.2.1.1 AddOns Folder

This folder is used for various subfolders needed by separately installable modules and third party software. The contents of each subfolder will consist of different kinds of files, depending on each module's needs, and can contain subfolders.

Some modules will use a subfolder in `AddOns` for their installation packages, structured in second (and further) level subfolders as needed.

Currently the following subfolder (first level) can be found:

- `CrystalSetup`, which holds the installation package or packages for the Crystal reports runtime supplied with SimCorp Dimension.
- `WEB`, which holds the installation package for SimCorp Dimension web dashboards.

4.2.1.2 Applications Folder

As the AddOns folder contains installation packages the Applications folder contains runtime files to be used for specific modules.

Each module uses a subfolder in `Applications` for their executable files, structured in second (and further) level subfolders as needed.

The contents of each subfolder will consist of different types of files, depending on each module's needs.

Currently the following subfolder (first level) can be found:

- `BRScripts` , contains customer made cmd scripts to be executed by a service on basis of scripting rules. Used by automatic scripting rules in **BUSINESS RULES MANAGER**.
- `Elvin`, which contains the binaries for running the Elvin Router service. used by the **ORDER MANAGER** module.
- `DotTraceProfiler`, contains files to be able to use the .Net profiling software from JetBrains called dotTrace, from inside SimCorp Dimension. The files are installed using the self extracting file DotTrace.exe file in the `AddOns` folder
- `SupportTools`, which contains tools that are used by SimCorp Consultants and system administrators. Due to the nature of the tools in this folder they work without the normal SimCorp Dimension authorisation and without the user being a SimCorp Dimension user.

4.2.1.3 Bin Folder

The Bin folder contains executable files, for example Dyalog APL/W with various files and scd.exe together with a number of static configuration files. Some third party DLLs are also placed here.

The `Bin` folder also contains a subfolder called `Images` which contains the various icons, colour codes etc. used by SimCorp Dimension and a subfolder `Debug`, which contains files and folders required by SimCorp Support when performing onsite debugging.

Dependent on the language of the installation the `Bin` folder may contain a subfolder `de` for German language installations or a subfolder `fr` for French language installations.

The files in the `Bin` folder can be categorised in the following groupings:

- Program files
- Dyalog APL/W related files
- scd.exe related files
- SimCorp Dimension related files
- MQ Service related files
- Database Interface
- Miscellaneous utilities
- Icon set files
- Local installation files
- **AUSTRALIAN CGT CALCULATION ENGINE** related files
- **ORDER MANAGER** module related files - including Client layout templates.
- **XPRESSINSTRUMENTS** module related files
- .NET Framework related files

- Portal files
- Real-Time related files
- Graphics related files
- Communication Server related files

Note

All files in the Bin folder is maintained by SimCorp Dimension which is why configuration files like `Def.ini` and `Files.ini` must not be manually edited, as it can lead to fatal consequences for the stability of the system

---

4.2.1.4 Comsrv and Protected Folders

Content in these folders is only present when Protected File Directories are used. The Comsrv folder contains the protected file directories used by the Communication Server. The Protected folder contains a folder for “illegal files” and other non-Communication Server related protected file directories.

4.2.1.5 Data Folder

The Data folder contains the two configuration files ins.ini and Cnf.ini.

The ins.ini file cannot be modified manually – if changes are needed, a new installation file must be delivered from SimCorp and installed from within SimCorp Dimension. Please be aware that SimCorp Dimension will not be able to start if ins.ini is modified manually. Please see SimCorp Dimension ***System Maintenance*** user Manual for further details on how to update the ins.ini file.

The installation specifig configuration file (Cnf.ini) contains the parameter values used by SimCorp Dimension. SeeConfiguration File on page 51

4.2.1.6 DevIML Folder

The `DevIML` folder contains files used by the XpressInstrument Editor.

4.2.1.7 Doc Folder

The doc folder contains SimCorp Dimension documentation files if they are installed in Netroot installation. Please see SimCorp Dimension ***Installing and upgrading Help*** User Manual for details about the help system.

4.2.1.8 Dwh Folder

The Dwh folder contains the source files for the DataWarehouse solution.

4.2.1.9 HelpSystem Folder

The HelpSystem folder contains the SimCorp Dimension system documentation. It is possible for all SimCorp Dimension installations to share the same help documentation as long as the installations are the same version. In each of the installations the path to the HelpSystem Folder is registered. Please see: File Server - Redirection of Common Write Access Folders and HelpSystem on page 105.

By default the HelpSystem folder contains a sub-folder for each implemented language.

Updates to the Help System is not part of SimCorp Dimension patch apply. At regular intervals updates can be downloaded from FTP site/Secure File share via the Client Support and installed.

4.2.1.10 Log Folder

The Log folder contains SCD.LOG and MUCS.LOG by default. If not specified otherwise in SimCorp Dimension, it also contains:

- Limit files
- Other log files
- Portfolio and performance compare files

Please refer to section SimCorp Dimension System Log Files on page 196 for more detailed information on the various log files created by the SimCorp Dimension installation.

4.2.1.11 Maintenance folder

The Maintenance folder contains critical log files concerning the consistency of the system and log files generated during installation and upgrade of SimCorp Dimension. Please refer to section Installation/Upgrade Log Files on page 200

The maintenance folder contains a subfolder called `Lock` that is used by the Service Agents. During patch apply and when users are blocked from logon by the MUCS server, the Lock folder will contain a file (**patch.stop** or **LogonDisabled.nostart**). The file **patch.stop** is removed after the patch apply has finished and **LogonDisabled.nostart** is removed when logon is enabled. The files are used by the **Service Agents** to secure that the process shuts down (for patch apply) all services and service agents and wait for the file to be removed before starting up service agents again. Similar there will be temporary files used for synchronizing restart of Service Agents as part of restarting the Service Platform.

Note

To be able to let the MUCS prevent Service Agents to proceed while other users are blocked, it is necessary for the user running MUCS to obtain RWM to the Maintenance Lock Folder.

4.2.1.12 Mediator Folder

The `Mediator` folder contains files for use with the SimCorp Dimension Communication Server. Sub-folders may exist, depending on the implementation.

Please refer to the SimCorp Dimension ***Communication Server*** User Manual for more details on configuration.

The folder contains files with extensions XML and XSLT. They are all part of the Communication Server. The number of files and their extension depends on the actual implementation.

4.2.1.13 The OrderManager Folder

This folder with sub-folders will usually be empty but may hold client specific, FIX-related, configuration information for **ORDER MANAGER**. If no client-specific configuration changes are required/present then this folder should be removed as failure to do so will prevent the Order Manager services from starting.

Files in this folder are version specific and needs to be updated before/during each SimCorp Dimension upgrade. Please contact your SimCorp consultant for details

4.2.1.14 Patches Folder

This folder is initially created empty. The folder is used for placement for the self extracting exe-file containing the SimCorp Dimension patches.

4.2.1.15 Prog Folder

The program files needed for SimCorp Dimension placed in the Prog directory are primarily binary files containing the APL-code for SimCorp Dimension in the shape of program files (.dcf), Prg.ini and the APL workspace files (.dws).

Runtime programs and nearly all system tables are loaded into memory directly from the SimCorp Dimension workspace. However, the master copy of all APL functions is stored in a number of program files (FnsXxx.dcf).

Other files in the Prog folder hold static information about menus and applications as well as program configuration.

4.2.1.16 RConnect Folder

The RConnect folder and its subfolders are used by the **OPERATIONAL DATA ASSISTANT** for processing error logs generated by SimCorp Dimension as part of the internal error handling.

Error logs generated by SimCorp Dimension are stored in the subfolder `Outgoing`. Furthermore; errors are also being logged to the event log on the machine if possible. To be able to log the event log the source must be known It requires admin privileges to add a source.

Files in the `Outgoing` folder are of xml type.

Note

When copying the RConnect folder and its subfolders, for instance during an upgrade, the contents should not be copied.

Please refer to section Operational Data Assistant Solution on page 205 for information on Operational Data Assistant.

4.2.1.17 The StdFilt, StdIML, StdRep, IML and Rep Folders

StdIML folder contains templates and definition files for the creation of static data associated with standard XpressInstruments.

The StdFilt and StdRep folders contain SimCorp supplied standard filters and standard reports, respectively.

The IML and REP folders are initially created empty and can be used for client defined templates associated with XpressInstruments and client made reports.

4.2.1.18 Tmp Folder

The system uses this folder for various temporary files as default destination when not otherwise specified within SimCorp Dimension.

By default this folder contains a sub folder `Dump`, which is used by the system for error logging. The `Dump` folder can be redirected to another location (please refer to section File Server - Redirection of Common Write Access Folders and HelpSystem on page 105).

Data in the Tmp folder should be cleaned up frequently. It might impact the system if all processes including MUCS server, batchjobs, services etc. has not been stopped before the cleanup is carried.

4.2.1.19 Transport Folder

The transport folder is used for files generated by the Configuration Transport System. For more information on the functionality please refer to the SimCorp Dimension Online Help.

4.2.1.20 TRD Folder

The TRD folder contains SQL script files used for maintenance of the **ORDER MANAGER** specific table spaces in the database.

To protect against unauthorised changes made to the script files located on the Trd area, all scripts executed will be validated against recorded informations about these files.

4.2.1.21 Upgrade Folder

The Upgrade folder contains the files used for check-before-upgrade. The files are delivered via the upgrade media available from SimCorp and can be imported to the folder from the menu item **Import Check Before Upgrade Package**.

A number of sql scripts are available and can be used by database administrators for various purposes.

During installation and upgrade additional files will be copied to the subfolder

4.2.1.22 Util Folder

The Util folder contains program files containing a number of utility functions typically used by SimCorp in a support situation.

4.2.2 Folder Permissions

Folders preceding and including the SimCorp Dimension root folder must as a minimum have LR permissions for all users.

The minimum access rights for SimCorp Dimension on the detailed level are the rights that the operating system sets per default when the grouped permission settings are configured according to the table below.

Permissions on certain folders only apply to individual users with a certain function responsibility. Please refer to the description in Permissions for Certain Users below. Unless otherwise specified, sub-folders should have the same permissions as their parent folder.

4.2.2.1 Permissions for All Users

A number of folders are used for files needed by standard functionality available to all users and, hence, must have the below specified permissions for all users:

Folder	Permissions*
Applications	XLR
Bin	XLR
Data	LR
Doc	LR
HelpSystem	LR
Log	MXLRW
Maintenance	LR
Prog	LR
RConnect\Outgoing	LRW
Rep	LR
StdFilt	LR
StdIML	LR
StdRep	XLR
Tmp	MXLRW

*Permission: M=Modify; X=Read & Execute; L=List folder contents; R=Read; W=Write.

4.2.2.2 Permissions for Certain Users

Users responsible for patching, ins-file update and other maintenance routines of the SimCorp Dimension installation must have full control privileges for all folders and files.

In addition, SimCorp will need a user account with full control privileges for all folders to be used during maintenance sessions.

Other users need special permissions as specified in the following list:

Folder	Users	Permissions*
Applications\SupportTools	Users who are supporting SimCorp Dimension. The support tools can be used by e.g. SimCorp Consultants and System administrators.	XLR
Applications\Elvin	The Service Platform will load the binaries from this folder when the Order Manager Elvin Service is started.	XLR
Applications\BRScript	Users who are creating and/or modyfing cmd files used by Business Rules Manager.	MXLRW
Bin\Images	Users authorised to change icon colour	MXLRW
ComSrv	Communication servers and users with access to the **Protected File Directory** task	MXLRW
Data\Cnf.ini	Users who should be able to use the Logon Message functionality in System Environment Configuration. (See: Logon Message on page 86)	MLRW
DevIML	Users of the XpressInstrument Editor	MXLRW
Doc\CompanyNotes Doc\de\CompanyNotes Doc\fr\CompanyNotesEtc.	Users who need to add text to a CompanyNotes folder	LRMW
HelpSystem	Users who need to update the SimCorp Dimension system documentation	LRW
IML	Users who work with client defined XpressInstruments templates	MXLRW

Folder	Users	Permissions*
Maintenance\Lock	Main Service Agents needs write access. (That is the service agents listed with hostnames in **System Environment Configuration** at the **Services** tab). MUCS server needs same access to be able to prevent Service Agents to proceed whilst other users are logged out. (MUCS creates a file in this folder used by the Service Agents to block logon)	MLRW
Mediator	Communication servers	LR
Patches	Users responsible for patching SimCorp Dimension	MXLRW
Protected	Communication servers and users with access to the **Protected File Directory** task	MXLRW
RConnect	The server user running **OPERATIONAL DATA ASSISTANT**	MXLRW
Rep	Users who write client defined XpressInstruments reports	LRMW
Transport	Users generating or reading configurations files through the Configuration Transport System	MXLRW
TRD	Users responsible for patching SimCorp Dimension	MLRW
Upgrade	Users running upgrade checks	MXLRW
Util	SimCorp consultants; for instance in a support situation	LR

*Permission: M=Modify; X=Read & Execute; L=List folder contents; R=Read; W=Write

4.2.2.3 Grouped Permission Settings

SimCorp Dimension is tested and certified to work properly with the grouped permission settings, such as “Read & Execute”. However, there may be certain finer grained security attributes that can be revoked without affecting SimCorp Dimension functionality, but as SimCorp Dimension is highly dependent on external third party components and

API's, the full impact of revoking permission can be almost impossible to identify.

Some fine grained permission may be obvious to revoke, such as the "Create Folders" permission for folders where write access is required for file logging, but where no one is expected to create new folders. It may also be possible to revoke "Read Extended Attributes" and others.

4.2.2.4 Additional Components - Configuration and Setup

Beside the basic components to SimCorp Dimension a number of components need configuration as stated in the following sections.

4.2.2.4.1 Order Manager

After installation or upgrade Order Manager needs separate configuration for e.g.:

- Access rights
- Configuration parameters
- SQL Server configuration & access
- Order Manager service configuration
- Configuration of Trader Order Status service
- Configuring Order Manager client to receive market data.

These are detailed in the ***Front Office Implementation Guide***, which is available in the online help.

4.2.2.4.2 Mail System Configuration

The standard mail setup should be configured in all systems for automatic warnings in case of problems. It requires a few SimCorp Dimension settings as described in section Standard Mail Setup below.

These settings cannot be made until SimCorp Dimension has been installed and cannot be utilised when the system is shut down during upgrade. For those reasons an alternative mail solution based on Windows environment variables has been added for use through the installation and upgrade processes, which has been described in section Using MAPI on the next page.

4.2.2.4.2.1 Standard Mail Setup

SimCorp Dimension can send e-mails in various situations, for example when a SimCorp Dimension service or batch job process fails. Sending emails requires an SMTP server and a sender address.

These two settings are retrieved using the following logic:

- The value named **SMTP server** from **Miscellaneous options** at the tab **Miscellaneous – 3** is used as value of the **SMTP server**
- If the Windows environment variable MAPISENDSMTPUSER is set and have content, this will be used for the **SMTP user.**

- If it is not set, the fallback is to use the **SMTP user** value from **Miscellaneous** the tab called **Miscellaneous - 3**.

The logic above allows flexibility with regards to whether the settings are controlled for the PC, the SimCorp Dimension session or in general for the whole SimCorp Dimension installation.

4.2.2.4.2.2 Mail Setup for Installation and Upgrade

Currently SimCorp Dimension supports a MAPI or SMTP configuration for sending mails during installation and upgrade.

It is recommended to use SMTP based mail as MAPI has been deprecated for standard mail functionality and only for a limited time preserved for installation and upgrade.

4.3 Using MAPI

MAPI (mapisend.exe) is the default way of sending mails during installation and upgrade. Preferably setup mapisend.exe to use SMTP as described below. Otherwise MAPI is expected to be configured so that the mapi32.dll function MAPISendMail works as expected. This should work out of the box if MS Outlook is installed, although there may be complications when running it as a scheduled job or service without a simultaneous interactive login (due to missing MAPI registry entries in these cases).

For other mail systems such as Lotus Notes and GroupWise, MAPI compliance is possible to achieve, although experience has shown that it may be rather difficult to do so. In the Lotus Notes case, it has actually been achieved by several SimCorp Dimension clients, but not yet for users of GroupWise.

If using MAPI, a fully configured MAPI subsystem must exist for SimCorp Dimension users required to send mails. The configuration of the mail system lies outside the scope of SimCorp Dimension.

4.4 Using SMTP

As an alternative to MAPI, especially in the cases where MAPI causes problems, SMTP support during installation and upgrade is provided through blat.exe.

Note

In certain cases, the blat.exe file in the BIN folder can disappear without any apparent reason; for example it can be removed by anti-virus programs. If this behaviour is observed, be sure to write-protect blat.exe, as this problem does not appear if blat.exe is read-only.

The mapisend.exe program builds a command-line for blat.exe and executes it instead of calling the MAPISendMail mapi32.dll function. The required configuration for this is two environment variables on every SimCorp Dimension client (or server) with the need for SMTP mail access

during installation or upgrade, so it is actually possible to use the default MAPI for some clients and SMTP for others

`MAPISENDSMTPSERVER`	With the name or IP address of the SMTP server (host)
`MAPISENDSMTPUSER`	With the name of the SMTP user (the sender of the mail e.g. myemail@company.com)

An SMTP server must be active (SMTP port 25) and configured to accept the needed senders and recipients. Testing of SMTP availability can be done via blat.exe directly, or by using mapisend.exe from the command-line. When SMTP is configured (the environment variables set), mapisend prints the actual blat command (on standard output) for information purposes before executing the command.

4.5 Testing the Configuration

The MAPI and/or SMTP compliance can be tested by an entirely stand-alone command-line mail-sender utility “mapisend.exe”, which is part of the SimCorp Dimension deliverables, situated in the Bin folder. In order to use this test utility, call SimCorp Dimension root directory\Bin\mapisend.exe on the command-line for a usage overview. For example on the client to be tested:

- Open a Command prompt
- Navigate to the installations Bin folder
- For SMTP configuration check that the two environment variables MAPISENDSMTPSERVER and MAPISENDSMTPUSER is set correctly by typing `set mapi` and enter
- Type: `mapisend -r myemail@company.com -s "mail testing" -m "this is a test"`
- Check if you get the mail
- If you did not get a mail, check the response from mapisend command and fix. (Type mapisend -? from the bin folder to see a list of options to use with mapisend).

4.5.0.0.1 SimCorp Dimension help system - Configuration and Setup

Besides the content (html) files, the help system includes a number of jscript files, which control the help system user interface, search, index and table of contents.

Depending on your current security settings in Internet Explorer and the location of the help system, the help system opens in one of the following Internet Explorer Security zones:

- Local Intranet
- Trusted sites

To ensure that users can access and use the help system, the following Internet Explorer security settings must be set in the security zone that is used:

- Run ActiveX controls and plug-ins: **Enable**
  - By default this option is set to **Enable** in the Local Intranet and Trusted sites zones in Internet explorer.
  - If this option is set to **Disable**, the help system will not display.
  - If this option is set to **Prompt**, the users will get the following message: "You want to allow software such as ActiveX and plug ins to run?"
- Active Scripting: **Enable**
  - By default this option is set to **Enable** in the Local Intranet and Trusted sites zones in Internet explorer.
  - If this option is set to **Disable**, the help system will not display.
  - If this option is set to **Prompt**, the users will get the following message: "Scripts are usually safe. Do you want to allow scripts to run?"

The help system can be installed on an IIS server, which improves performance or you can use the cloud based Help.

Note

If the help doesn't open or shows an empty explorer or shows your default home page, the help system is either not installed correctly or the path to the help system is stated incorrectly in the Cnf.ini file.

4.5.0.0.1.1 Help system on an IIS server

The help system can be stored on a Microsoft IIS web Server. After installation of help system files on the IIS server it is necessary to add the URL name to the `helpurl` parameter in the Cnf.ini file.

Beside requirements in the requirement sections the following will be required too:

Windows Server Roles and Role Services	Roles
	• Web Server (IIS)
	• File Services
	
	Role Services
	• Web Server
	  ◦ Common HTTP Features
	  ◦ Static content
	  ◦ Default Document
	  ◦ Directory Browsing
	  ◦ HTTP Errors
	  ◦ HTTP Redirection
	• Security
	  ◦ Basic Authentication
	  ◦ Windows Authentication
	  ◦ Request Filtering
	• Performance
	  ◦ Static Content Compression
	• Management Tools
	  ◦ IIS Management Console
	  ◦ Management Service
	  ◦ IIS 6 Management Compatibility
	  ◦ IIS 6 Metabase Compatibility

4.5.0.0.2 Communication Server

The SimCorp Dimension Communication Server is an integration tool used for message based interfaces to third parties such as SWIFT, XML data exchange and others.

The Communication Server processes messages between SimCorp Dimension and third party systems. The messages from the third party systems are passed internally in SimCorp Dimension using Oracle Streams Advanced Queuing. Other technologies are available for external communication. Please refer to the online help for a list of available port technologies.

The Communication Server requires a separate Oracle tablespace. The tablespace must as a minimum be created with UNIFORM extent size of 128K or created as Automatic Segment Space Management (ASSM) due to the use of user defined objects in Oracle, for instance:

```
CREATE TABLESPACE scqueue
DATAFILE 'd:\oracle\oradata\orcl\scqueue01.dbf' SIZE
102408K AUTOEXTEND ON NEXT 50M MAXSIZE 2047M,
         'd:\oracle\oradata\orcl\scqueue02.dbf' SIZE
102408K
AUTOEXTEND ON NEXT 50M MAXSIZE 2047M
EXTENT MANAGEMENT LOCAL
UNIFORM SIZE 128K;
```

The actual name of the queue tablespace, the placement of the data files and AUTOEXTEND clause are configurable, and should be changed to fit the actual database.

Note

If the Communication Server queues tablespace is created with an extent size less than 128K, unexpected errors may occur

The SimCorp Dimension data owner (SCDAT) must be granted an unlimited quota on the queue tablespace, for example:

```
ALTER USER scdat QUOTA UNLIMITED ON scqueue;
```

Creation of the user schema for the Communication server is done from **Database User Schemas Administration**. When creating the schema or running the function **Recreate Schema** the system will prompt for name and password of an Oracle DBA user with appropriate permissions.

Note

Passwords can only be changed using **Database User Schemas Administration** since the passwords needs to be encrypted before stored on the database.

For instance, if the Oracle user System is used the following permissions must be ensured for System:

```
GRANT EXECUTE ON DBMS_AQ TO system WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_AQADM TO system WITH GRANT
OPTION;
BEGIN
DBMS_AQADM.GRANT_SYSTEM_PRIVILEGE(Privilege=>'MANAGE_
ANY', Grantee=>'SYSTEM', Admin_Option=>TRUE);
COMMIT;
END;
/
```

The requirements for tablespace, quota and permissions also apply to earlier versions of SimCorp Dimension.

To install and configure a Communication Server solution, various third party software products are needed. SimCorp supports a number of different port technologies to third party interfaces. They have to be installed and configured by the client as part of the implementation. SimCorp does not support or maintain any third party software products.

Before the Communication Server can be implemented configuration must be done in SimCorp Dimension. Amongst others the parameters on **Interface Options Communication Server** must be reviewed.

Please refer to SimCorp Dimension ***Communication Server*** User Manual for more information.

4.5.0.0.3 Data Extractor - Configuration and Setup

The Data Extractor is a SimCorp Dimension utility which can extract selected data from the SimCorp Dimension database schema to a different schema. Data in this schema can then be used in many ways, for example for data analysis, offloading heavy reporting from the SimCorp Dimension database, etc.

When preparing the Data Extractor, a number of tasks require some action on the Oracle database to be carried out by an Oracle DBA from outside SimCorp Dimension. These are:

- Creation/deletion of separate tablespaces in Oracle.
- Creation/deletion of external extract or data warehouse user schemas (can be registered in SimCorp Dimension after creation)

All other actions on the Oracle database for the Data Extractor can be done without any other privileges than the ones from the SimCorp Dimension user role.

Please refer to the SimCorp Dimension ***Data Extractor*** User Manual for more information on how to configure and use the Data Extractor from within the application.

Note

Passwords can only be changed using **Database User Schemas Administration** since the passwords needs to be encrypted before stored on the database.

4.5.0.0.3.1 Creation of Extract Tablespaces

The Data Extractor extracts data into separate ‘extract user’ schemas. These users cannot use the existing SimCorp Dimension tablespaces. This is to prevent the Data Extractor from filling the SimCorp Dimension core tablespaces to their limit and by doing so affecting the stability of SimCorp Dimension.

A new tablespace should be created by the DBA. An example SQL command can look like this:

```
CREATE TABLESPACE DEX_TS
DATAFILE
   'dex_ts_01.dbf' SIZE 102408K AUTOEXTEND ON NEXT 50M
MAXSIZE 4095M,
   'dex_ts_02.dbf' SIZE 102408K AUTOEXTEND ON NEXT 50M
MAXSIZE 4095M
EXTENT MANAGEMENT LOCAL
UNIFORM SIZE 128K;
```

The command above creates a new tablespace with the name DEX_TS, based on two data files. Both data files will be created with an initial size of 100 MB. If required, they will grow in steps of 50 MB up to a maximum size of 4 GB each. If more space is needed, more data files can be added to the tablespace. Large SimCorp Dimension installations might require multiple tablespaces for the extract users.

If primarily large amount of data is to be extracted consider using a larger UNIFORM SIZE (mega bytes) or alternatively auto allocated extent size (by omitting the UNIFORM SIZE clause).

Adjust the name of the tablespace and the names and locations of the data files to fit the current environment before running the command above. If it is possible, define several data extractor schemas and tablespaces.

In addition the SimCorp Dimension data owner (SCDAT) must be granted quota on the newly created tablespace:

```
ALTER USER SCDAT QUOTA UNLIMITED ON DEX_TS;
```

These instructions are also applicable to earlier versions of SimCorp Dimension when creating Extract tablespaces.

4.5.0.0.3.2 Creation of Extract User Schemas

The following sections describe the several types of extract user schemas.

4.5.1 Internal Extract User Schemas

Extract user schemas are created by the SimCorp Dimension application from **User Schemas Administration**. Such an extract user schema is then called **internal**. It is recommended that you only use internal extract user schemas, since their contents (extract tables, etc.) can then be maintained by SimCorp Dimension.

Internal extract user schemas automatically get the system privileges: `ALTER SESSION`, `CREATE PROCEDURE`, `CREATE SESSION`, `CREATE TABLEand CREATE TRIGGER` granted when they are created by the SimCorp Dimension application.

For the **internal extract user schemas** it is possible to rename or drop table and to edit table indices using Extract Tables.

4.5.2 External Extract User Schemas

The Data Extractor can also use extract user schemas which are created by an external tool. Such extract user schemas are in the Data Extractor's context called external. The use of external extract user schemas should only be considered if client specific tables have to be created in an extract user schema. Maintenance of external extract user schemas cannot be performed from SimCorp Dimension.

External extract user schemas must at least have the `ALTER SESSION`, `CREATE PROCEDURE`, `CREATE SESSION`, `CREATE TABLE` and `CREATE TRIGGER` system privileges granted. The external extract user schema cannot be registered in SimCorp Dimension for use by the Data Extractor before these grants have been made.

4.5.3 Data Warehouse User Schemas

The **Data warehouse schema** type is created from outside SimCorp Dimension and afterwards registered in **Database User Schemas Administration**.

Data warehouse user schemas must at least have the `CREATE SESSION` and `CREATE SEQUENCE` system privileges. The data warehouse tables could either be created/dropped from outside SimCorp Dimension or from SimCorp Dimension using **Extract Tables.** For externally created tables at least `SELECT`, `INSERT`, `UPDATE` and `DELETE` privileges must be granted to the `dataowner` and to a `DEXROLE`.

For the **Data Warehouse user schemas** it is also possible to preview data and edit table layout, indices and constraints using **Extract Tables.**

Like the **External extract user schema**, **data warehouse schema** cannot be created or modified from SimCorp Dimension.

4.5.3.0.0.1 Default Tablespace for Data Extract users

Every extract user regardless of whether it is Internal or External must have a default tablespace associated with it. This should be the tablespace prepared for the Data Extractor as described in section Creation of Extract Tablespaces on page 102.

Note

It is strongly recommended that you do not choose Oracle's SYSTEM or SYSAUX tablespaces as the default tablespace for the extract user schemas because this will have a severe negative impact on the system performance.

4.5.3.0.0.2 Quota on Extract user schema

No matter if the extract user schema is **Internal** or **External**; it is recommended that you set up a quota restriction to prevent uncontrolled growth. This can be done in SimCorp Dimension using **Database User Schemas Administration** or in SQL*PLUS (or any other Oracle CLI) when the user has already been created using the SQL command, for example:

```
ALTER USER DEX_USER QUOTA 10M ON DEX_TS;
```

The command limits the extract user DEX_USER to use no more than 10 MB of space on the tablespace DEX_TS.

Besides setting a quota limit for the actual extract user schema, quotas should also be defined for all the users who are authorised in the SimCorp Dimension installation to use the Data Extractor. For instance, if users XXX and YYY are authorised to use the Data Extractor, the following must also be done:

```
ALTER USER XXX QUOTA 10M ON DEX_TS;
ALTER USER YYY QUOTA 10M ON DEX_TS;
```

Adjust the quota limit and the names of tablespace and user to fit the actual needs before running the commands.

4.5.4 File Server - Redirection of Common Write Access Folders and HelpSystem

SimCorp Dimension folders, where users need write access, can be redirected to another location. The registration is stated on the Directories tab in **System Environment Configuration.**

The registered alternative paths are updated in the [lib] section of the configuration file. An example of this is shown below:

```
[lib]
tmp=\\SCFILE\SCDimension\redirect\Tmp
log=\\SCFILE\SCDimension\redirect\Log
rep=\\SCFILE\SCDimension\redirect\Rep
comsrv=\\SCFILE\SCDimension\redirect\ComSrv
protected=\\SCFILE\SCDimension\redirect\Protected
transport=\\SCFILE\SCDimension\redirect\Transport
rconnect=\\SCFILE\SCDimension\redirect\RConnect
dump=\\SCFILE\SCDimension\redirect\Tmp\Dump
HelpSystem=\\SCFILE\SCDimension\redirect\63\HelpSystem
```

Note

It is recommended that you use UNC path notation. If mapped drives are used instead of UNC paths, the drive letters must be mapped to the same destinations on all SimCorp Dimension client and service PC's and the paths and folders must exist. Mapping a drive letter to the SimCorp Dimension installation's root folder (redirect, in the above example) is not supported.

Changing the location of the Write access folders must be done from the task **> System Environment Configuration.**

From **System Environment Configuration** it is also possible to state alternative directories, which can be used as part of defining Reference

Files (see section Log Reference Files from the Application on page 75). Defining a path relative to the Production and Test environments can be an advantage when copying from Production to Test, because all reference files do not need to be changed in the Test environment after the copy instead the information is looked up in one place and you just need to make sure the paths specified in the configuration file is correct.

In addition to the [lib] section entries shown above, the Production installation could, for example, have the following entries:

```
batchlog=\\SCFILE\SCDimension\Prod\Log\batchlogs
servicelog=C:\SCDimension\Prod\Log\Services
limitlog=\\SCFILE\SCDimension\Prod\Log\limitlogs
```

While the corresponding entries in the Test installation would look like this:

```
batchlog=\\SCFILE\SCDimension\Test\Log\batchlogs
servicelog=C:\SCDimension\Test\Log\Services
limitlog=\\SCFILE\SCDimension\Test\Log\limitlogs
```

Note

In the example a log file using the `servicelog` directory will be written to the local disk on the server where the SimCorp Dimension session, defined to use this log file, is started. The folders must exist as defined and the Windows user used to start the SimCorp Dimension session must have the appropriate permission to write to this folder.

For an Application Service Provider installation (ASP) it is possible to split **log** and **tmp** files for each asp client. To split the files the Cnf.ini parameters **aspclog** and **aspctmp** can be used.

The parameter **aspclog** is similar to **log** as **aspctmp** is similar to **tmp**.

If the parameters are used the following two tokens: **aspcik** and **aspc** can be used in for example Reference files. Please note the tokens are case sensitive and must be in lower case. **aspcik** is an internal key (number) unique for each asp client and **aspc** is the asp client name. If the parameters are not defined, the directory does not exist or the installation is not an asp installation **log** and **tmp** respectively will be used.

Note

aspcik and **aspc** will for the provider return 0 and an empty string respectively

The two parameters **aspclog** and **aspctmp** can be set from **System Environment Configuration** on the tab **ASP**. If the parameters are either an empty string or the same as **tmp** and **log** respectively the definitions are removed from Cnf.ini.

Please note that **aspclog** and **aspctmp** parameters are placed in the config section of the Cnf.ini file. An example for those two parameters can be.

```
[config]
.aspclog=\\SCFILE\SCDimension\redirect\aspclog
aspctmp=\\SCFILE\SCDimension\redirect\aspctmp
```

Beside the folders where users needs write access it is possible to redirect the Help System location. The path is stated in the **Help system location** field, in **System Environment Configuration.**

It is possible to share the Help system between all installations with the same SimCorp Dimension version if preferable. Then all installations need to have the same path registered.

Please see SimCorp Dimension ***Installing and Upgrading Help*** User Manual for details.

4.5.5 Virus Scan

It is recommended to exclude the complete SimCorp Dimension application root folder from the virus scan or if possible to restrict anti-virus disk sweep to times when SimCorp Dimension is not running.

Likewise it is recommended, on the Oracle database server, to exclude all Oracle data-, temp-, redo-, control- and archive files from the virus scan or if possible to restrict anti-virus disk sweep to times when the database is down.

In addition please refer to known issues in section Anti-Virus on page 216.

4.6 Database Server - Configuration and Setup

The Oracle RDBMS is a key component in the SimCorp Dimension platform and requires a number of settings and decisions to be made, as described in the sub-sections:

4.6.1 Preferred Oracle Configuration

In order to ensure a high level of consistency in installations of SimCorp Dimension, SimCorp maintains a set of guidelines for configuring Oracle databases for optimal use of the application. These guidelines are called ***Preferred Oracle Configuration for SimCorp Dimension***.

Preferred Oracle Configuration is designed to provide a solid base for SimCorp Dimension installations. ***Preferred Oracle Configuration*** is constantly being evaluated and refined to make sure that the database is configured optimally for SimCorp Dimension. It aims to guarantee that the underlying database is set up in a proper manner and that any potential problems are not due to a poorly configured database.

Note

SimCorp Dimension is tested on the Preferred Oracle configuration. Application performance may be seriously affected by configuration changes. As applications differ one application may suffer from a configuration change made in favour of another application. Likewise a configuration change made for one part of SimCorp Dimension may compromise another part of SimCorp Dimension. There may be various reasons for preferring other configurations, but be aware that by deliberately choosing a diverging configuration you also take the responsibility to test that SimCorp Dimension actually does perform on the chosen configuration.

SimCorp recommends that the database is kept strictly dedicated to SimCorp Dimension generated objects only. Creating customised objects, such as materialised views, triggers etc. which can affect the operation of SimCorp Dimension is strongly discouraged and not supported. For example, if the storage for a customised materialised view built on SimCorp Dimension tables runs out of space, SimCorp Dimension transactions on the same tables will fail, as Oracle cannot maintain the materialised view due to the storage situation. Errors in SimCorp Dimension, like this example, are not supported under the standard maintenance contract and if reported will be dealt with on a time and material basis.

The document ***Preferred Oracle Configuration for SimCorp Dimension*** is available from the SimCorp Support Portal and as an online manual in the installation. Please ensure that you from time to time consult the SimCorp Support Portal for the latest updates to this manual.

4.6.2 Align Objects

The purpose of the Align Objects is to apply structural changes to the database. Align Objects uses PL/SQL package code for applying these database object changes when required by SimCorp Dimension. Database object changes encompasses altering tables, adding indexes, adding column constraints and so on.

Align Objects will use the Oracle Scheduler for applying multiple database objects change at the same time. Please refer to Align Objects Settings on the next page for further information on how to configure this in SimCorp Dimension. The document ***SimCorp Dimension Upgrade – Understanding the upgrade engine*** found on the SimCorp Support Portal describe the subject more detailed.

Align Objects is used for a number of tasks in SimCorp Dimension as e.g.:

- **Apply Patches**
- **Update Installation File**
- **Verify Database Structure**
- **Table Storage Customisation**
- **Enable Partitioning**

Furthermore Align Objects is used by:

- Installation of SimCorp Dimension
- Upgrade of SimCorp Dimension

If Align Objects use the Oracle Scheduler the processes run in Oracle context. The consequence is that if the SimCorp Dimension process that initiated the task is killed, the Oracle processes will still be running. SimCorp Dimension therefore checks for running jobs on the Oracle Scheduler to prevent a similar task be started before the previous is ended.

A progress tool is available in the `<root>/bin/` folder. The progress tool is executed using the file called `UpgradeProgress.exe`. The tool has been developed to monitor the ongoing Align Objects progress during upgrade, but can also be used to follow Align Objects in all other SimCorp Dimension tasks that use Align Objects, if the task is time-consuming. Enter logon credentials for the datowner in the menu **File > Connect**.

Note

Features that uses Align Objects do not allow users/services and so on to be logged on until the update has finished.

Note

If a feature that uses Align Objects fails you need to execute it again with success before users are allowed to use SimCorp Dimension again.

4.6.2.1 Parallel Options

If the database supports parallel processing it is possible to run certain routines using database parallel query and execution. To enable SimCorp Dimension to utilise database parallel processes the [CONFIG] section in Cnf.ini file must be edited.

Setting `dbalterparallel=1` allows SimCorp Dimension to use database parallel execution when applying database object changes as described in: Align Objects on page 108

Setting `dbindexparallel=1` allows SimCorp Dimension to use database parallel execution when indexes are to be built or rebuilt as part of Align objects execution.

Setting `dbstatparallel=1` allows SimCorp Dimension to take advantage of parallel query during database statistic gathering.

The `dbparalleldegree` parameter can be used to specify a specific parallel degree to be used in all statements with parallel degree hints. The default value (if not specified) for the parameter depends on other parameter settings. Please refer to the next sections

The Cnf.ini file settings should be added to the **[config]** section.

Note

It is vital that the database server is configured appropriately to allow for parallel processing. When running functions in parallel Oracle spawns parallel processes as defined by certain Oracle configuration parameters. Lack of CPU, memory or other resources can seriously harm performance. Please refer to Oracle documentation on parallel processing before enabling this feature in SimCorp Dimension.

It is strongly recommended to test these options thoroughly before implementing in production systems. But please be aware of the above note, which also applies to the test system. If the database server, for the test database, has fewer resources than the production database, the test database server must be configured with respect to its resources.

4.6.2.2 Align Objects Settings

`Setting aoparallel=1` enables SimCorp Dimension to utilise the Oracle Scheduler when Align Objects are executed. Using the Oracle Scheduler allows for multiple database objects changes concurrently. With `aoparallel=0` SimCorp Dimension does not utilise the Oracle Scheduler, and object changes are made in sequence. Default is for SimCorp Dimension to use Oracle Scheduler, and aoparallel=0 should only be used in very special cases if advised so b SimCorp develoment.

It is possible to use parallel option during Align Objects, but only on large table with more rows than the threshold specified in `aoparallelthresholdsize`. The parallel degree that will be used depends on `aoparallel`.

When `aoparallel=1` it is possible to specify parallel degree by setting `aodefnocpuscheduled`. Default parallel degree is 50% of the number of cores in the database server, assuming 2 threads per CPU (PARALLEL_ THREADS_PER_CPU).

When `aoparallel=0` it is possible to specify parallel degree by setting `dbparalleldegree`, default value is twice the number of cores in the database server.

The threshold size for when it is optimal to use parallel degree, without having a too big overhead managing parallel processing, can be set using `aoparallelthresholdsize`. Default value if not specified is 250000 rows.

To prevent large amount of unused space in data tablespaces, caused by the structural table changes which cannot be performed on the existing tables, it is possible to set up a staging area specified by the settings `aofullcopytablespace` and `aofullcopyquota`. `aofullcopytablespace` specifies the staging tablespace Align Objects will use when full copying tables. If not set Align Object will use the tablespace from where the table in question originates. If using staging tablespace during the upgrade and not having specified `aofullcopytablespace` and `aofullcopyquota`, then the staging tablespace can be dropped after use, but in this case please note that until the SimCorp Dimension upgrade activity has finished it will contain the only copy of the data in question.

The staging tablespace which Align Object uses should be created as a locally managed tablespace using automatic segment space management :

Example:

```
CREATE TABLESPACE stage
DATAFILE
'/u/oradata/stage01.dbf' SIZE 10G AUTOEXTEND ON NEXT
500M MAXSIZE unlimited,
'/u/oradata/stage02.dbf' SIZE 10G AUTOEXTEND ON NEXT
500M MAXSIZE unlimited
ALTER USER install QUOTA UNLIMITED ON stage;
ALTER USER scdat QUOTA UNLIMITED ON stage;
```

Note

The staging area tablespace needs to be created with the same segment space management policy as the data owner tablespace. If e.g. data owner tablespace is created with manual segment space management (MSSM) the staging area tablespace must also be MSSM. If crated with automatic segment space management (ASSM) the staging tablespace must also be ASSM.

There will be a performance penalty when using the `aofullcopytablespace`, because a table's data needs to be copied twice as opposed to once. Also note that it is not possible for partitioned tables to use the `aofullcopytablespace`.

`aofullcopyquota` should here to be understood as the maximum amount of space that at any given point in time can be allocated by the temporary tables when a full copy of a table is performed as part of Align Objects, by limiting how many concurrent full copies that can occur at same time.

If both `aofullcopyquota` and `aofullcopytablespace` is specified the quota relates to the staging area.

If `aofullcopyquota` is specified but not `aofullcopytablespace` the quota relates to the tablespaces where the original tables reside.

`Aofullcopyquota` will be used when using Oracle Scheduler (`aoparallel=1`). The size (in MB) should be larger than the largest table with an addition to be able to contain the change in question. Example setting `aofullcopyquota=100` and having 4 tables that need to be full copied each on 50MB, then Align Objects will start doing full copy on 2 tables and set the 2 other to wait until there is free space again.

If `aofullcopyquota` is not used together with `aofullcopytablespace`, then the performance penalty is limited, since the table is not moved twice. If `aofullcopyquota` is not specified then Align Objects assumes the tablespace has sufficient size.

The Cnf.ini file settings should be added to the **[config]** section, for instance:

```
…
[config]
state=…
…
dbname=…
; dbalterparallel : allow dbAlterTable to execute in
parallel
dbalterparallel=1
; dbindexparallel : allow indexes to be created in
parallel
dbindexparallel=1
; aodefnocpuscheduled : parallel degree when  using
scheduler
aodefnocpuscheduled=4
; aoparallelthresholdsize : threshold size for when to
use parallel degree
aoparallelthresholdsize=300000
;aofullcopytablespace : Staging tablespace for Align
Objects
aofullcopytablespace= stage
;aofullcopyquota : Maximum quota in MB during full copy
of tables
Aofullcopyquota=500
…
```

It is strongly recommended to test these options thoroughly before implementing in production systems. If the database server, for the test

database, has fewer resources than the production database, the test database server must be configured with respect to its resources.

Oracle provides a possibility to save space for Primary Key Index,if you use the oracle parameter PCT_FREE. The parameter In SimCorp Dimension is changed in the Cnf.ini file by using the parameter `dbidxpctfree`. There are 3 possible parameters to use where `1` is default behaviour and thereby what's used if the parameter is not stated in the Cnf.ini file. The valid parameters are:

`0` is the original behaviour where PCT_FREE=10. This should only be used if advised so by SimCorp.

`1` Uses PCT_FREE=0 takes effect if index is rebuild as consequence of another action. (Default behaviour)

`2` Uses PCT_FREE=0 Forces to rebuild index if PCT_FREE differs from 0. Will be rebuild next time Verify Database Structure is executed, wherefore a maintenance window should be considered.

If a value for PCT_FREE is specified in **Table Storage Customisation**, this value will be the effective value.

4.6.3 Supported Database Character Sets

SimCorp Dimension supports the following Database character sets:

Character set	Description
AL32UTF8	Unicode

This section refers to the database side and it defines the code set used for storing the characters in the database. SimCorp Dimension automatically sets the client side character set at log on.

Please see: Unicode Support on page 208 for more information on Unicode in SimCorp Dimension.

4.6.3.1 Unicode Support on a Unicode Database

When the database is Unicode, the SimCorp Dimension module **UNICODE SUPPORT** is needed.

As described in Unicode Support on page 208 some single byte restrictions still apply.

Per default Unicode characters outside the single byte character set is not allowed in ID fields (for instance Security ID, Portfolio etc.). The systems codepage stated in the Ins.ini file limits the allowed characters, meaning that it will not be possible to create records where the external key contains Unicode characters outside the single byte character set.

If no restrictions are necessary and Unicode characters should be allowed also in ID fields SimCorp Dimension needs to know. This is also set in the ins.ini file (unicodeidok = 1).

Note

The ins.ini file can only be changed by SimCorp.

Please be aware that the database task **Verify Database Structure** must be run after the ins-file update to ensure correct database constraints are in place.

Note

If Unicode characters has been allowed also in ID fields it will not be possible to change it back.

It is a prerequisite for upgrading to 6.3 and above, that the database has been migrated to Unicode database character set.

The guide ***Preferred Oracle Configuration for SimCorp Dimension*** contains a section (Migrating from single to multi byte character set) providing guidelines for how to convert the SimCorp Dimension database to Unicode.

4.6.4 Partitioning

SimCorp Dimension supports table partitioning for a number of tables. In 19.04 this is available for some of the tables in the following table groups: **AUDIT TRAIL & FOUR EYES PRINCIPLE**, **CALC FIGURES, MARKET DATA** and **LOG MESSAGES**. The table group names corresponds to the naming used in e.g. **HELP** > **Database Overview.**

Partitioning requires Oracle Enterprise Edition with the Partitioning option and a SimCorp Dimension installation file with the Partitioning module. Furthermore, to be able to maintain the partitioning, it is necessary that the Oracle view SCD_USER_TAB_COLS_ADDED is present.

For an overview of how tables are partitioned, please see the following sections.

4.6.4.1 Audit Trail & Four Eyes Principle

For **AUDIT TRAIL & FOUR EYES PRINCIPLE** the number of partitions is the number of months with old data + 36 extra partitions created ahead. Tables are partitioned as:

AUDITMASTER	Range partition by MONTH.

AUDITDETAIL **AUDITDETAILCLOB** **AUDITMASTEREXT** **AUDITDETAILEXT** **AUDITSECURITIES** **FOUREYESAPPROVED** **FOUREYESUNAPPROVED**	Partitioned by references to AUDITMASTER.AUDITMASTERIK

4.6.4.2 Fund Accounting

For **FUND ACCOUNTING** tables the number of partitions is the number of months with old data + 36 extra partitions created ahead. Tables are partitioned as:

Table	Description
CALCFIGURES	Range partition by MONTH. Sub partitioned based on long term storage value.
CALCFIGDETCOMP **CALCFIGLOG** **CALCFIGPFC** **CALCFIGREFS** **CALCFIGUREDETAILS** **CALCFIGUREDETCF** **CALCFIGURESUB** **FUNDFIGUREMCF** **CALCFIGDETTAXLOTS**	References to CALCFIGURES.CALCFIGIK

4.6.4.3 Market data

The **MARKET DATA** tables are partitioned by range MONTH with interval partitioning (new partitions are automatically created). Tables are partitioned as:

Table	Description
PRICES	Interval-range partitioned by months on the PRICEDATE column
PRICESONL	
TRADELEVPRICES	

Note

The three tables can be partitioned one at a time. Please use the task **Enable Partitioning**.

4.6.4.4 Unified Logging

For **UNIFIED LOGGING** the number of partitions is variable, as they are created in one month intervals as needed. Tables are partitioned as:

Table	Description
LOGMESSAGES	Interval-range partitioned by months on the TIMESTAMP column.
LOGMSGPROPS	references to LOGMESSAGES.LOGMESSAGEIK.
LOGCONTEXTWFITEMS	Log Context Work Flow Items
LOGMSGPROPKEYPAIRS	Log Messages Property Bag - Key Pairs

4.6.4.5 Partitions Overview

A number of modules have been prepared for the use of partitioned tables, as described in Partitioning on page 114.

These tables, along with other partitioning information for each module, have been described in the sections below.con

4.6.4.6 Database Server - Partitioning Considerations

As enabling or disabling partitioning of table groups require recreation of the affected tables, a maintenance window is needed. The size of the window will depend on the amount of data in the involved tables and the available hardware.

For more detailed information on the Oracle Partitioning Concept refer to documentation provided from Oracle.

Caused by limitation on Oracles implementation of CLOB's you need to pay special attention to the audit area if the total size of the table AUDITDETALICLOB is above 10 GB. If total size of AUDITDETAILCLOB is above 10 GB SimCorp recommends either to

- archive audit data or
- export/import AUDITDETAILCLOB data using:
  1. Oracle DataPump export,
  2. truncate the AUDITDETAILCLOB table,
  3. enable/disable partitioning for AUDIT and
  4. reimport AUDITDETAILCLOB using Oracle DataPump import.

When you enable or disable partitioning in the AUDIT area and total size of AUDITDETAILCLOB is above 10GB SimCorp Dimension warns you about the size.

For further details please contact your local SimCorp support office.

4.6.4.7 Database Server - Enable and disable partitioning

When all requirements are met, the initial partitioning of tables is available from **Enable Partitioning**. If partitioning is no longer needed it can be disabled again using the same window. You must be logged on as System Administrator and no other users may be logged on.

Note

When using table storage customisation on tables or indexes in combination with partitioning using a composite partitioning method, the requested attributes (like tablespace) might not be listed in the relevant columns on DBA_TAB_PARTITIONS and DBA_IND_PARTITIONS (and corresponding views). Rather you should use DBA_TAB_SUBPARTITIONS and DBA_IND_SUBPARTITIONS to find the partition attributes. This is caused by the way that Oracle handle composite partitioning. The storage attributes on the subpartitions are matching the desired settings.

4.6.5 Table Storage Customisation

SimCorp Dimension system and application data is stored in tablespaces as stated in the configuration file Cnf.ini. Beside those stated tablespaces it is possible to distribute tables and indexes to additional tablespaces using **Table Storage Customisation**. If tables are moved without this registration the application will not work properly, and SimCorp Dimension will at next upgrade, patch apply, Ins-file update or Verify Database Structure run move the tables back to its default location.

When a change in the **Table Storage Customisation** is saved a prompt for data owner password will occur. When the password is given the customisations will be applied immediately by Align Objects.

Note

To be able to distribute tables and indexes the data tables owner needs quota on the tablespace.

Note

Table Storage Customisation should only be done when nobody is using the objects that has to be changed.

4.6.6 Time Synchronisation When Using RAC

Timestamps are used in many parts of the SimCorp Dimension application, for example STP services. If running the database on Oracle RAC (Real Application Cluster), the time on the database instances must be synchronised, otherwise unexpected errors will occur.

4.6.7 Bind Peeking

The Oracle database supports peeking of bind values when the Optimizer creates execution plans for a given SQL statement containing bind variables. This feature is in the database controlled with the initialization parameter `_OPTIM_PEEK_USER_BINDS`, which in Oracle defaults to `TRUE`. For certain SQL statements, a value of `TRUE` for this parameter can yield very varied performance.

SimCorp's preferred setting for `_OPTIM_PEEK_USER_BINDS` is `FALSE`, as specified in the document ***Preferred Oracle Configuration for SimCorp Dimension***.

A value of `_OPTIM_PEEK_USER_BINDS` set to `TRUE`, can have negative performance impact on certain core areas of the system, whereas other areas may significantly benefit. In order to control the values of `_OPTIM_PEEK_USER_BINDS`, two SimCorp Dimension configuration parameters can be used to control bind peeking.

The parameters are named `dbpeekbindmain` and `dbpeekbinddex` and can be set to 0, 1 or 2:

Value	Meaning
0	disable bind peeking
1	enable bind peeking
2	database setting (default)

The parameters, if needed to change from default, must be specified in the **[config]** section of the Cnf.ini file. If the parameters are absent from the Cnf.ini file the default value apply, meaning `dbpeekbindmain=2` and `dbpeekbinddex=2`.

The parameter `dbpeekbinddex` controls the usage of bind peeking in the Data Extractor where the parameters `dbpeekbindmain` controls the rest of SimCorp Dimension except the report generator which uses the default database setting. Reports run through SimCorp Dimension are not affected by bind peeking as these are implemented using literals rather than bind variables.

As an example, the following depicts such a scenario:

It has been established that performance of the general SimCorp Dimension transactional functionality is seriously affected when `_OPTIM_PEEK_USER_BINDS=TRUE`, although massively improving performance for the general functionality, setting `_OPTIM_PEEK_USER_BINDS=FALSE` now causes SimCorp Dimension Data Extracts to perform badly. In this situation you could set `_OPTIM_PEEK_USER_BINDS=FALSE` on the database level, and then add `dbpeekbinddex=1` to the Cnf.ini file. That way all Data Extracts will issue an "alter session" statement in order to enable bind peeking for the session only. Likewise if you have third party applications accessing the SimCorp Dimension database, which require bind peeking, you can remove (reset) the `_OPTIM_PEEK_USER_BINDS` parameter from the database (as it defaults to true), and then set

`dbpeekbindmain=0` in the Cnf.ini file. If you want to ensure SimCorp Dimension's use of bind peeking for Data Extracts and avoid bind peeking on general functionality, regardless of the database setting, you should set `dbpeekbinddex=1` and `dbpeekbindmain=0` in the Cnf.ini file.

For more information on the Oracle bind peeking feature, please refer to the Oracle documentation.

4.6.8 Quoted Naming

SimCorp Dimension does not support the use of quoted Oracle naming. Therefore naming of, for instance, tablespaces and schemas must follow the Oracle rules for un-quoted names. In addition please refer to User Names and Passwords on page 125.

4.6.9 User Management

SimCorp Dimension user authentication is based on whether or not the supplied credentials can create an Oracle RDBMS connection to the specified Oracle server. This section describes how Oracle is used for logon.

The ***System Access*** Manual explains practical user management in more details, while this section adds some of the technical details, especially focusing on the database.

4.6.9.1 Overview of Design and Solution - User Management

For each user in SimCorp Dimension there is an Oracle account and each uses Oracle credentials to logon.

Authorisation to tasks, commands and data are managed through the application. Please refer to the SimCorp Dimension ***System Access User Manual*** for more information.

A database role, also referred to as the userrole, is granted to the users created in SimCorp Dimension by the use of an Oracle package owned by the data tables owner (datowner). If a user is marked as **inactive** in SimCorp Dimension the user role is revoked.

To ensure users can only access data through SimCorp Dimension (and not from third party software such as SQL*Plus) the following is implemented:

- The user role is granted as NOT DEFAULT ROLE
- The user role is password protected
- When a role is granted as NOT DEFAULT ROLE a SET ROLE <userrole> must be issued immediately after the user has connected. As the role is password protected it is necessary to supply this command with IDENTIFIED BY <password>. This is done by SimCorp Dimension as a part of the logon procedure.

The generated password is a strong password guaranteed to contain upper case, lower case, numbers and special characters. The password for the user role must not be changed manually from the database side. It must be changed through the application either by using the `SYNCDBVERS` or `SYNCDBPASSWORDS` command (which is suited for scheduling) or by use of

the **Reset Password** window. The same applies to and is used for the users BATCH and SERVER, as well as the 3 special privileges password protected roles please see: Oracle User Privileges on page 140.

Note

Due to the password protected Oracle role an ordinary user logged on to the database using third party tools will not be able to update any data in any SimCorp Dimension tables in the actual database.

All users created by SimCorp Dimension is granted the profile as stated in the Cnf.ini file (userprofile). Some of the input possible in the **Security Options** screen relates to this profile. If users are created in the database with another profile than the one stated in Cnf.ini changes in Security Options will have no effect for these users. Please see please seeUser Names and Passwords on page 125 for more information.

4.6.9.1.1 SimCorp Dimension User Types – Service and Batch

To ease operations user types with different behaviour to the normal user type are provided.

Users created as **Service type** or **Batch type** users cannot start SimCorp Dimension interactive sessions. Instead they can be used for running SimCorp Dimension services and batch jobs. These users will per default be assigned the Oracle profile according to the systemprofile configuration parameter in Cnf.ini. Per default this means they will not be forced to change password at regular intervals as is the case for normal users. The same accounts for the users named SERVER and BATCH.

The users SERVER and BATCH are predefined in the SimCorp Dimension installation. Services and batch jobs will use these users per default when started, if nothing else is specified. New users of these types can be created by **System Administrator** users, but the created users will be used only when specified in the start command for SCD.exe through the –u parameter. The default users can be disabled, but when they are, the –u parameter must specify a user for services and batch jobs. -u* on service agent will use external authentication.

If it is a requirement that the SERVER and BATCH and other users of these types change password at a regular interval, the password can be changed from the application see User Management on the previous page.

4.6.9.2 Unattended Logon

Default behaviour for SimCorp Dimension is to prompt for password during logon, but it is possible to let SimCorp Dimension users be authenticated by the operating system and thereby not prompt for password when logging into the application. This is possible using either Oracle Kerberos authentication or Oracle REMOTE_OS_AUTHENT. Please note that Kerberos authentication can only be used if the SimCorp Dimension “Kerberos” module is purchased and installed.

The configuration file (Cnf.ini) entry `useosaut` determines how SimCorp Dimension should behave during logon. Please see Configuration and setup on page 51 for information about Cnf.ini.

Valid values for `useosaut` parameter is `0`, `1` or `2` meaning:

- `0` (or absent): The installation users are password authenticated and SimCorp Dimension will prompt for user/password for all users, except the two users BATCH and SERVER.
- `1:` The SimCorp Dimension installation by default use remote OS authentication. It is possible to configure individual users in the installation to be prompted for password rather than being OS authenticated.
- `2:` means the SimCorp Dimension installation users are by default Kerberos authenticated. It is possible to configure individual users in the installation to be prompted for password rather than being Kerberos authentication.

Note

Oracle remote OS authentication (init parameter REMOTE_OS_AUTHENT) has been deprecated by Oracle as a less secure option. It is therefore also planned to be unsupported for SimCorp Dimension from version 21.07. If you want to use authentication by the operating system, you are strongly advised to choose Kerberos authentication.

4.6.9.2.1 Logon using Oracle Kerberos authentication

For detailed information on how to configure and setup Kerberos authentication to be used with SimCorp Dimension please read the document ***Oracle Kerberos authentication configuration guide*** obtainable from SimCorp on request.

After Oracle Kerberos authentication has been installed and configured, the SimCorp Dimension user entry need to be updated inside SimCorp Dimension in **Users**. The field Authentication type should state Kerberos authenticated and the field Kerberos principal name needs to be filled with the correct information. If the Kerberos principal field is empty the users entry must have Authentication type Password and the user will still be prompted for password.

Note

The username part of the Kerberos principal name field in **User Administration** is case sensitive and must be an exact match of the sAMAccountName AD attribute and the domain realm part must all be in uppercase. I.e. the format for the Kerberos principal name is: <sAMAccountName@DOMAIN in upper case>.

The Scd.exe parameter `-job=syncdbusers` will add information from AD to the Kerberos principal name field for all users of type **Normal**, provided their SimCorp Dimension username match their AD user name.

Kerberos configuration overview

The Kerberos configuration consists of the following high level tasks, which are described in detail in the document ***Oracle Kerberos authentication configuration guide***.

- Creating a Kerberos principal in AD to be used by the database
- Preparing the database host for Oracle Kerberos authenticated users
- If set to `TRUE`, resetting the init.ora parameter `REMOTE_OS_AUTHENT` to its default value `FALSE`
- Setting the init.ora parameter “os_authent_prefix to “”(empty)
- Configuring the Kerberos parameters in the Sqlnet.ora on both database and client side.

Following the Oracle configuration for Kerberos authentication, SimCorp Dimension must be set up for Kerberos authentication. These tasks consists of:

- Applying the ins.file containing the Kerberos authentication module
- Changing the Cnf.ini parameter useosaut to 2
- Setting the Cnf.ini parameter tnsadmin if TNS_ADMIN isn’t set in registry (refer to: Database Connectivity Information on page 78)
- Enter Kerberos principal name in User administration for the users which should be Kerberos authenticated or use the syncdbusers job to change all (as described in the previous sections).

For information about the use of Active Directory in SimCorp Dimension see SimCorp Dimension integration to Active Directory (AD) on page 128.

4.6.9.2.2 Logon using remote OS authentication

If you want the SimCorp Dimension users to be authenticated using Oracle remote authentication you need the database parameter REMOTE_OS_AUTHENT set to TRUE. You also need to consider which Oracle prefix you want for users who are authenticated by remote authentication. The Oracle database parameter OS_AUTHENT_PREFIX should be set to the prefix you wish to use. The recommended setting and Oracle default is “OPS$”. Be aware that if you change it, you may cause trouble for existing operating system authenticated users/schemas. In addition, it is strongly recommended that you do not use blank, as this can have unintended effects.

Note

REMOTE_OS_AUTHENT has been deprecated by Oracle and at

---

some point in time it will be desupported. It is therefore strongly recommended to consider using Oracle Kerberos authentication if unattended logon is a requirement.

The requirements for using OS authenticated users are:

- The init.ora parameter `REMOTE_OS_AUTHENT` must be set to `TRUE`
- The recommended setting for the init.ora parameter os_ authent_prefix is “OPS$” and should not be blank
- `SQLNET.AUTHENTICATION_SERVICES` must be set to `(NONE)` in Sqlnet.ora
- The name of the Windows user is the same as the SimCorp Dimension user

Note

SimCorp Dimension does not support OS authenticated users on Windows based database servers where the Registry parameter `OSAUTH_PREFIX_DOMAIN` has been set to true.

Note

Please be aware of the known issue stated in Operating System Authenticated Users on page 167.

4.6.9.2.3 Logon using user/password on the Command line or in short-cut

If a **Normal** type user is not OS authenticated, the user name and password may be given together with the `-u` option for scd.exe file (please refer to section scd.exe on page 182). If the SimCorp Dimension user is OS or Kerberos authenticated, and you are logged into Windows with a different username, it is not possible to log on with that SimCorp Dimension user using the `-u` option.

The standard batch user (called BATCH) and the standard service user (called SERVER) are always able to logon without a password. If the `-batch` option is used and no `-u` option is used, the SimCorp Dimension user BATCH will implicitly be logged on. When no special user configuration is provided for a service, that will implicit be logged on as the SimCorp Dimension user SERVER.

Note

The password for the Oracle user BATCH and SERVER is generated by SimCorp Dimension during installation/upgrade. If the passwords for these two users are changed, it will not be possible to use standard batch or service (BATCH/SERVER) user

any more. Only other users created of type **Batch** or **Service** can be used in this case. The BATCH and SERVER users passwords may be restored in User Administration.

The following table shows which user will be logged on in the database, depending on whether remote authentication is used for the individual user or not.

Conditions	**Value/User logged on**		
Useosaut (Password/OS auth/Kerberos)	**0**	**1**	**2** *
remote_os_authent	**FALSE**	**TRUE**	**FALSE**
os_authent_prefix	**N/A**	**OPS$**	**<blank>**
Windows user is not MYBATCH			
`-BATCH=EOD`	BATCH	BATCH	BATCH
`-BATCH=EOD -USER=MYBATCH`	ERROR	ERROR	ERROR
`-BATCH=EOD -USER=MYBATCH/Password`	MYBATCH	MYBATCH	MYBATCH
Windows user is MYBATCH			
`-BATCH=EOD`	BATCH	BATCH	BATCH
`-BATCH=EOD -USER=MYBATCH`	ERROR	OPS$MYBATCH	MYBATCH
`-BATCH=EOD -USER=MYBATCH/Password`	MYBATCH	MYBATCH	MYBATCH

* The information shown for useosaut=2 is only valid if the SimCorp Dimension user MYBATCH is Kerberos authenticated.

The users BATCH and SERVER are always created as password validated users in Oracle. If the `-batch` option is used without the `-user` option the BATCH user is used.

4.6.9.2.4 When the Password Is Required by default.

In OS authenticated installations, SimCorp Dimension users of user type **Supervisor** and **System Administrator** must by default provide a password, but may be created as or changed to OS authenticated users. The SimCorp Dimension user **SUPERVISOR** (predefined) will log on to the database as the Oracle user **SUPERVISOR**. The users created as the **System Administrator** type will log on to the database with their SimCorp Dimension username. The same rules apply to users of type **SimCorp Consultant** and **System owner**, but these types of users must in addition to their Oracle password, provide SimCorp initials and a SimCorp generic “password”.

The user **SCSYSTEM** login follows the same principle as for SimCorp Consultant type users, that is: login with **SCSYSTEM** and password for this

user and then at the next prompt provide the SimCorp initials and the SimCorp generic “password”.

The data tables owner (datowner) and the system tables owner (sysowner) are not visible in SimCorp Dimension as users. It is only under certain circumstances that SimCorp Dimension connects to the database as these users and in these situations password must always be provided. It is not possible to log into SimCorp Dimension using these users. Being logged on to the database as the data or system tables owner is only relevant for very few tasks in the system (e.g. applying patches or ins-file update, running **Verify Database Structure**), and SimCorp Dimension will prompt for logon when these are needed. A SimCorp Dimension user must be authorised to the given task and logged on in order to get the logon prompt for the data or system tables owner. Likewise, in order to change the password for these users.

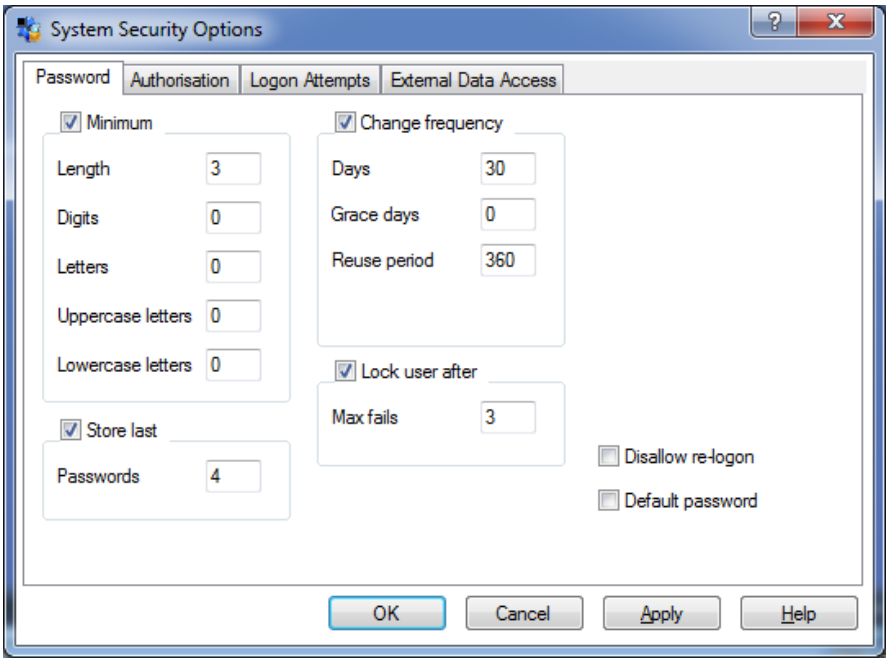
4.6.9.3 User Names and Passwords

All SimCorp Dimension user names are mapped directly to Oracle account names (Oracle users). Therefore, the user names are under the same restrictions as Oracle usernames:

- must not contain trailing blanks
- maximum length 30 characters

Please refer to the official Oracle documentation (for example the Oracle books: ***SQL Reference*** and ***Administrator’s Guide***) for more information on the Oracle rules for naming.

A subset of the password configuration parameters on the Oracle profile which is assigned to all SimCorp Dimension users can be configured in SimCorp Dimension in **Security Options**:



The minimum rules for passwords (length, digits etc) are not transferred to the Oracle profile. Rather these are the rules enforced by SimCorp Dimension when users are asked by the application to change password.

Security Options is accessed via System Access and can only be changed by SUPERVISOR.

If a user is created from outside SimCorp Dimension using another Oracle profile than stated in the Cnf.ini file settings stated in Security Options will have no effect for this user.

4.6.9.4 Auditing Database Logon Activity

Oracle12c has introduced a new Unified Audit Trail. SimCorp Dimension will use this if enabled. Please refer to the ***Preferred Oracle Configuration for SimCorp Dimension*** guide, heading **Oracle Unified Audit**, for more information on this scenario. The information presented in this current section relates to the Oracle legacy audit trail, and relevant as long as the database use traditional audit or run in mixed audit mode. This is the case when the following query returns FALSE: Select value from V$OPTION where parameter = 'Unified Auditing';

In order to audit logon activity system-wide auditing must be enabled in the database and the Oracle parameter audit_trail must be set to DB, which causes audited records to be written to the database audit trail (the SYS.AUD$ table in the SYSTEM tablespace – not to confuse with the SimCorp Dimension audit trail).

In order to enable audit trail in the database the Oracle command AUDIT SESSION must be executed from, for instance, SQL*PLUS by an Oracle user which have been granted the AUDIT SYSTEM privilege.

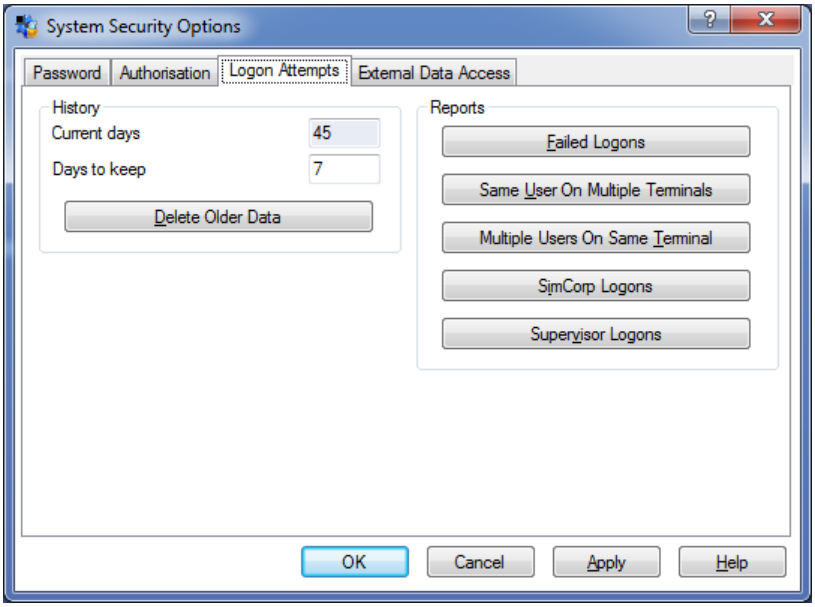
Note

Always ensure there is available space in the SYSTEM tablespace for the audit information. Alternatively relocate the Oracle audit trail tables to a dedicated tablespace, following Oracle documentation/guideline for this.

If the Oracle audit trail is completely full and connections are being audited, users cannot connect to the database because the associated audit record for the connection cannot be inserted into the Oracle audit trail. In this case a connection to the database such as SYS (operations by SYS are not audited) must be established and more space made available in the Oracle audit trail.

Alternatively, the size of the Oracle audit trail must be reduced. Oracle provides a PL/SQL package (dbms_audit_mgmt) that can purge old data and relocate the audit trail. Remember to copy information to another database table if data in audit trail are to be kept.

In **Security Options** in SimCorp Dimension it is possible to view a few reports from the Oracle audit trail, when logged in as SUPERVISOR:



Customised reports can be created by querying the Oracle view DBA_ AUDIT_SESSION. For example to see users that share a PC the following SQL can be executed from a third party Oracle query tool, for instance SQL*PLUS:

```
Select
  Count(Distinct(username)) As cnt,
  terminal
From
  dba_audit_session
Having
  Count(Distinct(username))>1
Group By
  terminal
Order By
  cnt Desc,
  terminal
```

Please refer to Oracle documentation for more information on creating reports for audit of user logons.

In order to view the reports from **Security Options**, when using the Oracle legacy audit trail, it is a prerequisite that the Oracle parameter audit_trail is set to DB, audit is enabled with AUDIT SESSION and the user role (SCROLE) and the data and system owners (SCDAT and SCSYS) have been granted select on the Oracle view DBA_AUDIT_SESSION. More detailed auditing is outside the scope of SimCorp Dimension and if required, it must be set up and managed in Oracle. Please refer to Oracle documentation for more information on auditing options.

The SimCorp Dimension data owner contains a table USERLOGONS which is used for the auditing of SimCorp Consultant type users. Use this table in

combination with the Oracle standard auditing views, in order to see which SimCorp employee has logged on as a given SimCorp Consultant type user.

4.6.9.5 SimCorp Dimension integration to Active Directory (AD)

SimCorp Dimension uses AD for different purposes.

- Single sign-on
- Service platform
- User management
- Limit users using functionality covered by Password of the Week.

4.6.9.5.1 Single sign-on

Oracle supports a series of LDAP stores where AD is one of them. SimCorp Dimension provides the use of Kerberos authentication See Unattended Logon on page 120

4.6.9.5.2 Service platform

The command utility tool for interaction with the service platform derives the users' authorisation via mapping the principal name to the user table in SimCorp Dimension. Consequently, the principal names in e.g. Active Directory must adhere to the restrictions on SimCorp Dimension user names. (See: User Names and Passwords on page 125).

4.6.9.5.3 User management

In order to support managing SimCorp Dimension users externally from SimCorp Dimension, SimCorp Dimension supports integration to an LDAP store. The integration enables the creation, authorisation and deactivation of users from the LDAP store. While this feature should work with any LDAP store, it is verified only against Microsoft Active Directory(AD).

In order to support different naming schemes for LDAP groups, it is possible to specify a prefix for the LDAP groups that are used to authorise users to the specific SimCorp Dimension installation The prefixing also allows authorising more than one SimCorp Dimension installation from the same LDAP store.

The following non-system type users can be managed this way:

- Normal
- Dashboard
- Report
- SimCorp Consultant
- Batch
- Service

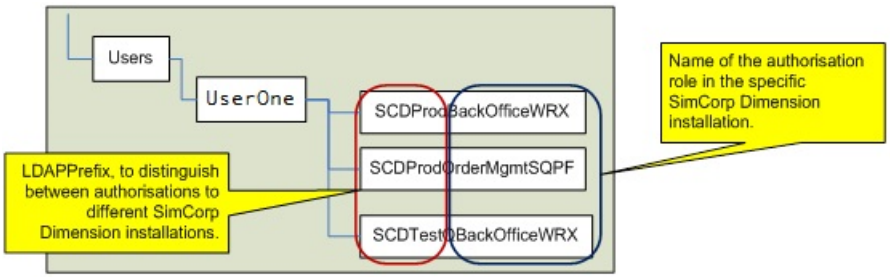
The system type users e.g. System Administrator and Supervisor must be managed from inside SimCorp Dimension.

These are the steps to enable AD user management integration in a SimCorp Dimension installation:

- Windows authentication and user management in the environment must be done through an AD.
- AD user management integration configuration module must be included in the SimCorp Dimension installation file (Ins.ini)
- AD prefix must be set in the SimCorp Dimension configuration file (Cnf.ini) Example: `LdapPrefix=SCDProd`
- If you want to use a different domain, than the global catalogue for LDAP queries, you can define the Cnf.ini parameter `LdapDomain`, where you can list one or more domains for the authentication service to use. Example: `LDAPDomain=afirm.com;afirm1.com`
- Service platform must be installed and the authentication service running
- SimCorp Dimension authentication method is set to Oracle Kerberos (see section Logon using Oracle Kerberos authentication on page 121)
- The Oracle server used for the SimCorp Dimension installation uses the same AD for its user authentication.
- The AD is the same that the user executing the SimCorp Dimension authentication service is authenticated against.

Beside enabling AD user management integration you need to create **Authorisation Roles** in SimCorp Dimension that match the names of the LDAP groups (without the specified LDAPprefix.

Example: If `LDAPPrefix` in Cnf.ini is `SCDProd` and the **Authorisation Role** is named `BackOfficeWRX` the name of the AD group needs to be: `SCDProdBackOfficeWRX`.



In the above example, the user “UserOne” would have two Authorisation Roles available (BackOfficeWRX and OrderMgmtSQPF) in the SimCorp Dimension installation configured with LDAPPrefix=’SCDProd’.

Per default, only one **Authorisation Role** per user is supported, but the functionality for a user to alternate between roles can be purchased. Please note that if more than one **Authorisation Role** is defined and the extra functionality is not purchased, the user will have only one Authorisation Role available. The available Authorisation Role will be the first grant that SimCorp Dimension reads. It will not be possible to indicate which to use.

Note

Define the authorisation roles, AD groups and mapping of users and AD groups before enabling the AD integration in SimCorp Dimension (Both the installation file parameter and the configuration file prefix). A user without a grant matching a valid authorisation group will not be able to logon.

If a user has been created with wrong user type, the user type cannot be changed using the external user management. You need to use the SimCorp Dimension internal user management.

4.6.9.5.4 Limit users using functionality covered by Password of the Week.

An AD group is used to limit users with access to functionality covered by Password of the Week. Please see Use Active Directory to limit access to functionality covered by Password of the Week on page 85.

4.6.10 Data Protection

The SimCorp Dimension database tables are protected from outside data modification through the use of triggers.

This is to ensure that data is updated through the SimCorp Dimension application only.

A number of tables are used for interaction between SimCorp Dimension and other applications. Tables that are allowed to be updated from outside SimCorp Dimension are:

Tablename	Usage
KEYRATIOS	Used to store key ratios for bonds separately from the key ratios calculated using the standard SimCorp Dimension set-up. The key ratios can either be imported from an external source or calculated using the key ratio calculation functionality that is included with the module as yield conventions for the calculation for specified segments of bonds. The key ratios can be used throughout the system through the price method „From Key Ratios Calculation". The interface „User defined key ratios/Basic' is part of the Alternative Key Ratios module
BATCHQUEUE	Used to "control" the batch service. Jobs can be added from the outside by raw SQL, or the PL/SQL package BATCHQUEUE_PKG
MSGQUEUE	Import messages via filters from the outside. SQL can be used, or the PL/SQL package MSGQUEUE_PKG can be used
STPMSGEXTQUEUE	Used for the outside world to communicate with the STP environment. To import transactions or SWIFT messages

Tablename	Usage
WMSELECTIONSTATE **WMBROWSEDEF** **WMBROWSEISINS** **WMBROWSERESULT** **WMCAMAPPING** **WMCLASS2TYPE** **WMCLEANUP** **WMFCMAPPINGS** **WMFLDUPDRULES** **WMFROMPOOL** **WMGENFLDMAPPINGS** **WMIMPLOG** **WMPOOL** **WMPOOLCLOB** **WMREQUESTS** **WMSECINF** **WMSECINF2** **WMSECVALIDATE** **WMSELECTION** **WMSELECTIONNOTIFY** **WMSRVSTAT** **WMSTLMDAYS** **WMTOPOOL** **WMYTMCONVS**	Used for the WM interface in the German market. For further information see the user manuals “WM Setup Guide” and “WM Import Details”

As part of patch apply SimCorp Dimension revokes access right given to users or roles not known by the application. To avoid access right to be revoked it is possible to grant these privileges to a role and state the role name in the Cnf.ini file. The Cnf.ini parameter is called: `mqtabrole`. The role is granted INSERT, UPDATE, DELETE and SELECT to the above mentioned tables and EXECUTE to the three packages: ORDER_PKG, BATCHQUEUE_PKG and MSGQUEUE_PKG. Grant the role to users who should be able to update the mentioned tables from outside SimCorp Dimension.

Note

To use this feature:

1. Create the role and name it e.g. SCDUTILROLE and GRANT it to the relevant (non SimCorp Dimension) user(s).
2. Insert an entry in Cnf.ini : `mqtabrole=SCDUTILROLE`
3. Run Verify Database Structure with “ALTER TABLE where needed” checked on all tables mentioned above (use “Select tables”).

4.6.11 External Data Access

The External Data Access (EDA) feature is based on Oracle “Virtual Private Database” (VPD) available in Oracle Enterprise Edition.

In order to exploit this feature you allow external access for SimCorp Dimension users. This means that the user must have an Oracle user account to use when logging on from third party tools. As each SimCorp Dimension user already corresponds to an Oracle user it will be natural to map the user to its own Oracle account. The user will then use the same username/password both when logging on SimCorp Dimension and from third party tools.

It is however also possible to map the SimCorp Dimension user to another Oracle user if that is more convenient.

Note

It is not possible to update SimCorp Dimension data from outside the application. The EDA feature provides read access only to the external users in accordance with the authorisation granted through SimCorp Dimension for a limited number of tables.

Administration of External Data Access (EDA) involves access with the following account types:

- SimCorp Dimension SUPERVISOR
- SimCorp Dimension System Administrator
- Oracle database administrator with DBA privileges in Oracle

The SUPERVISOR is the only SimCorp Dimension user who may enable/disable EDA. When enabling, the SUPERVISOR in cooperation with the Oracle database administrator must decide on:

- Role name
- Default tablespace for external users

Enabling and disabling of the EDA feature is done from **Security Options** at the tab **External Data Access**

The External users default tablespace should be stated. This cannot be the same as SimCorp Dimensions users’ tablespaces.

The role name may be any legal Oracle role name except from roles used by SimCorp Dimension. The name can only be changed if EDA is disabled.

Note

Although not recommended, if running more than one SimCorp Dimension installation in the same database please ensure that the role name is unique to each installation, for example by including the SimCorp Dimension installation name in the role name.

External users may be created in two ways:

- From within SimCorp Dimension by a SimCorp Dimension System Administrator
- Directly in the database by an Oracle database administrator

If created directly in the database, the new user should still be registered and linked to a user inside SimCorp Dimension.

Creation of external users and linking to SimCorp Dimension users is done from within SimCorp Dimension in **Mapping**

If the external user has already been created in the database, the system will prompt for you to continue.

When installed and enabled, EDA will ensure the database authorisation on users that are mapped when they access the database from third party tools.

Data access permission is maintained within SimCorp Dimension. This means that the SimCorp Dimension System Administrator controls which data may be seen by which users.

The data possible to authorise using External Data Access is data where authorisation is controlled by the Authorisation Segments. At present it is the following tables:

- Securities (SECURITIES)
- Security Types (SECTYPES)
- Transactions (TRANSMAIN)
- Holding Keys (HOLKEYS)
- Portfolio Groups (PORTGROUPS)
- Portfolios (PORTFOLIOS)
- Holdings, Balances/Stock (HOLDINGS)
- Portfolio Group Types (PORTGROUPTYPES)
- Security Groups (SECGROUPS)
- Model Portfolios (MPDEFS)

- FO Holding Keys (FOHOLKEYS)
- FO Holdings (FOHOLDINGS)

The system maintains a log containing incidents and errors relating to EDA. The log is deleted every time EDA is enabled. The log resides in a table EDALOG, and may be inspected via SimCorp Dimension from the External Users **Log**.

Note

External Data Access is only available when running Oracle Enterprise Edition.

4.6.12 Index Management

It is possible to delete certain of the SimCorp Dimension standard configured indexes and also to create new customised indexes maintained by the application.

The deletion and creation of indexes must take place in 2 steps:

1. Registration in the application using **Index Management**
2. Run **Execute ALTER TABLE where needed** from **Verify Database Structure**

Step 1 may be done any time, but step 2 should be done in a “maintenance window” and there should not be any other users logged on to SimCorp Dimension while this function is running.

If you do not perform step 2, it will automatically be executed next time an Align Objects task is performed on that table. Please refer to: Align Objects on page 108 for further information.

At any time you will be able to check if there are pending changes in the **Index Management** drop-down menu **Functions** / **Managed Indexes**.

Note

Extreme care should be taken when changing the index structure of SimCorp Dimension. In case of performance decrease SimCorp may ask you to roll back some of your index changes in order to rule out that the performance decrease is a result of deleting/creating indexes.

Any changes in this area should be carefully tested in a test installation which preferably should be a copy of the production installation.

When deleting certain indexes you risk being unable to delete rows in the table governed by that index. For instance, if you delete the CHGUSR index (pointing to a column with referential constraint to the USERS table) in any

table, you will receive an error message if you try to delete users from SimCorp Dimension.

In addition please refer to section Index Monitoring below.

4.6.13 Index Monitoring

In order to identify unused indexes, monitoring of indexes has been implemented. Monitoring is enabled by the Cnf.ini parameter `dbindexmon`:

```
[config]
…
dbindexmon=1
…
```

The default value of `dbindexmon` is 1, meaning 'on'.

It is possible to switch the monitoring off (setting `dbindexmon=0`), but this is not encouraged, as the information on usage of indexes will be required in future releases in order to remove indexes no longer needed. Monitoring of indexes has no influence on system performance in general. The monitoring is not enabled on temporary indexes.

Note

Please be aware of the known issue stated in Parent Row Delete Does Not Influence Index Monitoring on page 227.

4.6.14 CHECK Constraints

If you have a particular case where constraints are validated and this is causing bad decisions by the Oracle Optimizer, then you can set a parameter which will force a session event that asks the Optimizer not to consider the validated constraints.

```
; dbchecknopred : Cost Based Optimizer (CBO) should not
;                 generate extra predicates from CHECK
;                 constraints

dbchecknopred=1
```

Note

The above mentioned parameter should only be set after consultation with SimCorp and you have verified this is the reason for the Optimizer's bad choice. If you are not experiencing such performance problems, you should not set this parameter.

4.6.15 Database Application Info

Being able to identify the module and action for individual sessions in the database is very useful for DBAs and System Administrators, especially in a situation where database resource consumption is being analysed.

By default, SimCorp Dimension is instrumented by the use of database application information. The option is controlled by **Enable the use of application info** on the **Miscellaneous – 3** tab in **Miscellaneous Options**. It is highly recommended to leave this feature enabled.

With this enabled, SimCorp Dimension provides session specific information to Oracle regarding the individual session's actions, that is, what functionality (module and action) is performed by the session. This information will be available through the Oracle GV$SESSION view in the MODULE and ACTION columns. SimCorp Dimension also contains a user interface for viewing the information from GV$SESSION: **Database Application Info** that is used to display the state of all current sessions on the database. For every session it is possible to see the source of the session, which OS user has logged on and from which computer. The current database session is shown with red coloured text. Other database sessions for the same OS user is shown with blue coloured text. All active database session, which are those that have SQLs currently executed on the database, are coloured with white text on green background in the State column. Blocking database sessions is coloured with red background and white letters. Blocked database sessions is coloured with yellow background and black letters. For each session it is possible to look up detailed information for the activities for the session as e.g. current SQL locks, long operations and explain plan for current SQL. It is also possible to see locks and who is blocking whom– if actual at the time.

If the **Enable the use of application info** check box has not been selected, it will not be possible to identify the functionality the sessions are performing, only the information regarding the program they run, for instance SimCorp Dimension.

4.6.16 Viewing User Constraints – Optimised View

When changes to database objects are performed in Align Objects, a considerable part of the time used is on querying the Oracle view USER_CONSTRAINTS. Please see Align Objects on page 108 to see which parts of SimCorp Dimension uses Align Objects.

SimCorp has in connection with this use identified a serious performance penalty when accessing USER_CONSTRAINTS as it is defined. To eliminate this performance penalty SimCorp has defined a rewrite of the USER_CONSTRAINTS view, SCD_USER_CONSTRAINTS.

The Oracle DBA creates the SCD_USER_CONSTRAINTS view in the SYS schema, creates a public synonym called SCD_USER_CONSTRAINTS on the view and grants select to public. This way SimCorp Dimension will be able to utilise the performance optimised SCD_USER_CONSTRAINTS view instead of USER_CONSTRAINTS. Omitting this database implementation will place a severe overhead on the time required when Align Objects tasks are performed (Align Objects on page 108). Please see known issue: ORA-20984 : SCD_USER_CONSTRAINTS is missing after it has been installed on

page 229 Please find the SQL script called **ScdUserConstraints63.sql** for creating SCD_USER_CONSTRAINTS on the upgrade media.

Note

Please note that if SCD_USER_CONSTRAINTS first has been installed and for some reason is dropped after Align Objects has been used it is necessary to drop the package t_version_s and afterwards run Verify Database Structure on a table (any table will do).

If SCD_USER_CONSTRAINTS is installed after Align Objects has been used the first time the view has no effect until the package t_version_s has been dropped and Verify Database Structure has been executed on a table.

4.6.17 Viewing added columns information

When having partitioned tables and performing database object changes as described in Align Objects on page 108 the view SCD_USER_TAB_COLS_ADDED is needed.

The view will only expose a subset of the information that is already available in the Oracle view: USER_TAB_COLS, but the view SCD_USER_TAB_COLS_ADDED is needed as it shows which fields that are added after the table is created, and that information is not available in USER_TAB_COLS.

The Oracle DBA should create the SCD_USER_TAB_COLS_ADDED view in the SYS schema, create a public synonym called SCD_USER_TAB_COLS_ADDED on the view and grant select to public.

Please find the SQL script called **ScdUserTabColsAdded63.sql** for creating SCD_USER_TAB_COLS_ADDED on the upgrade media.

Note

Please note that **Check before upgrade** will fail if the view is missing and partitioned tables exist.

4.6.18 Executing Reports

When executing reports with external tables and views, the Schema name and Table/View must be registered in **Report External Tables** . Please ensure that the SimCorp Dimension database owner has been granted appropriate permissions:

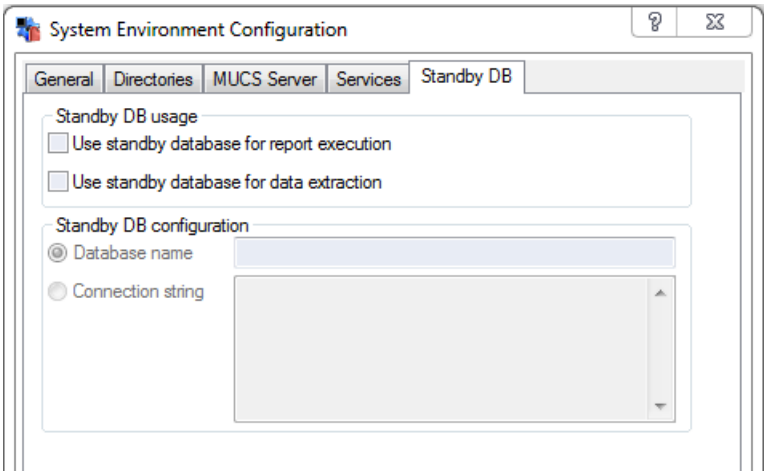
```
GRANT SELECT ON <ext table/view> TO <data owner> WITH
GRANT OPTION
```

Otherwise the users in SimCorp Dimension will not be able to execute these reports.

For more information on SimCorp Dimension users please refer to User Management on page 119 and section Oracle User Privileges on page 140.

4.6.19 Oracle Active Data Guard

It is possible in SimCorp Dimension to use a standby database when executing reports or Data Extractor queries. SimCorp Dimension uses Oracle Active Dataguard (ADG) that means that standby database should be installed. After installation either the standby database name or the Connection string needs to be specified on the **Standby DB** tab in the **System Environment Configuration** task:



If Active Data Guard is used it is necessary to specify either Database name or Connection string. Standbydbname can only be used if the TNS names (tnsnames.ora) access is configured.

Connection string can be used without TNS names is configured.

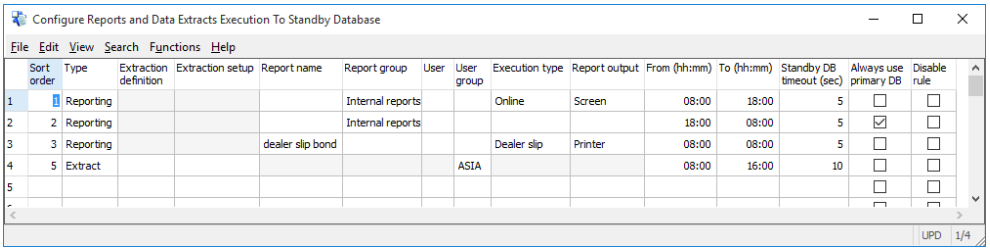
Neither Database name nor Connection string can be the same as the current database instance but must point to a configured standby database.

Note

The **Standby DB** tab is visible when the functionality is purchased and present in the ins.ini file.

The document ***Oracle ADG Preferred installation and configuration for SimCorp Dimension*** is available from SimCorp on request.

You can specify the report to be executed on the standby database in the **Configure Reports Execution to Standby Database** task:



If field value is not specified in the rule any value is matching. For example if user is not specified the rule is for all users executing the report. More than one line can match the execution criteria. ADG Execution Configuration rules are sorted by Sort field. The first line that match the criteria of report or DEX execution is taking the priority.

4.6.20 Unified Logging

The Cnf.ini parameter `UnifiedLogging` combined with the Cnf.ini parameters `LogWriter1` and `LogWriter2` controls how log messages are saved.

```
;unifiedlogging=1 : Log messages saved in files only
are no longer supported.
;unifiedlogging=2 : Combined mode, log messages are
saved in files and as defined by LogWriter1 and
Logwriter2. Logs shown in SimCorp Dimension are from
database, except History and show recent log in Batch
Job Groups which uses the log files. Not recommended as
services does not write to traditional files.
;unifiedlogging=3 : Combined mode, log messages are
saved in files and as defined by LogWriter1 and
Logwriter2. Logs shown in SimCorp Dimension are from
the database
;unifiedlogging=4 : Logmessages are saved as defined by
LogWriter1 and Logwriter2. Logs shown in SimCorp
Dimension are from the database.
;Default value:
unifiedlogging=3
```

Log messages are saved according to the Cnf.ini parameters `LogWriter1` and `LogWriter2`. If either `LogWriter1` or `LogWriter2` is set to database, messages can be shown as single logs. Single logs can be seen in for example **Service Manager**, **Service History** and **Batch History** or used in searches across log messages in **Log Viewer** in **System Manager**. For more information about Unified Logging please see: Unified Logging on page 201

4.6.21 Oracle User Privileges

When SimCorp Dimension is installed, a number of database schemas are created.

The DATOWNER owns all the application objects, such as data tables, indices, views, and so on. The tables and indices are typically placed in relation to their function in separate tablespaces.

The SYSOWNER owns all the application system specific tables, placed in the SYSTS tablespace.

The TRDOWNER owns application objects used by the Order Manager and is only present if the Order Manager is installed. As for the DATOWNER objects the Order Manager objects are placed in tablespaces in relation to their function.

Permissions to application objects owned by the above mentioned owners are granted using Oracle roles. An overview of privileges are showed in the table below. (S=Select, I=insert, U=update, D=delete and E=execute).

Please note that roles needs to be stated in the Cnf.ini file to be handled correct by SimCorp Dimension.

SimCorp Dimension uses four special roles to grant access to specific functionality in SimCorp Dimension when the functionality is used. The access is revoked when the functionality is no longer used to minimise access granted.

- <Specroleprefix>Loggingprivrole
- <Specroleprefix> Usersprivrole
- <Specroleprefix> Auditprivrole
- <Specroleprefix> Auditupdprivrole

are created and maintained from inside SimCorp Dimension. For those three roles the only stated parameter in cnf.ini is the parameter `specroleprefix`.

	Object Permissions granted to objects owned by:						
Database role:	**Datowner**		**Dex schema**	**Trdowner**	**Sysowner**	**Granted to:**	**Notes**
	All tables	**Interaction tables only**					
Userrole [1]	SIUDE except those covered by the three Specroleprefix.				SIUDE	All users created in SimCorp Dimension and Datowner (with admin options).	see also Userrole Privileges on page 144.

		Object Permissions granted to objects owned by:						
Database role:		**Datowner**		**Dex schema**	**Trdowner**	**Sysowner**	**Granted to:**	**Notes**
		All tables	**Interaction tables only**					
Specroleprefix 2	Loggingprivrole		UD on table: LOGMESSAGES Execute on package: PARTITION_ LOGMESSAGES_PKG				Users who need the privileges to cleanup and archive Unified Log messages. The role will be revoked on the fly when no longer needed.	see also Userrole Privileges on page 144.
	Userprivrole		IUD on tables: USERAUTROLES USERS				Users who need the privileges to create and maintain SimCorp Dimension users. The role will be revoked on the fly when no longer needed	see also Userrole Privileges on page 144.
	Auditprivrole		D on tables: AUDITDETAIL AUDITDETAILCLOB AUDITDETAILEXT AUDITMASTER AUDITMASTEREXT AUDITSECURITIES Execute on package: PARTITION_AUDIT_ PKG				Users who need the privileges to cleanup and archive Audit data. The role will be revoked on the fly when no longer needed	see also Userrole Privileges on page 144.

		Object Permissions granted to objects owned by:						
Database role:		**Datowner**		**Dex schema**	**Trdowner**	**Sysowner**	**Granted to:**	**Notes**
		All tables	**Interaction tables only**					
	Auditupdprivrole		U on: AUDITDETAIL AUDITMASTER D on: AUDITDETAILCLOB				The users SERVER and BATCH when they need to remove data from audit.	see also: Userrole Privileges
Dexrole				SIUDE			Userrole Reportrole and Datowner (with admin options).	
Selrole		S					Datowner with admin options. External users	Managed externally by DBA. Used for DWH RBM and Other external users.
Reportrole [3]		S		SIUDE			Datowner with admin options. External users	Managed externally by DBA. Used for third party tools as e.g. Crystal Reports
Mqtabrole			SIUD(and E on ORDER_PKG, BATCHQUEUE_PKG AND MSGQUEUE_ PKG)				External users that needs to update the specific interaction tables.	See Data Protection on page 130 for the list of tables

	Object Permissions granted to objects owned by:						
Database role:	**Datowner**		**Dex schema**	**Trdowner**	**Sysowner**	**Granted to:**	**Notes**
	All tables	**Interaction tables only**					
Edarole	S				S	Datowner with admin options. External users	The select right will be limited by SimCorp Dimension authorisation see: External Data Access on page 132

[1] The userrole is a password protected role only active when the user is logged on through SimCorp Dimension

[2] For selected areas of SimCorp Dimension privileges are granted when needed. The roles are password protected and will be revoked when no longer needed.

If the specroleprefix is changed it must be followed by a SYNCDDBUSERs. Please see scd.exe on page 182 for further information.

[3] Privileges to the reportrole are granted as a grant of the selrole and the dexrole.

Beside the privileges listed in the table additional privileges are granted to some of the roles.

All users created in SimCorp Dimension are created as users in Oracle and granted the userrole.

Note

If concurrent statistics is enabled Manage Any Queue privilege must be granted to the SimCorp Dimension the Userrole, the data owner, the system owner as well as any data extracts and datawarehouse schemas created from the SimCorp Dimension installation.

4.6.21.1 Userrole Privileges

All SimCorp Dimension users are granted the userrole which is a password protected role only active when logged on through SimCorp Dimension. The password is set from within the application and must not be changed from outside.

The SimCorp Dimension user role (userrole) will be granted `DELETE`, `INSERT`, `SELECT`, `UPDATE` and `EXECUTE` privileges to objects owned by the SimCorp Dimension data and system owners (datowner and sysowner), except for privileges handled by special roles.

In addition the userrole gets the system privilege:

```
ALTER SESSION WITH ADMIN OPTION
```

and the following privilege on a system object:

```
SELECT ON DBA_AUDIT_SESSION
SELECT ON UNIFIED_AUDIT_TRAIL
SELECT ON V$INSTANCE
EXECUTE ON DBMS_LOB
```

If SimCorp Dimension Order Manager is installed

```
CHANGE NOTIFICATION
```

Will be granted too.

For selected areas of the SimCorp Dimension application privileges are granted when needed and not set as part of the userrole at logon. The special roles are password protected and will be granted as part of the use of SimCorp Dimension. Privileges is controlled by SimCorp Dimension and will only be granted to users with access to the functionality where the privileges are necessary. At present the three roles maintain privileges required to create and maintain SimCorp Dimension users, cleanup and archive unified log messages and audit data.

To be able to fulfil the demands from the EU General Data Protection Regulation (GDPR) you need to be able to remove data from audit in SimCorp Dimension. To minimise the amount of users who can remove data in audit, it is only users SERVER and BATCH who can remove. The privileges for this specific batch job will be granted when needed by a role called AUDITUPDPRIVROLE and revoked again when no longer needed.

4.6.21.2 DEXROLE Privileges

A role referred to as the DEXrole will be created and granted to the userrole.

For installations not utilising the Data Extractor or Communication Server functionality the DEX role will be “empty” until any of these functions are

implemented. When the installation utilises any of the Data Extractor, Archiving or Communication Server functionality appropriate database access (`SELECT`, `INSERT`, `UPDATE`, `DELETE` and `EXECUTE`) to the object owned by the Data Extractor, Archiving or Communication Server schemas will be granted to the DEX role, thereby allowing the users of the installation to utilise this functionality.

4.6.21.3 SimCorp Dimension User Privileges

The SimCorp Dimension users will be granted the following system privilege:

```
CREATE SESSION
```

Further, the SimCorp Dimension users will be granted the user role. However as the user role is password protected, the role will only be set and activated when the user is logged on through the application. In this situation, the user role privileges will take precedence over any other privileges that may have been granted the user. Only the privileges from the user role will be enforced in the current session when the user is logged on through SimCorp Dimension.

4.6.21.3.1 SCDAT Privileges

The SimCorp Dimension data owner (datowner) will be granted the user role (userrole) with admin option during installation/upgrade.

Note

The password for the SimCorp Dimension data owner should be treated according to your company's policies for DBA passwords.

4.6.21.3.2 SCDAT System Privileges

The data owner will be given these system privileges:

```
ALTER PROFILE
ALTER SESSION WITH ADMIN OPTION
ALTER USER
CREATE DATABASE LINK WITH ADMIN OPTION
CREATE JOB WITH ADMIN OPTION
CREATE EVALUATION CONTEXT WITH ADMIN OPTION
CREATE PROCEDURE WITH ADMIN OPTION
CREATE ROLE
CREATE RULE WITH ADMIN OPTION
CREATE RULE SET WITH ADMIN OPTION
CREATE SEQUENCE WITH ADMIN OPTION
CREATE SESSION WITH ADMIN OPTION
CREATE TABLE WITH ADMIN OPTION
CREATE TRIGGER WITH ADMIN OPTION
CREATE TYPE WITH ADMIN OPTION
CREATE USER
CREATE VIEW WITH ADMIN OPTION
DEBUG CONNECT SESSION
DROP USER
MANAGE SCHEDULER WITH ADMIN OPTION
RESUMABLE WITH ADMIN OPTION
```

If SimCorp Dimension**TRADE ORDER MANAGER** is installed the following privilege is needed:

```
CHANGE NOTIFICATION WITH ADMIN OPTION
```

4.6.21.3.3 SCDAT Object Privileges

The data owner will be given these object privileges:

```
EXECUTE ON DBMS_APPLICATION_INFO WITH GRANT OPTION
EXECUTE ON DBMS_AQADM
EXECUTE ON DBMS_AQ WITH GRANT OPTION
EXECUTE ON DBMS_CRYPTO
EXECUTE ON DBMS_DB_VERSION WITH GRANT OPTION
EXECUTE ON DBMS_JOB
EXECUTE ON DBMS_LOB WITH GRANT OPTION
EXECUTE ON DBMS_LOCK WITH GRANT OPTION
EXECUTE ON DBMS_METADATA WITH GRANT OPTION
EXECUTE ON DBMS_OUTPUT WITH GRANT OPTION
EXECUTE ON DBMS_QOPATCH
EXECUTE ON DBMS_RLS WITH GRANT OPTION
EXECUTE ON DBMS_RULE_ADM
```

```
EXECUTE ON DBMS_SCHEDULER WITH GRANT OPTION
EXECUTE ON DBMS_SESSION WITH GRANT OPTION
EXECUTE ON DBMS_SPACE_ADMIN
EXECUTE ON DBMS_SQL WITH GRANT OPTION
EXECUTE ON DBMS_STATS WITH GRANT OPTION
EXECUTE ON DBMS_UTILITY WITH GRANT OPTION
EXECUTE ON DBMS_XPLAN
EXECUTE ON DBMS_XMLDOM
EXECUTE ON DBMS_XMLGEN WITH GRANT OPTION
EXECUTE ON DBMS_XSLPROCESSOR
SELECT ON DBA_ROLE_PRIVS
SELECT ON DBA_SCHEDULER_JOBS
SELECT ON DBA_SCHEDULER_WINDOWS
SELECT ON DBA_SCHEDULER_WINGROUP_MEMBERS
SELECT ON GV_$ACTIVE_SERVICES
SELECT ON GV_$DIAG_SQL_TRACE_RECORDS
SELECT ON GV_$INSTANCE
SELECT ON GV_$LOCK WITH GRANT OPTION
SELECT ON GV_$PARAMETER WITH GRANT OPTION
SELECT ON GV_$SERVICEMETRIC
SELECT ON GV_$SESSION WITH GRANT OPTION
SELECT ON GV_$SESSION_LONGOPS
SELECT ON GV_$SESSTAT
SELECT ON GV_$SQL
SELECT ON GV_$SQL_PLAN
SELECT ON GV_$SQL_PLAN_STATISTICS_ALL
SELECT ON GV_$STATNAME
SELECT ON V_$DATABASE
SELECT ON V_$INSTANCE WITH GRANT OPTION
SELECT ON V_$LOCK
SELECT ON V_$LISTENER_NETWORK
SELECT ON V_$OPTION WITH GRANT OPTION
SELECT ON V_$PARAMETER WITH GRANT OPTION
SELECT ON V_$RESULT_CACHE_STATISTICS
SELECT ON V_$SESSION
SELECT ON V_$SESSION_CONNECT_INFO
SELECT ON V_$SESSION_LONGOPS
SELECT ON V_$SESSTAT WITH GRANT OPTION
SELECT ON V_$SQL WITH GRANT OPTION
SELECT ON V_$SQL_PLAN
SELECT ON V_$SQL_PLAN_STATISTICS_ALL
SELECT ON V_$STATNAME WITH GRANT OPTION
SELECT ON V_$SYSTEM_EVENT
```

The data owner additionally has `DELETE`, `INSERT`, `SELECT`, `UPDATE` and `EXECUTE` privileges to objects owned by the SimCorp Dimension system owner (SCSYS) and vice versa.

The data owner will also be granted `DELETE`, `INSERT`, `SELECT`, `UPDATE` on tables and `EXECUTE` on packages owned by Data Extractor schemas, and `EXECUTE` on packages owned by the Communication Server queue schema. These object privileges will be given at the time of the creation of the objects.

If Datawarehouse is installed the following additional privileges are needed:

```
READ ON DIRECTORY DATAWAREHOUSE WITH GRANT OPTION
WRITE ON DIRECTORY DATAWAREHOUSE WITH GRANT OPTION
READ ON DIRECTORY DATAWAREHOUSELOGS WITH GRANT OPTION
WRITE ON DIRECTORY DATAWAREHOUSELOGS WITH GRANT OPTION
```

4.6.21.3.4 SCSYS System Privileges

The SimCorp Dimension system owner (sysowner) will be given these system privileges:

```
ALTER SESSION
CREATE EVALUATION CONTEXT
CREATE JOB
CREATE RULE
CREATE RULE SET
CREATE PROCEDURE
CREATE SEQUENCE
CREATE SESSION
CREATE TABLE
CREATE TRIGGER
CREATE TYPE
CREATE VIEW
MANAGE SCHEDULER
RESUMABLE
```

4.6.21.3.5 SCSYS Object Privileges

The SimCorp Dimension system owner (sysowner) will be given these object privileges:

```
EXECUTE ON DBMS_APPLICATION_INFO
EXECUTE ON DBMS_DB_VERSION
EXECUTE ON DBMS_LOB
EXECUTE ON DBMS_LOCK
EXECUTE ON DBMS_METADATA
EXECUTE ON DBMS_OUTPUT
EXECUTE ON DBMS_RLS
EXECUTE ON DBMS_SCHEDULER
EXECUTE ON DBMS_SESSION
EXECUTE ON DBMS_SQL
EXECUTE ON DBMS_STATS
EXECUTE ON DBMS_UTILITY
SELECT ON V_$INSTANCE
SELECT ON V_$OPTION
SELECT ON V_$PARAMETER
SELECT ON V_$SESSTAT
SELECT ON V_$STATNAME
SELECT ON V_$SQL
SELECT ON GV_$LOCK
SELECT ON GV_$PARAMETER
SELECT ON GV_$SESSION
```

The system owner additionally has `DELETE`, `INSERT`, `SELECT`, `UPDATE` and `EXECUTE` privileges to objects owned by the SimCorp Dimension data owner (datowner) and vice versa.

4.6.21.3.6 SCTRD System Privileges

The SimCorp Dimension Order Manager owner (trdowner) will be given these system privileges:

```
ALTER USER
ALTER SESSION WITH ADMIN OPTION
CHANGE NOTIFICATION WITH ADMIN OPTION
CREATE PROCEDURE WITH ADMIN OPTION
CREATE SEQUENCE WITH ADMIN OPTION
CREATE SESSION WITH ADMIN OPTION
CREATE TABLE WITH ADMIN OPTION
CREATE TRIGGER WITH ADMIN OPTION
CREATE TYPE WITH ADMIN OPTION
CREATE VIEW WITH ADMIN OPTION
```

4.6.21.3.7 SCTRD Object Privileges

The SimCorp Dimension Order Manager owner (trdowner) will be given these object privileges:

```
EXECUTE ON DBMS_UTILITY WITH GRANT OPTION
EXECUTE ON DBMS_AQ WITH GRANT OPTION
EXECUTE ON DBMS_LOB WITH GRANT OPTION
EXECUTE ON DBMS_XMLDOM
EXECUTE ON DBMS_XSLPROCESSOR
```

4.6.22 Virus Scan

It is recommended to exclude the complete SimCorp Dimension application root folder from the virus scan or if possible to restrict anti-virus disk sweep to times when SimCorp Dimension is not running.

Likewise it is recommended, on the Oracle database server, to exclude all Oracle data-, temp-, redo-, control- and archive files from the virus scan or if possible to restrict anti-virus disk sweep to times when the database is down.

In addition please refer to known issues in section Anti-Virus on page 216.

4.7 MUCS Server - Configuration and Setup

The MUCS (Message and User Control System) server acts as a message server and controls the flow of internal messages and events between SimCorp Dimension sessions, using the TCP/IP protocol. MUCS server must always be running it is therefore possible to setup a failover MUCS server.

The Message and User Control System server is installed to run on a dedicated host and it is not recommended to run directly on the SimCorp Dimension file server.

The computer name and port number of the host used for MUCS is stated in the …\Data\Cnf.ini file:

`Mucs=DK01WP4017,5223`

The MUCS server information can also be obtained from within SimCorp Dimension **System Environment Configuration** as described in Changing the MUCS Server on page 155.

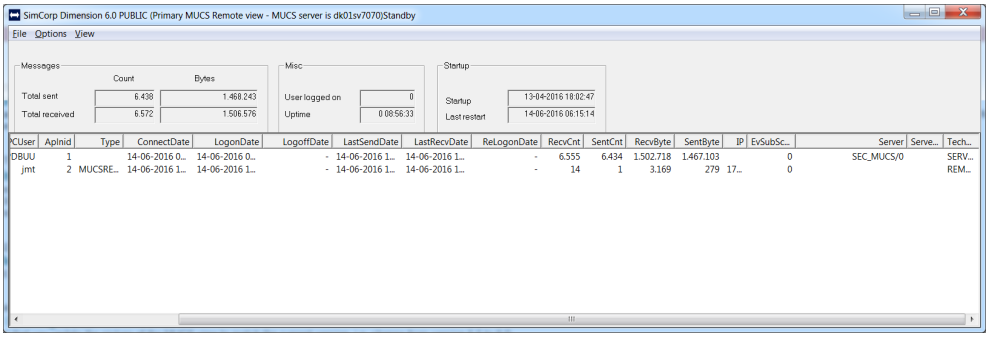
Note

It is recommended to run MUCS server from the netroot installation.

4.7.1 Start MUCS Server

In order to start the MUCS server, run the following command from the dedicated host: `…\Bin\Mucs.exe`

The MUCS window appears where you can see user connection statistics, as the users enter SimCorp Dimension.



Note

Sessions may need to reconnect to SimCorp Dimension if the MUCS server is stopped or restarted, but this will be done automatically under normal conditions.

In order to view the MUCS window on another host or if MUCS is running as a service, you can use this parameter: `…\Bin\Mucs.exe –remote`

If MUCS is installed on a cluster server and the logical name stated in Cnf.ini for the `Mucs=` entry differs from the physical host name, MUCS must be started with the `nopccheck` option: `…\Bin\Mucs.exe –nopccheck.`

4.7.2 Running MUCS as a Service

The MUCS server can be run as a Windows service and this is the recommended practice. It might be of interest to you to read about the issue stated in Insufficient Windows Resources on page 220.

In order to view the MUCS window, when MUCS is running as a service, use the –remote switch as described above.

4.7.2.1 Install MUCS as a service

In order to install the MUCS server as a service:

Example:

```
\\server\share\production\Bin\Mucs.exe –service=install
```

This will bring up an installation dialog box. The fields in the Service part of the installation dialog box will be pre-filled, as these are not configurable when installing MUCS as a service (except for **Additional parameters**):

Note

Please ensure that you use UNC notation (\\fileserver\sharename) as opposed to a mapped drive letter when installing services.

4.7.2.2 Extended CMD Syntax for Customising Service Name

A command line interface exists for installing MUCS servers as a service. This allows you to for example create the service with another and

customised service name.

To create a service for MUCS use the following syntax:

```
-service="install[,mucs[,accountname password
[,<service>,<additional parameters>,<startup
(M|A|ADS|D)>]]]"
```

Example

```
…\Bin\mucs.exe –service="install,mucs,domprod\scadmin
pwd,mucsprimary,,,M"
```

The startup parameters is as:

- M: Manual
- A:Automatic
- ADS:Automatic(Delayed Start)
- D:Disabled.

Please note the service display name is still generated by SimCorp Dimension in the format: “SimCorp Dimension version state/Server: serverID”.

To uninstall the MUCS service call MUCS.EXE with the parameter

```
–service=uninstall, <name>
```

Example

```
…\Bin\Mucs.exe –service=uninstall, SCD641PRODMUCS
```

Note

When running services, no logon script has run for a given account. Therefore, be sure you have a temporary path. The %TEMP% environment variable must be set.

4.7.2.3 Logging

Running MUCS as a service places a number of entries in the Windows Event Log. At normal start-up two events are placed in the Event Log, “starting” and “started”. At normal stop two other events are logged, “stop pending” and “service stopped”. All services have the possibility to either return a windows system error or an application specific error code. The Windows system errors are often related to the environment – missing network resource etc. A list of these error codes can be found in the technical Window documentation, for example at this address:

http://msdn2.microsoft.com/en-us/library/ms681381.aspx.

When a service returns an application specific error code, the Windows system error code is set to 1066, which means: ‘The service has returned a service-specific error code.’ The application specific error codes are in SimCorp Dimension the error level. These are listed in section Error Levels

/ Exit Codes on page 190 and additional information on how to use them can be found in section Returning Error Levels / Exit Codes on page 180

4.7.3 MUCS Failover Configuration

It is possible to monitor and keep track of the MUCS status and to define a failover MUCS. A failover MUCS is a secondary MUCS process, running in a passive state keeping contact with the primary and active MUCS.

If the secondary MUCS cannot establish contact with the primary MUCS, it becomes active, and SimCorp Dimension sessions will automatically use this new active MUCS. When the primary MUCS is started again, it will remain passive until the secondary (and now active) MUCS is stopped (or fails), where after the primary MUCS again is active and the cycle can be repeated.

A failover MUCS is defined in the configuration file (Cnf.ini) with the following parameters:

```
Mucsfailover=[Host],[port]
```

Optionally an email address can be defined:

```
Mucsfailoveremail=[email]
```

If defined, an email will be sent to that address by the MUCS process taking over.

Emailing is only possible if SMTP has been configured on the host of the MUCS taking over control, as described in Mail System Configuration on page 96, requiring that the variables MAPISENDSMTPSERVER and MAPISENDSMTPUSER are set and have contents.

4.7.3.1 Starting a Failover MUCS

To start the failover MUCS process run Mucs.exe on the host specified by the Mucsfailover parameter.

For example if `…\Data\Cnf.ini` contains the following:

```
Mucs=SRV01,5603

Mucsfailover=SRV02,5660
Mucsfailoveremail=jbs@afirm.com
```

The MUCS process started on SRV01 will act as primary MUCS, and the one started on SRV02 as secondary, passively monitoring the primary MUCS. If a failover occurs the Windows account used for running the secondary MUCS process will send an email to the account jbs@afirm.com, notifying that a MUCS failover has occurred.

The failover is transparent for SimCorp Dimension sessions. There can be a short period where a SimCorp Dimension session appears to hang, before finding the failover MUCS, now active.

Note

It is not possible to have the failover MUCS running on the same host as the primary MUCS. Mucs=SRV01 with Mucsfailover=SRV01 is therefore not allowed.

The failover MUCS process can run as a service, like the primary MUCS. Please refer to section Running MUCS as a Service on page 151.

From a command line it is possible to ping the primary MUCS server in this way:

```
…\Bin\scd.exe –ping
```

or

```
…\Bin\scd.exe –pingquiet
```

This will make a temporary connection and logon to the primary MUCS server. Test the return value (ERRORLEVEL) for the following codes meaning:

ERRORLEVEL	Meaning
0	Ping OK
11	A connection or communication to MUCS server failed
13	Timed Out

A detailed description of all scd.exe return values is given in section Error Levels / Exit Codes on page 190.

The ping utility makes it possible to create scripts that take appropriate actions on failure or the utility could be used from third party software monitoring sessions.

It is also possible to ping the secondary MUCS server. This is done with: `…\Bin\scd.exe –ping2`. The ERRORLEVEL returned is as described in the table above.

The secondary MUCS window can be viewed using:

```
..\bin\Mucs.exe -remote2
```

Configuration of host and/or port for secondary MUCS is done through **System Environment Configuration**. Alternatively:

```
..\bin\Mucs.exe - install2
```

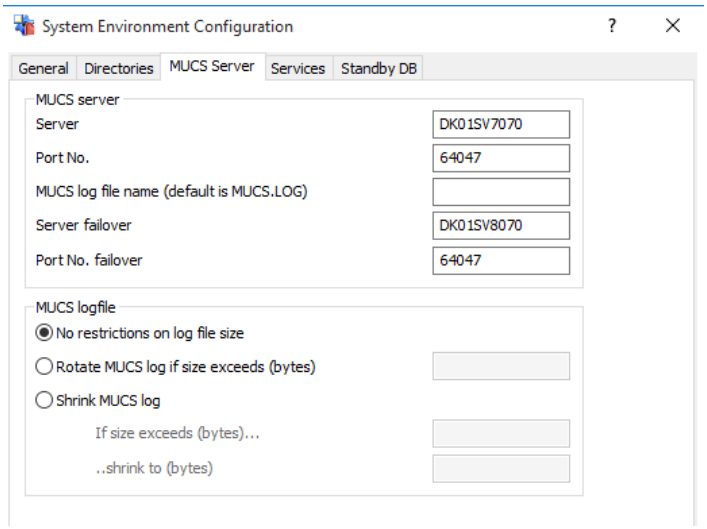
can be run on the host where the secondary MUCS is to run. Entering or changing these parameters results in changes to the Cnf.ini file, and must therefore be performed by a user with appropriate Windows privileges.

Please refer to section MUCS Failover Configuration on the previous page for information on how to configure the failover MUCS.

4.7.4 Changing the MUCS Server

If the server hosting MUCS needs to be removed from the network, for instance for maintenance, a new machine must be dedicated and SimCorp Dimension changed beforehand to reflect the change of computer name and port. After the MUCS server has been shut down on the old host, it can be started on the new host.

The **System Environment Configuration** window shows the **Server** name and **Port No.** number of the host to be used for the **MUCS** server. Before an alternative **MUCS** server is started on another host, the **Server** name and **Port No.** of the new host must be changed in this window. Alternatively, the command `Mucs.exe –install` can be run on the new host.



If **Server failover** has been defined the primary MUCS can be taken out of service without requiring changes to **System Environment Configuration**. For more information on MUCS failover please refer to section MUCS Failover Configuration on page 153.

4.7.5 MUCS - Error Handling

If the server hosting MUCS has crashed, it will not be possible to connect to SimCorp Dimension in order to change the configuration. In this case, the file Cnf.ini can be edited in **Windows Notepad**. In the **[config]** section of the Cnf.ini file the following entry should be altered:

```
Mucs=<COMPUTERNAME>, <TCP/IP port>
```

This alteration should reflect the computer name and port of an alternative server. Thereafter, the MUCS server can be started on this host.

Please refer to section Configuration File on page 51 for more details on editing SimCorp Dimension configuration parameters.

Note

See also section Network Communication on page 18 for

---

network setup recommendations.

Please refer to section Returning Error Levels / Exit Codes on page 180 for more details on SimCorp Dimensionexit codes or to section Error Levels / Exit Codes on page 190 for a full list of error levels.

4.8 Clients/workstations - Configuration and Setup

The client/workstation of SimCorp Dimension runs on a Microsoft Windows based PC in a LAN environment as stated in the requirement sections.

The installation of SimCorp Dimension on the file server is called the Central Netroot Installation, and it is in general possible to run SimCorp Dimension clients from this installation.

It is possible to create a Local Installation for all or some purposes, as described in section Network Communication on page 18.

Setting up and running clients by accessing the executables in the Central Network Installation is described in SimCorp Dimension sessions on the next page.

The Central Network Installation must always exist, even if all users are using Local Installation since all sessions need to write to files in the Central Network Installation.

Some SimCorp Dimension tasks can only be carried out if the session is started from the Central Network Installation; All belong to the **MAINTENANCE** > **SYSTEM MAINTENANCE** module

- **Database Administration** > **Change Password System**
- **Database Administration** > **Change Password Data**
- **Installation Administration** > **Apply Patches**
- **Installation Administration** > **Cleanup Extraneous Files**
- **Installation Administration** > **Generate Forms and Menus**
- **Installation Administration** > **Install Reports, Filters and XpressInstrument Files**
- **Installation Administration** > **Synchronise Database Version Information**
- **Installation Administration** > **Update Installation File**
- **Installation Administration** > **Update Workspace**
- **Installation Administration** > **Update Local Installer**
- **System Options** > **System Environment Configuration**

Local Installation is the SimCorp Dimension term for a physical installation of the program files on the client's local hard drive. As opposed to starting the SimCorp Dimension session by remotely accessing the program files on the central network location, the client session is started by accessing the

program files which has been installed locally. Please refer to the ***Local Installation White Paper*** for more information.

4.8.1 Windows Error Reporting – WER

Microsoft Windows has replaced the 'old' crash handling mechanism **Dr.Watson** with **Windows Error Reporting** (**WER**). Microsoft Windows operating systems starting with Vista and onwards uses **WER** only. Contrary to **Dr.Watson**, **WER** does not save crash dumps locally by default. The default setup for **WER** is to prompt the user if crash dump information should be sent to Microsoft or not. This is not convenient in environments running in unattended mode (servers), environments not having an internet connection, or when a crash dump potentially contains sensitive information. Some or all of these restrictions typically apply, so SimCorp has not attempted to participate in the default Microsoft WER scheme. However, crash dumps can be very useful for troubleshooting purposes.

To facilitate troubleshooting if SimCorp Dimension crashes, SimCorp has chosen to enable local crash dumps by default for local installation deployment. For central installation deployment, there is no installation procedure that can set the two required registry settings (as Windows administrator), but it is highly recommended to do that either manually, or with standard distribution methods like SMS packages. The script `werlocal.cmd` located in the SimCorp Dimension bin folder can be used for this purpose. Windows admin rights are required to succeed.

The script is also useful for documenting what exactly is set in the registry.

If a registry key named:

`HKEY_LOCAL_MACHINES\Software\Microsoft\Windows\Windows Error Reporting`

exists, create a sub-key `LocalDumps` that contains a `DumpType` entry with the value `2`. If the `Windows Error reporting` key does not, an error message is printed, and nothing happens in the registry.

The effect of this is, that a maximum of 10 full memory crash dumps will be saved (oldest dump is replaced when 10 is reached). The crash dump location is `%LOCALAPPDATA%\CrashDumps`.

More information on this, along with many more **WER** options can be found at http://msdn.microsoft.com/en-us/library/bb513638(VS.85).aspx.

4.8.2 SimCorp Dimension sessions

SimCorp Dimension can be run in one of two ways: from the Central Network Installation or from a Local Installation. The Central Network Installation must however always exist, even when running the Local Installation.

The SimCorp Dimension binaries embeds and connects to the database using Oracle Instant Client and ODP.NET, meaning that no additional Oracle client software is required on the PC in order to run SimCorp Dimension.

A number of parameters can be specified in the Cnf.ini file, which makes altering the Windows registry unnecessary. Please refer to section Database Connectivity Information on page 78 for more information.

If, however, the entry `dbname` has been specified in the `Cnf.ini` file, the Oracle Instant Client requires either the Cnf.ini parameter `tnsadmin` or the Registry string value `TNS_ADMIN` to be defined in `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE`. It must point to the folder containing the Oracle Tnsnames.ora and Sqlnet.ora files in order to run SimCorp Dimension, for example \\filesrv\root\OracleNet\TNS_Admin if the files are placed in that folder on the network. More information on `dbname` and the Cnf.ini file can be found in section Database Connectivity Information on page 78.

Note

The Sqlnet.ora file must contain an entry specifying `DIAG_SIGHANDLER_ENABLED=FALSE`. If this entry is not present SimCorp Dimension sessions fault handling will not work as expected and can seriously affect the troubleshooting process. For more information on this Oracle published issue see Oracle doc id 779996.1.

SimCorp Dimension automatically sets the character set used for communication with the database at session start up, based on the active codepage on the host running the session.

However, other products used on the client, for example reporting tools, may rely on `NLS_LANG` being defined. If `NLS_LANG` is not set in `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE` the language and territory for the SimCorp Dimension session will be inherited from the Oracle database instance. By default this is AMERICAN language, territory AMERICA and client character set depending on the client active codepage, which e.g. on a Western European Windows PC would be equivalent to specifying the string value `NLS_LANG` with value `AMERICAN_AMERICA.WE8MSWIN1252` under the key `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE`.

In regards to database character set and usage please refer to section Supported Database Character Sets on page 113.

SimCorp Dimension is release tested using NLS LANG language AMERICAN and territory AMERICA. Changes to these NLS parameters on client or database, should warrant thorough testing of the application, as these parameters influence values for other database NLS related settings, such as sort order and numeric characters.

Note

Please be aware that NLS_LANG or TNS_ADMIN can be defined as environment variables on the PC. The settings for the environment variables will overrule the Registry settings.

Therefore, if environment variables for these settings are used, these must be defined appropriately. If the Cnf.ini parameter `tnsadmin` is set, this will overrule the environment variable settings

If access to the database is needed from third party tools, for report development, export of data etc. it will be necessary to install Oracle client software on the PC. In this case please refer to Oracle documentation for information on how to install and configure Oracle connectivity.

SimCorp Dimension utilises the Microsoft .NET Framework installed with the Windows operating system, therefore it must be installed on the client.

In addition, users who need to design and develop reports will require an installation of SAP Crystal Reports.

As stated in the introduction to this section SimCorp employs two solutions for starting the SimCorp Dimension client: from the Central Network Installation or by the use of a client installation installed locally (Local Installation) on the host where the user is running the application. The application is started by executing the scd.exe file located in the installations Bin folder.

When a user starts SimCorp Dimension by executing scd.exe from the Bin folder situated in the Central Network Installation registry entries on the client PC are updated. Please refer to section Registry Keys on page 161.

If running SimCorp Dimension from the Central Network Installation, the only other requirement on the client is a shortcut to the SimCorp Dimension executable (scd.exe) in the Bin folder on the network – no special SimCorp Dimension client setup program needs to be run on the client PCs in this case.

In order to create a shortcut to the SimCorp Dimension Portal:

1. Browse to scd.exe in the relevant Bin folder
2. Create a new shortcut
3. Give appropriate name (use the same name as on the other PCs), for instance PROD, TEST, NEW

A list of the required Windows folder permissions to the SimCorp Dimension application folders can be found in section Folder Permissions on page 92.

If a PC is used for on-line support from SimCorp, a few fonts and some additional software is needed. Please refer to your SimCorp representative.

Please refer to section Distributed processing on page 174, for information on executing SimCorp Dimension batch jobs and application service processes.

4.8.3 The Windows %TEMP% Folder

The Windows %TEMP% folder is being utilised in several ways by SimCorp Dimension and its system environment during normal execution.

This use has, where appropriate, been described in the relevant sections of this manual:

- Section SCD.LOG Entries Useful to Know on page 202
- Section Batch Job Group on page 188
- Section Starting Batch Jobs from a Scheduler on page 178

Below are some additional situations, where the %TEMP% folder is used, that might be useful to know. There might be more uses, not described in this manual, as the %TEMP% folder is in general widely used.

4.8.3.1 Generated DLL in %TEMP% sub-folders

.NET generates DLL's on the fly when, for instance, the application uses reflection. SimCorp Dimension does the same for application layouts in .NETwindows applications. The DLL's are generated in a temporary folder called "IMS XMLSerialisationFactory".

DLL generation is in general not an issue. But the subsequent load of the generated DLL can be an issue if SimCorp Dimension runs on a system where an application monitor such as AppSense or AppGuard runs. The monitor applications can be configured in such a way, that they deem code being executed from %TEMP% as a potential security risk. The execution/DLL load is then stopped. In this case, SimCorp Dimension may either fail without any warning or not work as intended. Please also refer to section SimCorp Dimension Crashes without Normal Error Processing on page 217.

4.8.4 Crystal Reports Runtime

Crystal Reports Runtime requires a runtime package to be installed on all Clients/workstations and servers to be able to install and execute reports and to print from grids. A runtime is copied to the SimCorp Dimension folder called: `\Netroot\AddOns\CrystalSetup` as part of the installation, but a separate installation activity for each client and server where it is used will be necessary.

The package can be installed on a standard SimCorp Dimension client and contains all the components needed. No extra prerequisites need to be installed.

When installed, the Crystal Reports runtime requires no additional configuration.

If designing customised reports to be run from SimCorp Dimension, the product SAP Crystal Reports 2013 or 2016 is required. Licenses specifically for use with SimCorp Dimension are available for purchase from your SimCorp representative.

Please see SAP Crystal Reports on page 238 for known issues relating to Crystal Reports.

Note

If the Crystal Reports installation package supplied with SimCorp Dimension is not installed it is recommended to test critical reporting scenarios prior to deploying for production.

4.8.5 Microsoft Windows

Microsoft Windows has a number of features which require configuration or consideration when used as a platform for SimCorp Dimension, as described in the sections:

- Registry Keys below
- Windows Error Reporting – WER on page 157

The .NET Framework has been described in a separate section .NET Framework versions on page 46 and memory considerations are described in the white paper ***Memory usage when running SimCorp Dimension***.

4.8.5.1 Registry Keys

A client running SimCorp Dimension needs access to create and update the `HKEY_CURRENT_USER` part of the Windows registry on the local workstation for user specific session information during start up.

Depending on the settings in Cnf.ini, also

- `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE.TNS_ADMIN`.

may need to be updated. Please refer to section SimCorp Dimension sessions on page 157 and Database Connectivity Information on page 78 for details on this.

5 System Operations, maintenance and monitoring

This chapter describes how to perform a number of operations tasks, whilst some other more complex tasks are described in separate manuals. Please see Referenced and Suggested Documentation on page 9 for further inspiration.

5.1 Verify Database data elements

To keep SimCorp Dimension in a healthy state SimCorp Dimension provides facilities for you to:

- Verify Database Privileges
- Verify Database Settings
- Verify Database Contents
- Verify Business Data

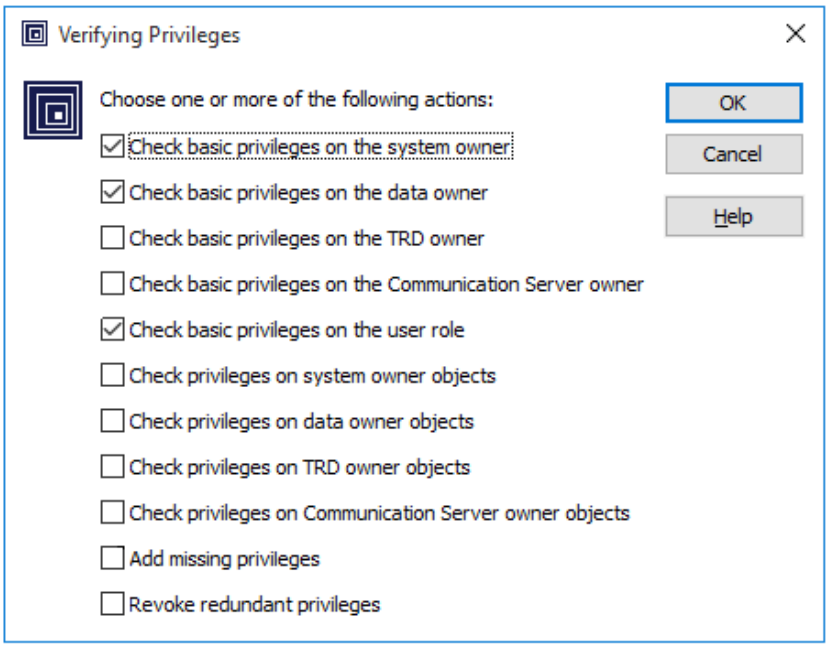
For further information please see the following sections.

5.1.1 Verify Database Privileges

When installing SimCorp Dimension, the correct Oracle Privileges will be added to owners, roles and objects. From time to time database administrators decide to revoke/add some privileges. To make sure that data owners, roles and objects have the correct Oracle privileges granted it is possible to check and even add missing privileges/revoke redundant privileges using a `-job` option called `verdbprivs`.

```
...\Bin\scd.exe -job=verdbprivs -datpwd=<SCDATPW>
```

A popup appears where it is possible to choose which areas to verify.



Note

Privileges need to be revoked by the same user who granted the privileges.

After choosing what to check a prompt appears asking for an Oracle DBA name and password. This DBA user needs at least privileges for an upgrade DBA user – please find a script on the upgrade media to grant privileges to the DBA user (Upgrade\UpgradeGrants641.sql).

Please note the dedicated DBA user who grants object privileges must remain in the database along with the object privileges granted. The user can safely be disabled but needs to remain.

It is possible to use this functionality to add missing privileges or revoke redundant privileges.

You can start `verdbprivs` in silent mode where no popup is displayed, by calling:

```
...\Bin\scd.exe -job=verdbprivs,11001000000 -
dbausr=<DBA> -dbapwd=<DBAPWD> -datpwd=<SCDATPW>
```

Ordered from the top in the dialogue, the numbers represent the check mark in the popup, where 1 indicate that the check mark should be checked and 0 that it should be unchecked.

The result is saved in a log file, dbprivs641.log in the Maintenance folder. If the job fails the message is saved in the cmdjob.log in the Log folder.

5.1.2 Verify Database Settings

The SimCorp Dimension upgrade requires some specific database settings. **Check Before Upgrade** checks if these settings are correct. It is possible to perform the check using **Verify Database Settings**. The following can be checked:

- SCD_USER_CONSTRAINTS
- UNICODE
- SCHEDULER

SCD_USER_CONSTRAINTS checks if the view is present. Please refer to Viewing User Constraints – Optimised View on page 136 for further information.

The UNICODE check finds out if the installation is ready to use Unicode or if there are mismatch between the Database and the SimCorp Dimension installation. Please refer to: Unicode Support on page 208 for further information.

SCHEDULER checks if it is possible to use the Oracle Scheduler. For further information please see: Align Objects Settings on page 110.

It is possible to execute **Verify Database Settings** as a batch job.

5.1.3 Verify Database Contents

It is recommended to run **Verify Database Contents** on a regular basis, for instance as a batch job.

Also, before an upgrade the SimCorp Dimension task **Verify Database Contents** must have been run successfully reporting “No errors found”. The task should be run with the following options checked

- **Check references**
- **Check data contents**
- **Check texts, dates and Booleans**
- **Check all numbers**
- **Fix errors**

This task should, as with **Check Database before Upgrading** be executed well in advance of the upgrade to allow time to resolve any issues reported. The task must be run again shortly before the actual upgrade date, reporting

```
No errors found
```

Otherwise it will not be possible to continue with the upgrade.

If **Verify Database Contents** is run with option **Fix errors** no users must be connected to the installation. The alternative is to run **Verify Database Contents** without using the **Fix errors** option, and only if errors are reported, run the task again, this time including **Fix errors**.

It is possible to run **Verify Database Contents** with parallel queries enabled to increase the performance in larger databases. Please note that it might deplete the database for resources if run during busy hours. You can also run **Verify Database Contents** in parallel as a batch job if you use the function called **Verify Database Contents - Parallel**.

Note

Before running **Verify Database Contents** as part of an upgrade, please ensure that the batch job **Validate Basic Constraints** has been run and completed successfully following the previous version upgrade. If **Validate Basic Constraints** has not completed, errors will be reported by the **Check Before Upgrade** routine, forcing its completion anyway. Completing **Validate Basic Constraints** will give the added benefit of increased speed when running **Verify Database Contents**.

5.1.4 Verify Business Data

Verify Business Data verifies the integrity of data which serves the basis of SimCorp Dimension’s financial accounting calculations.

The task **Verify Business Data** opens a window from where individual verification tasks can be selected and started. Select check boxes for the

desired tasks and click OK to run. A description for check box is shown below:

Check box	Meaning
Check transaction holding keys	Verifies that all transactions contain correct holding keys. The job may run for several hours in large installations.
Check for holdings with undefined currencies	Verifies that all transactions and holdings contain the correct currency codes.
Check for unrounded amounts (this may take a long time)	Verifies that all amounts saved in the database have been rounded properly according to the number of decimal digits specified for a particular currency.
Check the holding key table for duplicates	In rare cases there might be duplicate holding keys. Duplicate holding keys might lead to misleading reports and should be eliminated.
Check the consistency of sub/join table flags in table "Transactions"	Verifies that sub/table flags are set correctly for all records in the main TRANSACTIONS table. These flags are used to indicate whether data exists in corresponding sub/join tables.
Check balance nominal value in table "Holdings"	Allows for checking balance nominal value in selected portfolios of selected accounting frameworks.
Check for rounding errors in table "Holdings" and "Match Holdings" (This may take a long time)	Verify if there are rouding differences between Cost, Book and Amortised cost balances on holding of position and rounding values between cost, book and amortised cost balances also on tax lot level.
Check for Period Closure consistency in table "Holdings" (This may take a long time)	Verifies that the period closure holding always corresponds to the holding of its parent framework on 'To date'=31-12-4712 in the holdings table.
Check bank account/cash bucket holding in table "Holdings" (This may take a long time)"	Checks for deviations between bank account/cash bucket holdings and subsequent payments after a specified date.
Check the reallocation hedge leg data	Checks the integrity of the hedge reallocation table.

A version upgrade should not be performed without first executing the **Verify Business Data** tasks **Check transaction holding keys**, **Check the holding key table for duplicates** and **Check the consistency of sub/join flags in table "Transactions"**. The task **Check for Period Closure consistency in table "Holdings"** and **Check the reallocation hedge leg data** should also be executed if the functionality is installed. Executing these tasks is to ensure that data is consistent prior to the upgrade.

The two tasks **Check for holdings with undefined currencies** and **Check for unrounded amounts** could also be performed prior to upgrade but are not as important as the above mentioned. The task **Check for Period Closure consistency in table "Holdings"** should also be run between upgrades when there is suspicion of faulty data. The task **Check for rounding errors in table "Holdings" and "Match Holdings"** and **Check bank account/cash bucket holding in table "Holdings" (This may take a long time)** should only be run when there is suspicion of faulty data or on request from SimCorp.

Note

No users may be logged on to the system while the verification tasks are performed as their activities may affect the results. If **Verify Business Data** results in an error list please contact SimCorp for further investigation.

Any found errors can take time to clean up so **Verify Business Data** should be run in due time before an upgrade.

5.2 Moving the Folder Structure

If the SimCorp Dimension folder structure is to be moved to a new location, all SimCorp Dimension sessions should be terminated before moving the folder structure. This includes any SimCorp Dimension application services and the MUCS server. Any clients running SimCorp Dimension as local installation must have the client installation removed.

Any SimCorp Dimension Windows services should be deleted before attempting to move the folder structure.

Any scripts used to start SimCorp Dimension batch jobs and/or services must be modified to point to the new location of the folder structure. Likewise, scripts for copying SimCorp Dimension installations, for example from Production to Test, must be modified to reflect the new location.

In the new location the configuration file (`…\data\Cnf.ini`) should be edited for paths pointing to the old folder structure so that these point to the new structure.

After the installation files are moved, you will need to run a number of Scd.exe jobs. Please see the manual ***Copying SimCorp Dimension*** for more information about what to execute after a move.

5.2.1 Protection and Accessibility

Permission to the new folder structure should be restored as it was on the old folder structure.

When the new folder structure is ready, the MUCS server should be started from the new Bin folder location. If the MUCS server is run as a Windows service, the service must be installed from the new location first.

Start SimCorp Dimension from the new location folder and log into SimCorp Dimension and run the **Synchronise Database Version Info** task. Confirm that the path for the application has changed.

If any paths in **Reference Files** (or elsewhere in the application where paths can be specified on input fields, such as **Interface Options**, **Miscellaneous Options**, **MQ Clients**, **Real-Time Market Data Options,Transaction Options**) point to the old location, these must be changed to point to the new location. Please refer to Log Reference Files from the Application on page 75 for more details on the **Reference Files** task.

If users are running SimCorp Dimension from a local installation, setup.exe must be run on each client. Please refer to the ***Local Installation White Paper*** for more information.

5.3 Operating System Authenticated Users

Users created in SimCorp Dimension with Kerberos/REMOTE_OS authentication map from Windows users to Oracle users. The users are logged directly into SimCorp Dimension and the Oracle database without being prompted for user credentials. The system then uses the actual user's operating system credentials for login.

At present Oracle offers two ways to implement logon using Windows users.

- Oracle Kerberos authentication
- REMOTE_OS_AUTHENT

Please see: Unattended Logon on page 120 for further information.

If you use REMOTE_OS_AUTHENT and you allow Windows users to create new users on their machines these can take the identity of OS authenticated users in SimCorp Dimension. Therefore, we strongly stress that you only should use OS authentication for installations where the Windows accounts have limited rights and you should never create users in the database with OS authentication for the SimCorp Dimension data owner (SCDAT), the SimCorp Dimension system owner (SCSYS) and the Oracle users "SYS" and "SYSTEM". In general, creating users with OS authentication should always be done with careful regards to security. Please also note that REMOTE_OS_AUTHENT has been deprecated by Oracle, but remains supported, even in the recent Oracle 12c release. The feature will be de-supported by SimCorp with SimCorp Dimension version 21.07. Please see Unattended Logon on page 120.

5.4 Backup and Archiving

The database system has to be backed up in accordance with normal production routines.

As SimCorp Dimension applies changes both to the SimCorp Dimension database schema as well as the SimCorp Dimension program folders, backup of all SimCorp Dimension folders and files must be performed when backing up the database.

It will not be possible to start SimCorp Dimension if the patch level of the SimCorp Dimension program files differs from the patch level of the database schemas.

For information on archiving, please refer to the SimCorp Dimension ***Archiving*** User Manual.

5.5 Availability Management

This section describes a number of tasks and considerations that will help improving uptime for SimCorp Dimension. Please also refer to ***Service Administration*** user manual .

5.5.1 Single Point of Failure

Besides the database and file server, the MUCS server has a direct impact on the user sessions. An application service or batch job failure will only affect the job currently being processed by the service or batch job and any jobs derived thereof. If the MUCS server disappears, all SimCorp Dimension sessions (also services and batch jobs) will try to reconnect to the MUCS server for a configurable timeout period, unless a failover MUCS process is running.

The built-in failover solution for the MUCS server is described in section MUCS Failover Configuration on page 153.

The SimCorp Dimension Communication server can be protected using a fail over solution which is described in the SimCorp Dimension ***Communication Server*** User Manual.

Fail over solutions for file and database servers must be implemented using third party solutions.

5.5.2 Monitoring the Infrastructure

Monitoring of infrastructure is outside the scope of SimCorp Dimension and should be customised using third party monitoring facilities. The following provides an overview of the SimCorp Dimension functionality which is available for third party monitoring.

When running SimCorp Dimension services or batch jobs, a Command script error level will be returned when SimCorp Dimension exits. This method can be used for monitoring purposes.

Further information and a description of the different error levels returned by the scd.exe application can be found in section Returning Error Levels / Exit Codes on page 180.

Batch logs created during the processing of a batch job can be monitored through Command scripts. Please refer to section Batch Log codes on page 194 for a list of codes written to the batch log during processing.

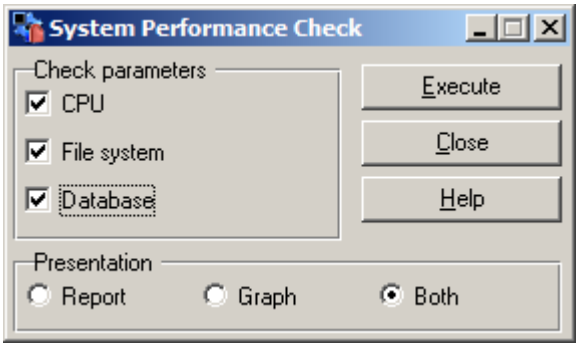
Additionally, it is possible to route information (status, alert or exceptions) externally from SimCorp Dimension, for example using e-mail (services, batch jobs) or for some areas messages sent by the Communication Server via, for instance, WebSphere MQ.

An automatic failover solution exists for the MUCS server, but the MUCS server can also be monitored using third party monitoring tools. Please see section Message and User Control System (MUCS) on page 16 for more details on the MUCS server, and section MUCS Failover Configuration on page 153.

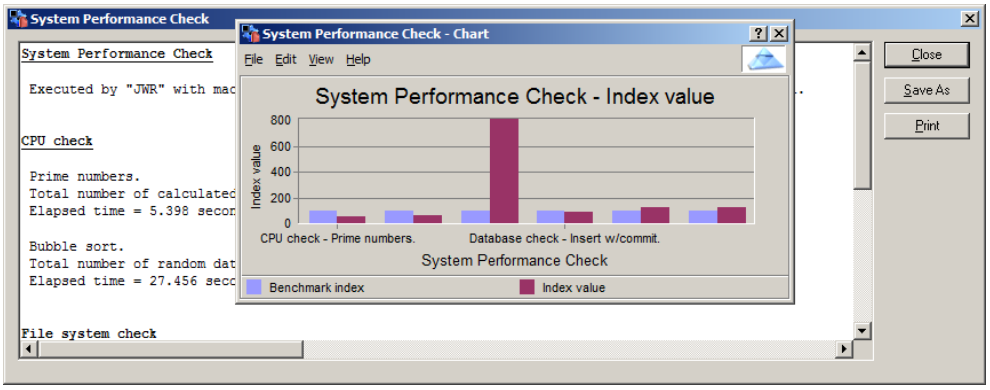
Monitoring of the Oracle database, for instance disk space usage, availability, the alert log etc. can be done through third party Oracle monitoring tools or various Oracle products, like Oracle Enterprise Manager. Please refer to Oracle documentation.

General monitoring of server hardware can be done through any available third party monitoring software. Both database and file server can be protected through third party fail over solutions.

A useful utility in SimCorp Dimension is the System Performance Check, found at **System Performance Check**:



It is a lightweight system performance check of the client computer which checks CPU usage, file system and database access. The result of each test is compared to a benchmark value, where a calculated index value above 100 means better system performance than the benchmark and a value below 100 means worse system performance than the benchmark. The results of the check can be delivered as a report, a graph, or both.



5.6 Metadata

Occasionally, you will be asked to collect metadata and return the output to SimCorp. In **Transfer Meta Data to SimCorp** you are able to collect the metadata and transfer the information back to SimCorp. The data is transferred to SimCorp using e-mail or Operational Data Assistant if configured (for more details on this please refer to section Operational Data Assistant Solution on page 205).

When running **Transfer Meta Data to SimCorp** you will be prompted to connect as an Oracle DBA type user. A script is included on the upgrade media (Upgrade\ScMetaGrants63.sql) that can be used to grant privileges as needed.

The metadata queries are strictly non-intrusive and the data collected is only related to the Data Dictionary information. In other words, no business logic or potentially sensitive information is collected. A more detailed description of the data collected can be provided by your local support office. Alternatively the SCMeta sql file, generated in the installation's Tmp folder when **Transfer Meta Data to SimCorp** is run, can be viewed in a text editor.

SCMeta is a tool used by SimCorp for predicting clients' database evolvement and has been developed in order to get a better understanding of real-life data composition, physical database sizes etc. SCMeta is a database containing information about client installation data. This information provides a wide spectrum of possibilities to monitor and predict how client databases evolve, for instance which areas to focus on in terms of data size, performance and developing modules for upgrade programs.

5.7 Performance Management

This section shows how to achieve a proper utilisation of available resources in the system environment.

5.7.1 STP and Reservation

To avoid more STP services processing the same transaction at the same time, reservation is used. It is a very simply reservation where the services calculate an expected processing time when reading the message. It then reserves the message and other services are not allowed to touch the transaction in this time frame.

The reservation time can be specified in three ways (done in **STP Service Configuration** on the **Reservation** tab):

1. Automatically, where the services themselves calculate the number of messages and the reservation time based on available resources
2. Semi-automatically, where the services calculate the reservation time
3. Manually, where the delay per message and minimum delay must be specified

If using manual reservation, the best way to set these values is by estimating how long do this operation normally take and then use this as a guideline. For example, if it is the STP status service (which raises transaction in status), you have to know the approximately time it takes to raise a transaction in status, if this is 5 seconds per transaction the **Delay pr record** should be set to 10 seconds (2 times the normal time, at least), and the **Minimum delay** to 60. If reading only 2 transaction they will be reserved in 60 seconds, as the minimum delay is more than 2 times 10, if reading 20 transactions they will be reserved in 200 seconds.

If it takes longer time than expected to process a message, all the changes done by the service will be rolled back, and a message like "10 messages expired" will be written to the log. Meaning when "message expired" is written to the log; the problem is that it takes longer time to process the message than is reserved.

For some special STP services, it is vital that the reservation is set "correctly" as wrong settings may lead to strange side effects. For instance, for a service writing dealer slips, as a dealer slip cannot be rolled back (it has been printed by the printer), it is very important that a message never expires, and therefore the reservation parameters must be set as high as required.

Note

The only thing influenced by these parameters is how long it will take the other services to take over if the current service crashes. It has NO influence on performance.

If you experience many (more than a couple a day) "message expired" messages in the service log this should be addressed. As described above the service will do all the work, but if the reservation is expired, all the work will be rolled back, meaning a lot of "lost" work. Most problems with expired messages are either "wrong setup" or "something has changed". If the services have been running for a longer period, and "message expired" messages starts to occur, it should be investigated further (what have changed, the database, the data volume, the way things are done, etc). If it occurs in a newly configured system, the reservation parameters should be checked.

5.7.2 STP and the NOWAIT Option

When STP services search for transactions linked to the transactions found in the queue it has to ensure that no one else touches the transaction. This is done by an Oracle technique called "SELECT FOR UPDATE" and this can lead to deadlocks.

SimCorp Dimension contains an advanced configuration option: **Use "NOWAIT" when searching for linked transactions**. If this option is check marked in **Show System Configuration**, on the **STP** tab, the "SELECT FOR UPDATE" statements will be issued with NOWAIT. This will minimize the chances for deadlocks, but it negatively influences the performance of the STP services.

5.8 Polling

Some service types uses polling to find if any work is ready. The polling interval is specified using the **Time to wait before looking for new jobs** field in the configuration for the services. The polling interval is only used when a service has nothing to do. Then it will "go to sleep" and after x seconds/minutes (the time specified in service configuration) it will look if there is anything to do. As long as work exists, the service will NEVER "go to sleep", meaning a service will always end a given job by querying the database to see if new jobs are ready to be processed, and continue with the next job if present. A longer polling interval means a less intensive load on the database, but it also means it can take longer before the service "finds" the work to do. For instance, setting the polling interval to 1 minute instead of 2 seconds will reduce the load at the database with a factor of

30; the downside being it can take up to 1 minute before the service detects the work in the case where the service is in status idle.

For a number of service types it is not possible to set the polling interval as these service types are woken by events when relevant.

The following services uses polling:

- STP service
- Client reporting service
- Order Manager message service
- Event calendar service
- Market data validation service
- Corporate actions elections synchronization service
- Trade processing dashboard service
- Collateral calculation
- Key performance indicator
- Corporate actions dashboard
- Payment reconciliation status service

5.8.1 STP Service

An inefficient configuration of the STP services can generate a very heavy load on the database (nearly bring the database/system to a stop).

When configuring a STP service, the polling interval should never be set to less than 10 seconds unless some very good business reasons exist.

The polling interval should be raised to the maximum business can accept. For example, is it vital that a transaction is lifted in status after 5 seconds instead of 1 minute? If not, the polling time should be 1 minute. If a transaction service only receives work between 12:00 and 12:15, does a polling interval of 2 seconds make sense? The question to ask: “does it influence the business if the processing of the first transaction starts at 12:00:02 or 12:01:00 or even 12:05:00?” If not, the polling interval should be 1 minute or even 5 minutes. You could also, in this case, consider starting up the service every day, for instance at 11:45 and shutting down again at 12:30.

Another approach to reduce the load from the STP services could be only to activate them when relevant, either by only starting it when needed, or by changing the configuration in **STP Service Configuration** . For example, if transactions always arrive between 10 and 14 the transaction service can be configured only to be active in this period, meaning **Start at** 10:00 and **End at** 16:00, this way the transaction service will only look for new transactions in the period from 10 to 16 (6 hours): 6 hours = ¼ day, if no other changes has been made the load from this service will be reduced to a ¼.

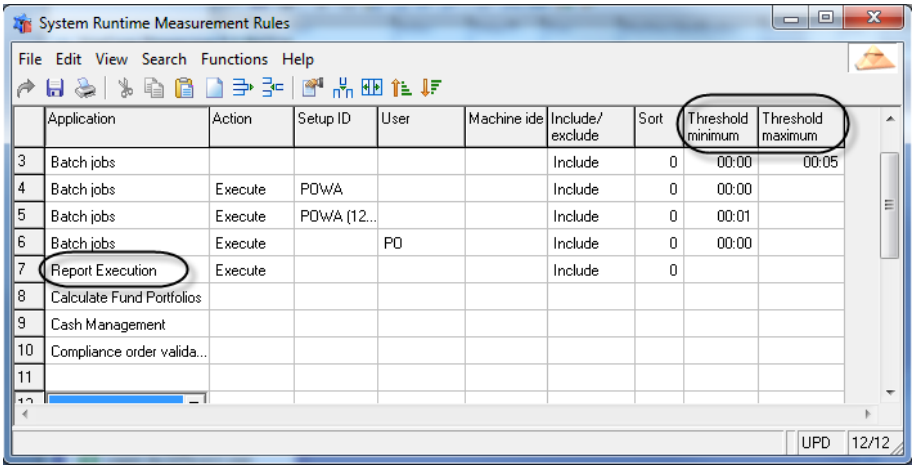
5.9 System Runtime Measurements

SimCorp Dimension provides a set of tools for measuring and gathering data related to system runtime. This is useful for analysing how runtimes evolve over a period of time, particularly for trend analysis, for identifying performance degradations, and for monitoring Service Level Agreement (SLA) fulfilments.

In order to gather system runtime measurements, they must first be enabled in **Miscellaneous Options** on the **Miscellaneous – 3** tab, by selecting the **Enable runtime measurement** check box.

The **System Runtime Measurement Rules** task can then be used for defining the applications and actions to be measured for system runtime.

For instance, **Report Execution** is an available application to monitor:



It is possible to set a minimum and maximum threshold time for the various rules. If a threshold is exceeded, then it will be shown in the **SRM Viewer**. It is also possible to get an alert in the **Alerts Inbox**.

5.9.1 SRM Viewer

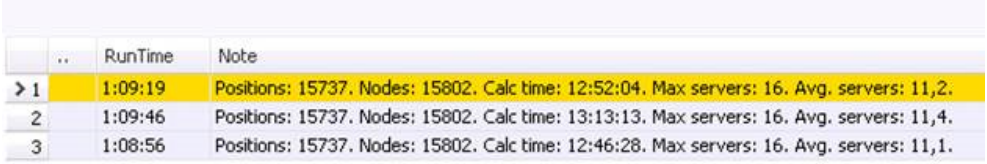
The **SRM Viewer** is part of **System Manager** (available from the drop-down menu of the **Show** button).

Applications that have been defined for runtime measurement in the tasks

- **System Runtime Measurement Rules**
- **Manual Runtime Measurement**

both in **Runtime Measurement**, can be monitored in the **SRM Viewer**.

Service statistic for calculation services are now shown in the **Note** field of the **SRM Viewer** if services are used to execute the job with load balancing.



5.10 Troubleshooting Database Connectivity Issues

As described in section SimCorp Dimension sessions on page 157, sessions are using Oracle Instant Client and ODP.NET to connect to the database. The Oracle Instant Client and ODP.NET software is included and embedded with the SimCorp Dimension software. In order to assist in troubleshooting issues where the SimCorp Dimension session cannot connect to the database, the application contains two utilities, OciConnect.exe and odpconnect.exe, which might provide a more precise error message when trying to connect to the database using the embedded software.

At SimCorp Dimension session start-up two database sessions are created, one through the Oracle Instant Client and one through ODP.NET. The two supplied utilities tests connection to the database via each of these interfaces.

To use the tools from a Windows Command Prompt, call OciConnect.exe and odpconnect.exe in the Bin folder, using the database connectivity values as defined in the installations Cnf.ini file for whichever is the relevant of the following:

```
username/password@dbconnecthost:dbconnectport/dbconnectservice or dbconnectsid
```

or

```
username/password@dbname
```

Example:

```
\\filsvr\Dimension\Prod\Bin\OciConnect.exe TBY/mypassword@scprod
```

The above example tests the connectivity to the database using the Oracle Instant Client in the installation placed in \\filsvr\Dimension\Prod, connecting to the database identified as `scprod` with user `TBY` and password: `mypassword`.

To test ODP.NET interface use OdpConnect.exe, example:

```
\\filsvr\Dimension\Prod\Bin\OdpConnect.exe TBY/mypassword@dbhost:1521/scprod
```

This example tests connectivity to the database using the Oracle Odp.net interface in the installation placed in: \\filsvr\Dimension\Prod,

connecting to the database using ezconnect to the sid or service called `scprod` on the database host `dbhost` via port `1521` as user `TBY`.

For Kerberos and OS authenticated users leave username and password out off the above examples, e.g:

```
OciConnect.exe /@scprod
```

Please refer to section Database Connectivity Information on page 78 for more information on the Cnf.ini file.

5.11 Distributed processing

This section contains information on how to start SimCorp Dimension batch jobs and what to do if they will not start.

It also contains information on starting the MUCS as well as moving it to a different server and starting a failover MUCS server.

Please refer to SimCorp Dimension ***Batch Jobs User Manual*** for a detailed description of how to set up and maintain SimCorp Dimension batch jobs.

Note

It is SimCorp recommendation to use the local installation option for production batch services. The recommendation is due to an increasing number of issues generated by long running processes temporarily losing network connection which the Windows execution environment is not tolerant towards. Constant and uninterrupted network connection is required to ensure stability in long running processes executing from a central installation.

5.11.1 Batch job - processing

SimCorp Dimension batch jobs may be used to automate a wide range of tasks in SimCorp Dimension. These include portfolio calculations, data import and a number of back office tasks as creation of back office transactions or raising transaction status. These batch jobs act as automated client sessions, and can be scheduled and run from a Client/workstation.

In order to start a SimCorp Dimension batch job group, `scd.exe` must be called with

`-batch=<batch job group>`

`<batch job group>` is the name of the batch job group defined inside SimCorp Dimension (see online documentation for creating batch jobs and batch job groups).

Example:

```
...\Bin\scd.exe -batch=test
```

Please also refer to section Batch Job Group on page 188.

5.11.1.1 User

By default a batch job will be executed using the SimCorp Dimension user BATCH defined as user type **Batch user**.

You may define additional users of user type **Batch user** with individual access and allocate these to individual batch job groups.

The user is associated with the batch job session by use of the `-u` parameter.

Example

```
...\Bin\scd.exe -batch=test -u=test/test
```

Please be aware that there is a potential risk to security in the above example as the password is stated in clear text. Please refer to section Unattended Logon on page 120 for other alternatives of logging Batch type users on.

5.11.1.1.1 Start of Batch Job Groups Authorisation

Using **Start of Batch Job Groups Authorisation** it is possible to control from where (the machine identification) and by whom (the net identification) a batch job group can be started. It is possible to create both specific batch job group restrictions, which are only valid for one batch job group, and general restrictions.

By default, no entries exist, meaning any batch job group can be started by anyone from any machine.

If an unauthorised start-up of a batch job group is attempted error level 1054 will be returned, error message:

```
It is not allowed to start this batch job group
using OS user X and/or machine Y.
```

5.11.1.2 What if the Batch Job Group Fails to Start?

When executing a batch job group, the system cannot write messages to the screen or wait for user interaction. Any questions needing user interaction will be answered automatically with 'Enter'. If anything unexpected happens during the batch execution, the data is written to the log.

Each time a batch job group is started, an entry is written in the batch history, where the start-time, end-time (if ended), status, and eventual error messages may be reviewed. If a batch job group has failed, this should be the first place to check as the reason can very often be found here. If no entry is logged in the history, the error has occurred in the start-up phase and checking the BATCH.LOG (placed in the installations Log folder) may give an indication of the cause of the error. If no entry can be found in the BATCH.LOG file, the error has occurred in the start-up of scd.exe and in this case the SCD.LOG file may give an indication of the cause of the error.

Note

During the execution of a batch job, SimCorp Dimension writes application specific codes to the batch log. These codes are not the same as the exit codes described in section Returning Error Levels / Exit Codes on page 180.

Please refer to section Batch Log codes on page 194 for a list of batch log codes.

The placement of the batch logs are determined by the **Log file** field for the actual batch job group and the configuration of the file as specified in **Reference Files**.

The batch history is found in **System Manager**.

5.11.1.3 Tracing Batch Jobs

It is possible to make a database trace of a batch job. A database trace can be useful in order to troubleshoot bad performing batch jobs.

Define a SimCorp Dimension batch job with **function** “Trace File - Start” and another batch job with **function** “Trace File - Stop”, and insert the batch jobs surrounding the job or jobs in the Batch Job Group requiring tracing.

It is possible to choose one of the 4 **Trace level** values:

- `SQL (level 1)`: The SQL statements, their execution plan and row source operation will be included in the trace file.
- `Binds (level 4)`: As level 1, but will also include the values of the binds.
- `Waits (level 8)`: As level 1, but will also include wait statistics.
- `Binds and waits (level 12)`: As level 1, but including the values of the binds and the wait statistics.

If nothing else have been asked for ‘Waits (level 8)’ should be used.

The trace file will be created in the database UDUMP destination. For further information please see the manual ***System Performance***.

5.11.1.4 Restarting a Batch Job

Using the Command Line options `-ba_continue` and `-ba_failedjobsonly` it is possible only to execute jobs which in the previous execution has failed. Called with option `-ba_continue` the batch job group will continue from where the batch job group crashed. Called with option `-ba_failedjobsonly` batch jobs which failed previously will be executed.

For example having a batch job group with five jobs (JOB1, JOB2, JOB3, JOB4 and JOB5) JOB1 and JOB3 are executed without problems JOB2 failed, and during JOB4 the system crashes. If called with `-ba_continue` the batch job group will continue from JOB4, as the system crashed during the execution of this job, and execute JOB4 and JOB5. If called with `-ba_failedjobsonly`, JOB2, JOB4 and JOB5 will be executed, as JOB2 failed in the previous execution, and the system crashed during the execution of JOB4 and JOB5 was never executed (due to the crash in JOB4). If called with both options, the `-ba_continue` will be ignored.

In **Batch Monitor** it’s possible to see which batch jobs are currently running, and the progress of these.

Note

If a job before it crashed already have committed some data, or created files, or made other changes these will NOT be reversed before the execution.

Note

To make these features possible the system has to keep track of

---

the process of the individual jobs, and it's therefore not possible to run more than one instance of the same batch job group at the same time. If a batch job group is already running, a %ERRORLEVEL% 1056 will be returned.

Using the ba_continue parameter will do the same as if the batch job group was edited and jobs which have been executed with success were deactivated (`Active=false`), and then the batch job group was started again.

Using the ba_failedjobsonly will do the same as if the batch job group were edited and jobs which previous failed or hasn't been executed were set as active and the rest deactivated, and then the batch job group was started again.

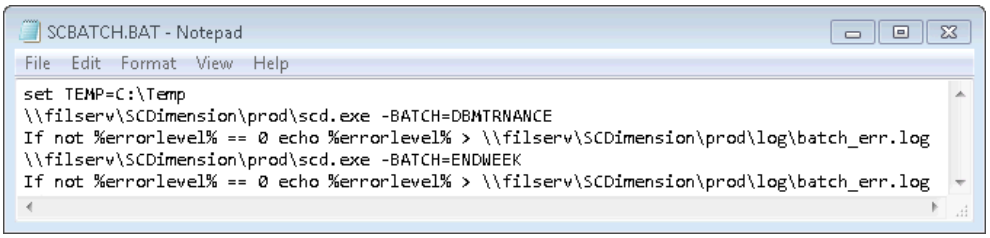
If an error occurs during the start-up of a batch job group due to the use of ba_continue (either if the batch job group has been changed, or if the previous crash occurred within a parallel section), %ERRORLEVEL% 1057 will be returned.

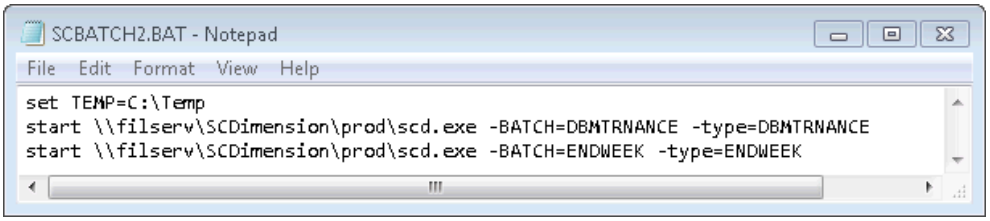
If an error occurs during the start-up of a batch job group due to the use of ba_failedjobsonly (either if the batch job group has been changed, or if error jobs were a parallel running job), %ERRORLEVEL% 1058 will be returned.

5.11.2 Starting Batch Jobs from a Scheduler

A SimCorp Dimension batch job group can be started using an external scheduler capable of executing Windows command scripts.

Create a .bat file containing the commands to start the batch jobs needed to run on the same machine. There is an example below where two .bat files are shown:





Note

To overcome changes in logon context, the bat file must set the

environment variable %TEMP% and use UNC paths rather than mapped up drives. Likewise, the Oracle registry parameter TNS_ADMIN must point to a UNC path rather than a mapped drive. The Windows user account used for the scheduling program must have the appropriate rights to the SimCorp Dimension installation.

Note

If one ".bat" file starts up more batch job groups, you need to decide if all groups should run simultaneously or consecutively. The latter case is shown in the example SCBATCH.BAT above. If they were to run simultaneously the command line should be prefixed with "start " and have the "-type" parameter as shown in the SCBATCH2.BAT example above. Please refer to section scd.exe on page 182. Please note that if the path to scd.exe contains spaces it is necessary to use quotes for the path as well as for the title. Please refer to Microsoft help for Start

Finally, add a job to the scheduler, which executes the bat file at the required time, for instance, every weekday at 01:30.

5.11.3 Real-time Market Data Service

It is possible to receive real time prices from external providers. For Reuters SSL please note: There are no built-in software restrictions on the number of simultaneously requested Reuters Identification Codes (RIC) in SimCorp Dimension.

The supported maximum number of simultaneously requested RICs depends on the following parameters:

- The Reuters connection
- The IT infrastructure (the network)
- The Hardware running the Market Data Server (CPU and Memory)
- The market activity of the requested RICs
- The service setup (for instance a separate Yield Curve Server)

It is possible to increase the supported number of simultaneously requested RICs by configuration. Especially applying of SimCorp Dimension intervalisation accepting a small delay in the real time update (for example 30 seconds) will increase the amount of maximum supported simultaneously requested RICs

Note

If the number of simultaneously requested RICs is high, SimCorp recommends the use of parallel Download real-time market

data services with Use separate real-time connection switched on.

5.11.4 Returning Error Levels / Exit Codes

If the scheduling tool uses error level, SimCorp Dimension provides it directly and the "-wait" option is not needed anymore and should not be used.

Example

```
...\production\Bin\scd.exe -batch=test
```

If called in this way SimCorp Dimension returns an error level after the batch job group is finished or, for a service, when the service is shut down. The error level originates either from the main processes (scd.exe and mucs.exe) or from the application processes (other SimCorp Dimension executables or DLL's). The main processes return error levels below 1000. Other processes return error levels above 1000.

Note

Be aware of the Windows mechanisms for passing exit codes. Exit codes can only be passed to the launching process if it waits for the launched process to finish. For example in a cmd.exe prompt, use `start /wait scd.exe` to get the scd exit code back to cmd.exe – otherwise, the cmd prompt is available immediately and will never get the exit code from scd.exe. In a cmd.exe script, `start` is not needed. Other scenarios exist, so be sure that each link in the chain waits for the proper exit code to be passed back to where it has to be examined.

Please refer to section Error Levels / Exit Codes on page 190 for a full list of error levels.

5.11.4.1 Notes about ERRORLEVEL in Windows cmd.exe :

In the Windows cmd.exe command interpreter, the "old style" approach is to test on a certain "errorlevel" like in "if errorlevel 1" evaluating to true if the most recent exit code is 1 or more. The "modern" cmd.exe approach sets the pseudo-environment variable ERRORLEVEL to the most recent exit code provided that an environment variable called ERRORLEVEL does not already exist! Please do not have an environment variable called ERRORLEVEL, e.g. by deleting it explicitly in a script like "set ERRORLEVEL=". Only exit codes from processes (or commands) can set ERRORLEVEL. Otherwise it can be used for read-only as other environment variables. E.g. "echo Foo.exe exit code was %ERRORLEVEL%". If ERRORLEVEL is set explicitly, it is treated as a local environment variable and will shadow for the ERRORLEVEL set by exit codes. To reset ERRORLEVEL, issue a successful command like "verify". For a simple test use "dir xyz" setting ERRORLEVEL to 1 (xyz does not exist), then "verify" setting it to 0., To set a specific ERRORLEVEL, e.g. use "cmd /c exit 42".

6 Reference Information

While the other chapters in this manual are focused on tasks to perform as well as procedures and advices to use when performing them, this chapter rather has its focus on listings and background information.

6.1 Command Line Options

This section holds lists of command line options/parameters to use with SimCorp Dimension executable files.

Either `-` or `/` (dash or slash) can be placed in front of a parameter. Some parameters exist in a full length version as well as an abbreviated version. For the ease of description, only `-` (dash) is used in the following.

6.1.1 Mucs.exe

The Message and User Control System can be started with a number of start up parameters.

Option	Effect
`-exitcodes`	Used to see possible exit codes.
`-help`	List options for mucs.exe
`-service=install`	Used to install the MUCS server as a Windows Service. When used an installation dialog box will appear with not configurable fields pre-filled.
`-service=uninstall, <name>`	Used to uninstall the MUCS service.
`-remote`	Used to view the MUCS window on another host than where running or if MUCS is running as a service.
`-remoteActive`	Used to view the MUCS window on another host than where running or if MUCS is running as a service. This shows the active MUCS in an installation using fail-over MUCS
`-nopccheck`	If MUCS is installed on a cluster server and the logical name stated in Cnf.ini for the `Mucs=` entry differs from the physical host name, MUCS must be started with the `nopccheck` option.
`-service=install2`	The same as `-service=install` but used for fail-over MUCS
`-remote2`	The same as `-remote` but used for failure MUCS

Option	Effect
`-type=[*]<string>`	Extension to `state`. Must be used when starting more than one instance of SimCorp Dimension on the same workstation/server. If using *, a unique type is created automatically for each instance. Please be careful when using the *, as a setup that creates many unique types could lead to reduced performance due to many entrries in the Windows Registry.

6.1.2 scd.exe

The SimCorp Dimension executable can be started with a variety of start-up parameters. This section explains the most commonly used options.

Option	Effect
`-BATCH={BatchGroup}`	Run a predefined batch job group
`-BLOCKLOGON=ON|OFF|HHMM[,<text>]`	To secure no other users can start SimCorp Dimension during maintenance it is possible to block logon. `ON`=Block further logon `OFF`=Unblock blocking `HHMM`=Block further logon until HHMM (database server time) `<text>`= An optional reason text can be specified (max length: xxxx). An example: `..\bin\SCD.EXE -TYPE=<type> -BLOCKLOGON=ON, "Patching the installation" -U=<patchusr>/password` See also: Shutdownbyuser and Shutdownfrompc on page 85
`-CUD`	Capture unknown dialog boxes and write contents to SCD.LOG
`-DEADDETECT=[log][,show][,kill]`	Does not start SimCorp Dimension; instead it performs a cleanup only. Default: log

Option	Effect
`-EXITCODES`	Lists the possible exit codes which scd.exe can return
`-HELP`	Lists the most commonly used options for scd.exe.
`-JOB=EMAILPATCHLEVEL`	Run the **Transfer Patch Information to SimCorp** task from the Command line. Especially to be used when copying data from one installation to another after having run `-JOB=SYNCDBVERS`
`-JOB=RESET_AFTER_COPY`	Resets all ”state” variables. An example of state variable is the **Service Platform** that store it’s state in the database. If copying from an installation with running services, the new installation will have “wrong” information about running services. Also calculations running load balancing uses the database to store progress, and jobs started in the installation copying from, may continue in the copy. Example: `-JOB=RESET_AFTER_COPY -datpwd=<datpwd>`
`-JOB=SYNCDBPASSWORDS`	Reset the passwords for the SERVER and BATCH users as well as SimCorp Dimension password protected roles (seeUser Management on page 119 for further information). This is also done, when running the `SYNCDBVERS` option. Example: `-JOB=SYNCDPASSWORDS`

Option	Effect
`-JOB=SYNCDBUSERS`	Creates all users from SimCorp Dimension in the database if they do not already exist and grants the appropriate Oracle privileges to the users. Especially to be used when copying data from one installation to another after having run. Example: `-JOB=SYNCDBUSERS` If default password is used in the installation. `-defaultpwd=<Xyz1>` needs to be added to the command line.
`-JOB=SYNCDBVERS`	Run the **Synchronise Database Version Information** task from the Command line. Especially to be used when copying data from one installation to another Example: `-JOB=SYNCDBVERS`
`-JOB=VERDBPRIVS`	For support purpose it is possible to check if the granted Oracle privileges are correct. Run the `-JOB=VERDBPRIVS –datpwd=<datpwd>` A pop will appear where you can choose which owners/role/objects privileges to check. You need to state a Data base Administrator password with proper rights (The same rights as an upgrade user). It is possible to add missing and/or revoke redundant privileges using this job.
`-KEYBLANG=<keybfile>`	APL keyboard file
`-LANG=de|en|fr`	If applicable, the installation can be started in another language than default; for example start an English version of a German installation
`-SCDMERGELOGDIR=<log directory>`	Creates one single file MergedScd<date>.log which contains the merged contents of all the scd__ <machineID>.log files located in the directory specified in <log directory>

Option	Effect
-NOCUD	Disable capture of unknown dialog boxes
-NOLOCALCHECK	Start from central installation even if local installation exists. Should not be used with normal clients, only when it is necessary at, for instance, **Patch Apply**
-NP	Do not start the portal process (to be used in connection with the -JOB options)
-P	Starts SimCorp Dimension in programmer mode. This option is used by SimCorp support staff for debug purposes. The option requires knowledge of an internally generated keyword (Password of the week) and is therefore only to be utilised by SimCorp staff. Please note it is possible to limit users who can start in -P mode to users of **user type SimCorp Consultant**, belonging to an Active Directory Group. Please see: Use Active Directory to limit access to functionality covered by Password of the Week on page 85 and Configuration File on page 51.
-SHUTDOWN	Disconnects all sessions. All sessions will be notified to shut down. If they have not shut down before the default number of seconds, then they will be forced shut down. The default number of seconds is 60, but for batch jobs it is 360.

Option	Effect
`-SHUTDOWN=<max seconds>`	All sessions will be notified to shut down within the specified maximum number of seconds. Batch jobs will be disconnected within a number of seconds later than that, as specified in AdditionalShutdownTimeout (default is 300 seconds). Max seconds must be surrounded by squared brackets Example: `-SHUTDOWN=[120]` Just writing `120` will not work. Specifying `[0]` will disconnect all users and batch jobs immediately without the latency. Please also refer to section Shutdownbyuser and Shutdownfrompc on page 85
`-SHUTDOWN=<user>`	Shuts down all sessions opened by the specified user. Example: `-shutdown=XXX` All sessions opened by the specified user will be notified to shut down. If they have not shut down before the default number of seconds, then they will be forced shut down. The default number of seconds is 60, but for batch jobs it is 360.
`-TYPE=[*]<string>`	Extension to state. Must be used when starting more than one instance of SimCorp Dimension on the same workstation/server. If using `*`, a unique type is created automatically for each instance. Please be careful when using the *, as a setup that creates many unique types could lead to reduced performance due to many entries in the Windows Registry.

Option	Effect
`-U[SER]=[*]<scduserid/password>`	Log on using SimCorp Dimension User-id. Use `*` to use Computer logon user, `-u=<scduserid/password>` logs you on without prompting. `-u=<scduserid/?>` Show logon window with <userid> filled as user, but empty password. `-u=?` Show logon window with empty user and password. This is useful when you are registered as a Kerberos or OS authenticated user, and occasionally want to logon as an administrative user.
`-WSSIZE=<size in kb>`	Changes the workspace size used for the session. The size can never be lower than 30% of the build in workspace size. Please see: white paper ***Memory usage when using SimCorp Dimension*** for further information.
`-defaultpwd=<Xyz1>`	Used as additional parameter to SYNCDBUSERS Example: `scd.exe -np -job=SYNCDBUSERS -datpwd=<SCDATPW> -defaultpwd=<Xyz1>`

Note

Please note that the three `-shutdown` options do not have any effect on services started by the **SERVICE PLATFORM**. Please refer to the manual ***Service Administration*** for services started this way.

Please note that all other scd.exe start-up options should only be used when specifically advised by SimCorp.

Please be aware when running the `-JOB=` options the Oracle password for the installation data owner must be provided:

Example

```
...\Bin\scd.exe -np -job=syncdbusers -datpwd=<SCDAT Password>
```

If an error occurs when using the `-job=` options, troubleshooting might be aided by checking the file `…\Log\cmdjob.log`.

6.1.2.1 Batch Job Group

To control a batch job group, extra scd.exe command line parameter options exist. These options can only be used in combination with

`-batch=<batch job group>`

Option	Use the option in order to:
`-ba_extref`	Can only be used together with the `-ba_queue` option. This can be used to add an external identification to a job which later can be used to query the state of a job (BATCHQUEUE.EXTREF). The field is a character field with a length of 200 characters.
`-ba_continue`	Continue a failed batch job group, starting with the batch job runing at the time of failure. Please refer to section Restarting a Batch Job on page 177 for more information.
`-ba_date`	Specify for which date the job should run. Example: `-ba_date=20171224`, to run the job as if it was Christmas Eve 2017. Note it's also possible to use reference dates, e.g. `-ba_date=YESTERDAY`, to run the job as the date specified via the reference date `'YESTERDAY'`. Remember if the ID of the reference date include spaces the name must be double quoted, e.g. `-ba_date="START MONTH"`. (Please note using this option takes precedence over system configurations otherwise set)
`-ba_endfile`	Specify the name of the end file. Note: This parameter is only relevant if the check box **Create file BATCH_<batchgroup>.END when job ends** at the **Batch** tab in **Batch Options** is selected. Example: `-ba_endfile=c:\temp\BATCH_group1.end`
`-ba_ failedjobsonly`	Rerun for only failed and not-yet-run batch jobs in a group. Please refer to section Restarting a Batch Job on page 177 for more information
`-ba_logfile`	Specify the name of the log file. If specified, the reference file attached to the batch job group will be ignored. Example: `-ba_logfile=c:\temp\logfile.txt`
`-ba_nostat`	If used the system will NOT keep track of the status of the batch job group, and it will be possible to start more instances of the same batch job group. By using the ba_nostat the job will not register the current process, meaning it will NOT be possible to use the ba_continue and ba_failedjobsonly options, furthermore the progress of the job will NOT be shown in the batch monitor.

Option	Use the option in order to:
-ba_parm	If **Allow overruling of parameters** is enabled in **Batch Options** and also selected in **Batch Jobs** and **Batch Job Group**, it is possible to change values for batch parameters and to enable/disable a batch job. Example: `-ba_parm=-ba_parm="sort1;active=1;parm1=STP;parm2=today;sort2;parmtxt='nom=10/;50;WPID=KAR/;TSFA';sort3;key1=LIMITCH/15;sort4;active=0"` Will for job with sort=1 activate the job, change parameter 1 to STP and parameter 2 to today, for the job with sort=2 change the text parameter field (e.g. variables in a DEX), and for the job with sort=3 the key value 1 will be changed to LIMITCH/15, and disable the job with sort=4.

-ba_parmfile	Can be used instead of ba_parm (if e.g. the parametertext is long). It takes an xml parameter file as argument.
	Example:
	`-ba_parmfile=c:\batchjobs\parmfile1.xml`
	Where the file layout is:
	`<rec>`
	`<sort1>`
	`<active>1</active>`
	`<parm1>STP</parm1>`
	`<parm2>today</parm2>`
	`</sort1>`
	`<sort3>`
	`<key1> LIMITCH / 15</key1>`
	`</sort3>`
	`</sort4>`
	`<active>0</active>`
	`</sort4>`
	`</rec>`
	Also accepted is other xml syntax such as:
	• Declaration tag (`<?xml version="1.0" encoding="ISO-8859-1"?>`)
	• Root nodes named 'rec' 'Rec' 'Parameters' or 'parameters'
	• Empty nodes as `<sort20/>` similar to `<sort20></sort20>`
	• Character entities as `< > &amp, &#x09;`
	• Case insensitive tag names is the complete xml structure

Option	Use the option in order to:
-ba_priority	Together with the -ba_queue this can be used to specify in which order the batch service should process the jobs in the queue. Legal values: Low/Medium/High Example: -BA_PRIORITY= medium
-ba_queue	Specify to which batch queue to add the job. If used, the batch job will not be executed by this command line but instead added to the batch queue. The actual execution of the job will then be done by a batch service.
-ba_stop	Stops an already started batch job group. Syntax: ..\bin\scd.exe -batch=<BATCH JOB GROUP> -ba_stop E.g. to stop the batch job group 'EOD' use: ...\bin\scd.exe -batch=EOD -ba_stop If the request succeeds ERRORLEVEL=0 will be returned. If it fails ERRORLEVEL>0 will be returned. For further trouble shooting see the 'service.log' file. Note A batch group can only be stopped between two batch jobs. As if you use **Stop Batch Job Group** within the **Batch Monitor**
-ba_waitresult	Together with the -ba_queue this parameter can be used to specify that scd.exe process should wait and return the exit code from the batch job executed by the batch service. The exit code will be available in the %ERRORLEVEL% environment variable.
-ba_waitto	Can only be used together with the -ba_queue option. Use to specify when the batch service at the earliest must process a job. Example: -ba_waitto=20111231, the job will not be executed before the 31st of December 2011 -ba_waitto=201112312000, the job will not be executed before 20:00 the 31st of December 2011

6.2 Error Levels / Exit Codes

As described in section Returning Error Levels / Exit Codes on page 180 it is possible to get an error level in return from SimCorp Dimension (scd.exe). The list below shows error levels:

6.2.1 Scd.exe

The list below shows error levels from Scd.exe

Error level	Description	Logged in
0	OK	RSE
1	Forced logoff	RSE
2	Abnormal logoff (the APL process has disappeared)	RSE
3	Restart in progress	RSE
4	Internal scd.exe program error or Windows environment	R(S)(E)
5	SimCorp Dimension already started	RS
6	Password of the week failed	RS
7	Interval logoff	RSE
9	MUCS installed	R
10	A SimCorp Dimension is running under another login session ID	R
11	A connection or communication to MUCS server failed	RSE
12	Failed before start of APL	RSE
13	Ping timeout	R
14	Error in parameter	R
15	Local installation is made	RS
16	Trying to start central installation when local installation exists	RS
17	Windows is shutting down or Windows user logging off	(S)(E)
18	APL interpreter has terminated with syserror 999	RSE
19	Attempt to write to APL session	RSE
20	The SCUxxxx.exe process has disappeared	RSE
21	.NET framework not properly installed	RS
22	Insufficient memory	RS
23	Captured unknown dialog box	RSE
24	Could not add to batch queue	RSE
25	Could not open SCD.LOG for write	R(E)
26	Executing of setup.exe failed	RSE
37	BLOCKLOGON is called without user context	RSE

Error level	Description	Logged in
99	Miscellaneous	R(S)(E)
128	Unable to create process. See Windows knowledge Base ID 184802 for further information	R
259	Main process started correct	R
1000	Down for maintenance	RSE
1001	Automatic logoff	RSE
1002	Shutdown	RSE
1003	Connection to database lost	RSE
1004	Database error	RSE
1005	Program error	RSE
1006	Unable to initialise	RSE
1010	Unknown user	RSE
1011	Wrong password	RSE
1012	User suspended	RSE
1013	Logon error	RSE
1014	Password expired	RSE
1015	Database authorisation error	RSE
1016	Database connect error	RSE
1017	Database not connected	RSE
1018	User locked	RSE
1020	Attempt to run ‘init’ in a local installation	RSE
1050	Setup error	RSE
1051	Data error	RSE
1052	Unknown service	RSE
1053	Unknown batch job group	RSE
1054	Authorisation error	RSE
1055	Job execution on service failed	RSE

Error level	Description	Logged in
1056	Job is already running	RSE
1057	Batch job cannot be started with option ba_continue	RSE
1058	Batch job cannot be started with option ba_failedjobsonly	RSE
1059	Database identification do not match the one registered	RSE
1060	File handle error	RSE
1061	Command line error	RSE
1062	At least one batch job within the group failed, but none critical enough to stop the group (needs 'Always return error level if job fails' in Batch Options - General enabled)	RSE
1063	Maximum number of services exceeded	RSE
1064	Services can only be started via the Service Platform. This error code will be returned if trying to start a service not using Service Platform.	RSE
1065	Number of concurrent users exceeded	RSE
1066	Nothing to calculate	RSE
1098	Skip	RSE
1099	Miscellaneous	RSE

The column “Logged in” indicates where the error level is logged:

- R = logged as Windows environment variable ERRORLEVEL and can be obtained using Windows Command Language variable %ERRORLEVEL%.
- S = logged in SCD.LOG.
- E = logged in Windows Event log, if this feature is enabled in **System Environment Configurations**.
- () indicates that the logging will in some instances not be possible, if the error occurs in an early stage of the scd.exe initialisation.

Note

During the execution of a batch job, SimCorp Dimension writes application specific codes to a batch log. These codes are not the same as the error level codes given above. A description of the batch codes can be found in section Batch Log codes on the next page.

The error level is only valid when running SimCorp Dimension batch (command line –BATCH) or service. When running interactive with the portal open, the error level is undefined.

The following two exit codes, which are Windows system generated, may also be good to know:

- 1073741818 (0xc0000006) EXCEPTION_IN_PAGE_ERROR. This exit code might occur if a network connection is lost while running SimCorp Dimension in Central Network Installation mode. See http://msdn.microsoft.com/en-us/library/ms679356.aspx
- 1073741811 (0xc000000D) Unknown software exception. This exit code might occur if an unknown software exception happens.

SCD error levels are only returned if SCD could be initialised. In other cases Microsoft messages are returned. The meaning can be retrieved by typing:

`net helpmsg #` (for instance, `net helpmsg 103`)

on the command line.

6.2.2 Batch Log codes

Messages written to the batch log are classified by codes. The codes are written in two columns, one for message codes and one for result codes. The table below describes the meaning of message codes in the first column of the batch log:

Message code	Description
00	Miscellaneous
01	Parameter
02	Start batch job
03	End batch job
04	Batch job error
05	Open file
06	Number of records
07	Close file
08	No data found
09	Batch job stopped
10	Message box
11	Warning
20	Result from Reconciliation of Custodies

Message code	Description
21	Error records from filter
22	Number of errors during import
23	Service status changed
24	Error records from portfolio calculation
25	Error records from back office create
26	Error records from direct data import
27	Error records from performance calculation
28	Error records from figure calculation
29	Error records from G/L Events
30	Queued for parallel execution
31	Batch job running
32	Start batch group
33	End batch group
90	Additional info
95	Status
98	Separator line
99	Temp

The table below describes some of the most common result codes in the second column of the batch log:

Result code	Description
00	Everything is ok
01	The program has stopped
02,03,04	Field error (syntax/mandatory/...)
88	File error
98	Program error
99	Database error

6.3 Log Files

SimCorp Dimension has a comprehensive logging concept, offering information about system installation and upgrade as well as application

execution. This section lists the log files and related information.

6.3.1 Reference Files

Reference files are used all over SimCorp Dimension. The reference file names are stored in the database. If the reference files uses SimCorp Dimension directory component type controlled by the Cnf.ini file, all reference files will use this now changed Cnf.ini parameter. If directory component type hasn't been used, it is necessary to correct each reference file manually to avoid the source and target installations being mixed. This function can be executed from the SimCorp Dimension menu **Reference Files**.

6.3.1.1 Use of ROOT for File Placement

SimCorp Dimension contains various system configurations where Windows paths are supplied. This could for example be **Reference Files**, where the placement of the file is part of the definition, or **Miscellaneous Options** where a number of directories used for files are defined.

Common for these definitions is that the keyword ROOT can be used as part of the path definition. You should be aware that ROOT refers to the installations root directory seen in relation to the installations starting point. For instance, if SimCorp Dimension is started from the central network location using:

```
\\SCFILE\SCDimension\Prod\Bin\scd.exe
```

ROOT will be identical to NETROOT and point to: `\\SCFILE\SCDimension\Prod`, whereas if SimCorp Dimension is started as a local installation using:

```
C:\Program Files\SimCorp\SimCorp Dimension\Bin\scd.exe
```

ROOT will point to `C:\Program Files\SimCorp\SimCorp Dimension`.

If the intention is that files should be written to folders in the SimCorp Dimension Central Network Installation location, even when the session writing them is started from a local installation, please use the UNC path to the destination or use an abbreviation stated in the Cnf.ini [lib] section.

6.3.2 SimCorp Dimension System Log Files

System log files are written from the system and by different events or errors. Unless otherwise stated, they are stored in the SimCorp Dimension Log folder which can be defined from within **System Environment Configuration** (see File Server - Redirection of Common Write Access Folders and HelpSystem on page 105). The following are some examples:

File	Description
SCD.LOG or SCD__ <machineID>.LOG	System event, user log on and status. If the “Split log file” option is enabled the information will be per machine, which is recommended when running in a MUCS failover environment
MUCS.LOG	Log files written from the Mucs.exe process
patch<version#>.log	patch*.log Shows patch apply status, appended at every patch apply. The file is placed in the maintenance folder
patcherr.log	Shows the latest errors if any were encountered during the last patch apply. This file is not updated if the patch does not encounter errors. The file is placed in the maintenance folder
realtime.log	Used to store errors from the real time environment. The process will wrap the error from the external provider
err#.dcf	These types of files are used to store error reports from fatal error incidents and serves as a kind of backup if the logging of the error on table INCIDENTS failed. The number refers to the internal user number. These files may be deleted when the incident has been processed through the usual channels. The files are saved in the SimCorp Dimension folder Dump, usually under the Tmp folder

Note

The patch<version#>.log can be useful for SimCorp in troubleshooting scenarios. Therefore this log and its contents should be kept in the folder and not deleted.

The system does not by default truncate the SCD.LOG and MUCS.LOG files, but may be configured to do so. In order to ensure these files do not consume vast amounts of disk space, they should be truncated at regular intervals, as described below.

The SCD.LOG and MUCS.LOG entries are written in a format to ease readability. The format of the log can be changed so that each log entry is written on one line, making the log more compact, and also easier to be used by for example third party monitoring applications. To have the log entries written to SCD.LOG and MUCS.LOG as one line add `LogSingleLine=1` to the **[config]** section of the Cnf.ini file. For more information on the Cnf.ini file, please refer to sections Configuration File on page 51

There are two alternatives for the system log file ruled by the configuration parameter `ScdLogSplit` in the **[config]** section of the Cnf.ini file. If

`ScdLogSplit=0`, the default, SimCorp Dimension will use one single SCD.LOG file. If `ScdLogSplit=1`, the system messages will be logged to multiple SCD__<machineID>.LOG files (Split log file), where <machineID> is replaced with the originating machine for the logging. The “Split log file” option is recommended if the installation contains many machines or the installation runs in a failover MUCS server environment. It should be noted that if `ScdLogSplit` is enabled then the setting of `LogSingleLine` is ignored.

The `-SCDLOGMERGEDIR` option for scd.exe is used to merge all the produced SCD__<machineID>.LOG files into one single file. The name of the produced file will be MergedScd_<date>.log.

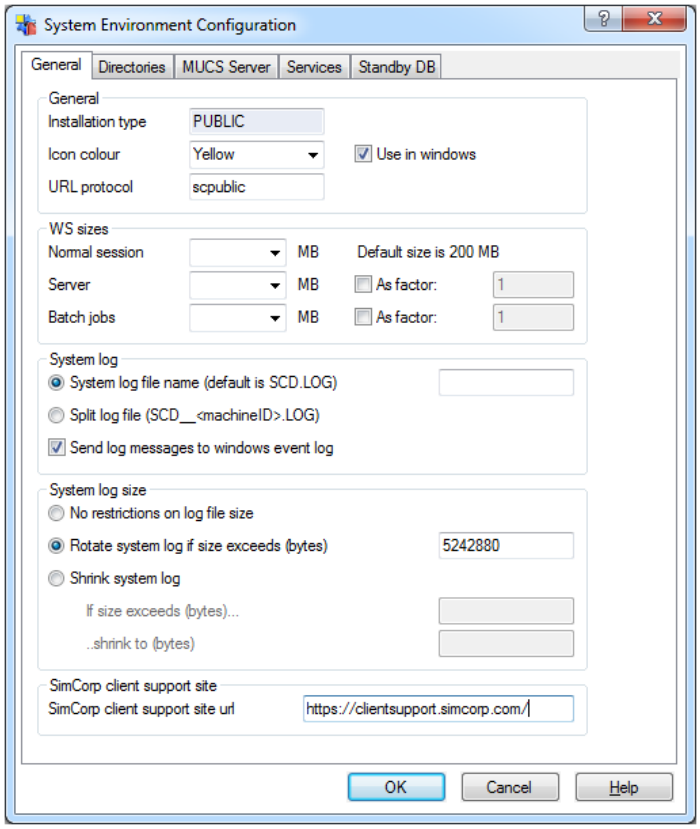
SimCorp Dimension can be configured to regularly copy and then truncate the SCD.LOG and/or MUCS.LOG files. When this is configured, SimCorp Dimension makes a copy of the SCD.LOG/MUCS.LOG file before truncating it. Configuration is done through **System Environment Configuration**.

For example, if the field **Rotate system log if size exceeds (bytes)** is set to 5242880, when the system log (SCD.LOG) reaches 5 MB it will be renamed with a timestamp inserted in the name (such as “SCD20131231093546505.log”) and logging will continue to a new empty SCD.LOG.

Alternatively, it can be specified that the log file should be shrunk to a given size when it reaches a certain size. The smallest allowable shrink to size in bytes is 100,000 and the smallest allowable limit in bytes that triggers a shrink is 1,000,000. For the shrink to make sense the ratio between `If size exceeds` and `..shrink to` must be 10 or more.

Note

When the files are being shrunk, information in the files will be lost.



A notice can be sent to the Windows Event Log by selecting **Send log message to Windows Event Log**. The size of the Windows Event Log can be controlled using Windows Computer Management. Please look up error descriptions in: Error Levels / Exit Codes on page 190

Note

The event logs generated from **OPERATIONAL DATA ASSISTANT** are not controlled by this check. Please refer to: RConnect Folder on page 91

6.3.3 Application Log Files

The following files are written from various tasks and are used to check and verify calculations in the application. The files are placed in the folders Log or Maintenance or in an alternative destination if specified in the application (for instance, **Miscellaneous Options**):

File	Description
Batch.log	May contain useful information when debugging errors in the SimCorp Dimension batch setup
dbcontents<version#>.log	Generated when running **Verify Database Contents**

File	Description
Dbprivs<version#>.log	Generated when the job **verdbprivs** are executed from the command line.
dbstats.log	Log file written on completion of the **Database Performance Maintenance** task. The log shows when the task was run and with which parameters and who initiated the job
dbstruct<version#>.log	Generated when running **Verify Database Structure.**
lmc#.dcf	Used to store application specific data when performing a **Check Limit Utilisation**
per#.dcf	Used to store application specific data when performing a **Check Performance Calculation**
pfc#.dcf	Used to store application specific data when performing a **Check Portfolio Calculation**
service.log	May contain useful information when debugging errors in the SimCorp Dimension application service environment
Verbusdata<version#>.log	Generated when running **Verify Business data.**
VerifyDbStructure<version#>.log	Before and after a patch is applied, a check (**Verify Database Structure**) is carried out so that all database objects are valid. The result of this check is written in this log. Placed in the Maintenance folder.

6.3.4 Installation/Upgrade Log Files

These files are created when performing a SimCorp Dimension installation or a SimCorp Dimension upgrade. They are always stored in the SimCorp Dimension Maintenance folder.

File	Description
ErrInst<version#>.log	The part of Inst<version#>.log that is error messages
Inst<version#>.log	Logs all messages given during the installation/upgrade
Response_YYYYMMDD_TTMMSS_ <version#>.ini	Response files from installation/upgrade
Sql<version#>.log	Logs SQL statements during the installation/upgrade

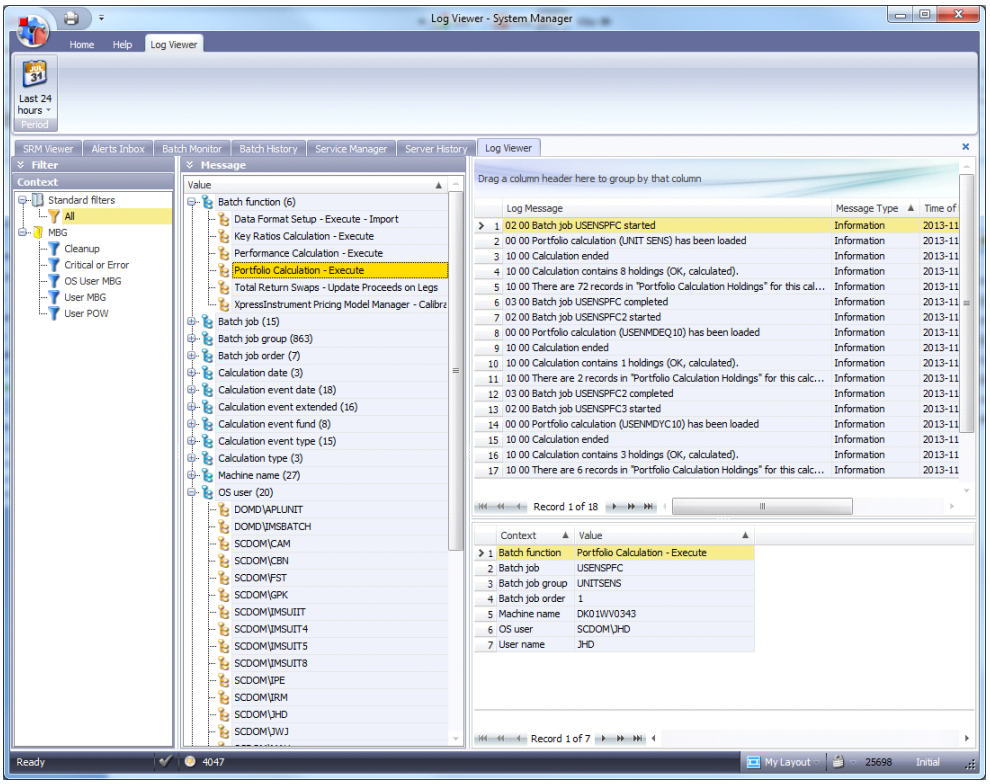
File	Description
Warninst<version#>.log	The part of Inst<version#>.log that is warning messages
SimCorp_Dimension_ Installer<datetime>.log	Log generated by install.exe

These logs can be useful for SimCorp in troubleshooting scenarios. Therefore, it is recommended that you keep the logs. In versions of SimCorp Dimension.

6.3.5 Unified Logging

If Unified logging is used SimCorp Dimension log messages can be monitored from a central location through the **Log Viewer**.

The **Log Viewer** is located in **System Manager**. Choose the **Show** button and select **Log Viewer** from the dropdown menu which appears. The context in the **Log Viewer** is listed in alphabetic order.



Note

If connection to the database is lost the error will be saved in Microsoft eventlog.

If you wants to configure the targets for the log entries you can use the two Cnf.ini parameters `LogWriter1` and `LogWriter2`. The parameter can

either be `database` or `file`. If you don't want to log anything then just leave the parameter out.

The location of the log files is in a sub folder to the ..\logfolder. for example: `\\servername\sharename\prod\log\[subfolder]...`. The subfolder names will depend on from where the log entry originates.

This is an overview of the file location structure :

Process type	File location
Services	Services\<serviceTypeInt>_<serviceType>\<short AgentId>_<InstanceId>_<hostname><UTC timestamp)>_<processId>
Batch	Batch\<batch group>\<hostname>_<UTC timestamp)>_<processId>
Order Manager	SCD\OM_<hostname><UTC timestamp)>_<processId>
Other types	SCD\<hostname><UTC timestamp)>_<processId>

Log files will be split for every 10 MB. The file names will at split get consecutive numbered suffix. starting with 1.

A log entry will contain the following items separated by tab (no trailing tabs):

- timestamp (PC UTC)
- timestamp (database UTC if available)
- Severity
- EventNo
- Message
- PropertyBag
- Contexts
- ExceptionDetails

Note

Only entries from the database is visible in the application as for example the Log Viewer applet.

Please see Configuration File on page 51 for more information on configuration file parameters.

6.3.6 SCD.LOG Entries Useful to Know

When experiencing trouble starting SimCorp Dimension, SCD.LOG may indicate the nature of the problem preventing SimCorp Dimension from

starting. The following are a few examples of log entries together with their meaning and possible cause.

Log entry	Explanation
Could not locate 'DATA' directory	The <SimCorp Dimension>\data directory could not be found. Verify that it exists. Sometimes this error occurs when SimCorp Dimension's patch file has been unpacked on %TEMP% directory and the SimCorp Dimension "Start in" directory is also %TEMP%
Failed to set up listener on port #### Failed to initialise TCP subsystem Failed before start of APL	These 3 messages will typically appear after each other in the SCD.LOG. They indicate that it is impossible to start TCP communication (this is the communication between scd.exe and the APL-interpreter). This can be due to a port conflict on the Windows client used to start SimCorp Dimension. SimCorp Dimension automatically sets the port number for local communication to 5000 + PID (scd.exe Process ID, which can be found in Windows **Task Manager**)
Connection to MUCS server failed	All SimCorp Dimension sessions connect to the MUCS server at start up. Sessions will keep trying to connect for a configured amount of time. This error comes if no connection can be made before the timeout. For further troubleshooting of this problem try to: look in Cnf.ini under the [config] section for the entry: MUCS=machine, portnumber ping the machine to see if the machine is available Check that the MUCS server has been started on the dedicated server. See section Message and User Control System (MUCS) on page 16 for more information

7 Support

SimCorp plans to release 4 versions of SimCorp Dimension a year, one for each quarter. Every SimCorp Dimension version is supported for 1½ year.

According to standard contracts Clients are obliged to use supported SimCorp Dimension version.

With the release of version 19.04, the oldest active version of the system will be version 6.3.

In order to facilitate your planning of future upgrades, please note the schedule for support discontinuation:

- 6.3 Support discontinues on 31. July 2019
- 6.31 Support discontinues on 31. October 2019
- 6.4 Support discontinues on 31. January 2020
- 6.41 Support discontinues on 30. April 2020
- 19.01 Support discontinues on 31. July 2020
- 19.04 Support discontinues on 31. October 2020

Note

From 2019 the naming of SimCorp Dimension version will be <year.month> meaning the SimCorp Dimension version released first quarter of 2019 will be named 19.01.

7.1 Support - incident reporting

SimCorp requires detailed information if an unexpected event occurs in SimCorp Dimension to be able to provide professional support. For this purpose SimCorp provides the following functionality:

- Incidents and Service Requests below
- Operational Data Assistant Solution on the next page

7.1.1 Incidents and Service Requests

If an unexpected event occurs in the system, SimCorp Dimension generates an error log file. The error log file contains technical information about the issue with installation specific information. The error can be automatically transferred using Operational Data Assistant (ODA). Based on the error log information a Service Request can be created on SimCorp Support Portal.

SimCorp Dimension Service Requests should be reported through SimCorp Client Support at: https://simcorp.force.com/. Please contact customer service for details on how to log on to SimCorp Support Portal. SimCorp recommends that Automatic transfer of error log information is enabled. This will help with faster identification and correction of errors.

Any technical issues should be directed to customer service for creation of a Service Request. You can see a SimCorp contact list for address or phone number on www.simcorp.com.

7.1.2 Operational Data Assistant Solution

It is possible to use Operational Data Assistant (ODA) that is an integrated SimCorp Dimension component. ODA makes it possible to let SimCorp Dimension log and transfer an issue automatically.

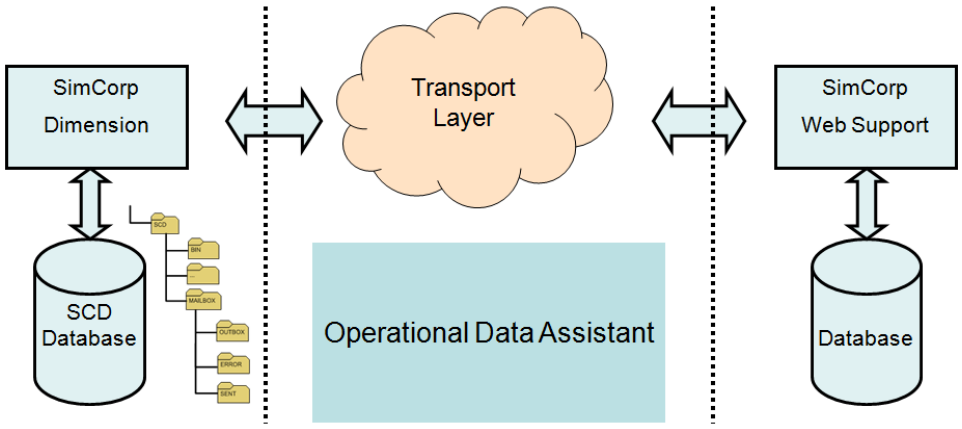
Operational Data Assistant is required for the .Net applications as:

- Asset Manager
- Portfolio Workbench
- Compliance Manager
- System Manager
- Risk Analysis Manager
- Fund Administration Manager
- Communication Server
- Trade Manager
- Order Manager
- Data Import Rules
- Settlement Manager

7.1.2.1 Operational Data Assistant functionality

Operational Data Assistant delivers the following support to the system users:

- Consistent logging of important SimCorp Dimension information within covered areas
- A uniform communication channel from the installation to SimCorp support system
- More robust support solution from the application



Information from the installation is sent to SimCorp Support using a Communication Service solution. The information is sent to SimCorp via an https request to a Web Service hosted by SimCorp. The SimCorp Dimension installation initiates all communication. No communication is initiated from outside the installation.

7.1.2.1.1 Covered Areas

Operational Data Assistant (ODA) transfer data from the following areas:

- Patch apply information – update patch status in SimCorp Support System.
- SCMeta – update database system statistics to track database growth and related areas
- Telemetry data – Gathered telemetry data can be sent on request.
- Error logs – automatic transfer of all error logs generated in the system to SimCorp Support Portal (with option to create Service Requests based on the error log)
- Start up message

The use of ODA will be expanded as new areas appear.

7.1.2.1.2 Requirements

Operational Data Assistant (ODA) uses SimCorp Dimension Communication Service. The solution is implemented as a run-time solution and does not require any new modules to be purchased.

The configuration of the solution is maintained by SimCorp, whereas The client is responsible for starting, monitoring and stopping the server. The communication to the SimCorp hosted Web Service must be provided by the client.

For a description of how to configure and use Operational Data Assistant (ODA), please refer to the ***SimCorp Dimension Operational Data Assistant User manual*** available from SimCorp Support Portal.

7.1.2.1.3 Operational Data Assistant packer utility: ODAPacker

To transfer error logs without having the Operational Data Assistant service running a manual packer utility is available. The utility is called ODAPacker. It can be used for ad-hoc transfer or when the real-time solution is not implemented yet.

ODAPacker is located in the Bin directory and the full name of the executable is:

```
SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPacker.exe
```

The user running ODAPacker must have the same access rights as the user account running the Operational Data Assistant server see Folder Permissions on page 92.

ODAPacker is configured with default settings that enable the user to run it from the Bin directory without further settings. This means that the following is done when ODAPacker is executed from the Bin directory:

- Find all error log XML files in ..\RConnect\Outgoing
- Pack them into a zip file including any referenced DCF files

- The files are stored in a zip file called “[date/time]_ODAPacked.zip” in the Tmp directory
- ODAPacker creates a log file called “ODAPacker[date/timestamp].log ” in the Tmp directory
- The processed error log files are moved to the “..\Transferred” folder (the folder is created if it does not exist)
- Any .DCF files are left in their original location
- The user is notified about location and names of zip file and log file

The zip file can be attached to a service request or e-mailed to SimCorp.

ODAPacker can be started with a set of command line options. The command line options are used to specify different source and destinations folders than the default folders. It is possible to run the ODAPacker utility in silent mode where the message box is not shown at the end of the operation.

To see available command line options, open a command prompt and navigate to the SimCorp Dimension bin folder:

```
..\Bin>
SimCorp.IMS.SystemOperation.Diagnostic.Utilities.ODAPa
cker -?
```

That will result in this output:

```
SimCorp.IMS.SystemOperation.Diagnostic.Utilities
.ODAPacker

Usage:

-source|-s:     The directory where to look for
ODA files (default ..\Rconnect\Outgoing)

-destination|-d:        The directory where to
place the packed files (default
..\Rconnect\Transferred)

-silent|-si:    Disables messagebox shown on
completion

-help|-?:       Shows this help
```

If you want to store the files from the current installation to another folder than the default location:

```
..\Bin>SimCorp.IMS.SystemOperation.Diagnostic.Utilitie
s.ODAPacker -d:\\servername\shares\SCDimension\temp
```

If you want to take files from your UAT environment and store them in a folder outside any of environments:

```
..\Bin>SimCorp.IMS.SystemOperation.Diagnostic.Utilitie
s.ODAPacker -
```



```
s:\\servername\shares\SCDimension\UAT\RConnect\Outgoin
g -d:\\servername\shares\SCDimension\temp
```

7.1.3 APL core files reporting

On the system error, the Dyalog APL interpreter creates APL core file. The APL core file contains various information about the Dyalog APL interpreter at the moment of System error. Some of the information in APL core are APL stack, used APL variables, memory dump and information about current APL Dyalog interpreter build.

Example of a system error is memory access violation due to invalid native call to C routine from APL interpreter, where C routine tries to access invalid memory address.

AplCoreName configuration parameter, defines path where APL core files are stored. **AplCoreName** defines the APL core name too.

Example:

```
AplCreName=\\loghost\aplcores\MAIN_1904_TEST_
aplcore*.dat
```

In example APL core will be stored on file server \\loghost in folder \aplcores\ and with file mask MAIN_1904_TEST_aplcore*.dat, where * (asterisk symbol) is file index to distinguish different APL core files. MAIN_1904_TEST is name of current SimCorp Dimension installation.

The APL core is stored to Windows temporary folder i.e. %TEMP%, if the **AplCoreName** attribute is empty or is not defined in Cnf.ini .

The APL core files have size from few 100MB to several GB.

The APL cores can also be created during execution of batch or service job. In that case the administrator/user might not noticed, that an APL core file was created. Latter administrator might not be able to find on which computer the APL core is created, as APL core will be stored by default in Windows temporary folder i.e. %TEMP% on local computer. In order to easily detect and find, if an APL core file is cratered, it is recommended to define **AplCoreName** configuration parameter.

7.2 Unicode Support

SimCorp Dimension application is Unicode.

The following third party products, SimCorp Dimension modules and platform components are known to have technical limitations concerning Unicode:

Product or module	Description
XpressInstruments	Certain restrictions apply, as described in section XpressInstruments Unicode Restrictions on the next page

Product or module	Description
DDE Links	DDE Links does not support Unicode text strings. It is currently used in **Position Analyses, Position Simulation** and **Multi Analyses**. Please note that it is DDE **Links** that doesn't support Unicode as the **Real-time Data** DDE functionality fully supports Unicode.
scd.exe **mucs.exe**	These SimCorp Dimension applications support only ANSI (ISO-8859-1) characters as arguments. Unicode characters as input characters will lead to errors or unpredictable behaviour
<BIN>\Def.ini **<BIN>\Files.ini** **<DATA>\Ins.ini** **<DATA>\Cnf.ini** **<PROG>\Prg.ini**	Configuration files (.ini files) are restricted to contain only ANSI characters and must be encoded in ANSI as well.
File and folder names	The files and folder structure for SimCorp Dimension have to be named using ANSI characters only.
Certain fields require single byte code page to be defined	In a number of places where single byte restrictions are still needed, SimCorp Dimension needs to know which single byte code page to use in these situations. This single byte code page is defined in the ins.ini file and defaults to 1252. The ins.ini file can be modified only by SimCorp, as described in section Data Folder on page 89

For more information on character sets, please refer to section Supported Database Character Sets on page 113.

7.2.1 XpressInstruments Unicode Restrictions

The IML Engine used by the **XPRESSINSTRUMENTS** module is not Unicode compliant. Therefore, form fields that interface with the IML Engine, by passing "strings", will be restricted to the configured Windows codepage character set (default 1252). The visible form fields affected within SimCorp Dimension that pass "strings" to the IML Engine are:

- **Market Observables** – the field **Observable** (uppercase only)

This restriction is not relevant for XpressInstruments delivered as part of the Trade Manager.

- **Bank Holidays** - the field **Calendar ID** (uppercase only)
- **Countries and currencies** - the field **Currency** (uppercase only)
- **Rating Agencies** - the field **Rating codes**

8 Future Plans

This chapter sets out SimCorp's current plans for support and withdrawal of support of platforms, technologies, SimCorp Dimension modules etcetera for SimCorp Dimension.

The information is based on current development and experience with previous releases. The purpose is for information only and is not a commitment to deliver any material, code or functionality, and should not be used making purchasing decisions. The development, release and timing of any features or functionality described for SimCorp's products remain at the sole discretion of SimCorp.

The release plans for SimCorp Dimension are:

Release	Ship Date	Supported Until
6.3	February 2018	August 2019
6.4	August 2018	February 2020
6.41	October 2018	April 2020
19.01	January 2019	July 2020
19.04	April 2019	October 2020
19.07	July 2019	January 2021
19.10	October 2019	April 2021
20.01	January 2020	July 2021
20.04	April 2020	October 2021

If there are major changes to this manual the manual will be updated and a new manual release will be published on SimCorp Support Portal and afterwards be part of the next online help update. Please ensure that you from time to time consult SimCorp Support Portal for latest updates to this manual.

8.1 Plans for Technologies and Hardware

SimCorp aims to take full advantage of the various capabilities of the underlying platform, and as such plans to make the enhancements to future versions of SimCorp Dimension.

In the below table you can see an overview of selected Platform components showing existing requirements for released, still supported, versions of SimCorp Dimension as well as plans for future SimCorp Dimension versions. Please note that SimCorp Dimension is only supported on 3rd party components if the component is supported by vendor.

Platform Technology		Released SimCorp Dimension versions					Future SimCorp Dimension versions			
		6.3	6.4	6.4.1	19.01	19.04	19.07	19.10	20.01	20.04
Operating System 1)	Database server	Unix/Linux Windows Server 2008R2 Windows Server 2012	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016	Unix/Linux Windows Server 2008R2 Windows Server 2012 Windows Server 2016 Windows Server 2019	Unix/Linux Windows Server 2012 Windows Server 2016 Windows Server 2019	Unix/Linux Windows Server 2012 Windows Server 2016 Windows Server 2019
	File server	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows Server 2012 Windows Server 2016 Windows Server 2019

Platform Technology		Released SimCorp Dimension versions					Future SimCorp Dimension versions			
		6.3	6.4	6.4.1	19.01	19.04	19.07	19.10	20.01	20.04
	Mucs Server	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows Server 2008 R2 Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows Server 2012 Windows Server 2016 Windows Server 2019
	Clients	Windows 7 Windows 8.1 Windows 10 2)	Windows 7 Windows 8.1 Windows 10 2)	Windows 7 Windows 8.1 Windows 10 2)	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2)	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2)	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2)	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2)	Windows 8.1 Windows 10 2)	Windows 8.1 Windows 10 2)

Platform Technology		Released SimCorp Dimension versions					Future SimCorp Dimension versions			
		6.3	6.4	6.4.1	19.01	19.04	19.07	19.10	20.01	20.04
	Service Agents	Windows 7 Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016	Windows 7 (minimum SP1) Windows 8.1 Windows 10 2) Windows Server 2008 R2 Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows 8.1 Windows 10 2) Windows Server 2012 Windows Server 2016 Windows Server 2019	Windows 8.1 Windows 10 2) Windows Server 2012 Windows Server 2016 Windows Server 2019
Microsoft .NET Framework	Clients	Minimum 4.6.0	Minimum 4.6.0	Minimum 4.6.0	Minimum 4.6.2	Minimum 4.6.1	Minimum 4.7.2	Minimum 4.7.2	Minimum 4.7.2	Minimum 4.7.2
	Service Agents	Minimum 4.6.0	Minimum 4.6.0	Minimum 4.6.0	Minimum 4.6.2	Minimum 4.6.1	Minimum 4.7.2	Minimum 4.7.2	Minimum 4.7.2	Minimum 4.7.2
SAP Crystal Reports Runtime	Clients	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954
	Service Agents	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954	Minimum 13.0.16.1954

Platform Technology		Released SimCorp Dimension versions					Future SimCorp Dimension versions			
		6.3	6.4	6.4.1	19.01	19.04	19.07	19.10	20.01	20.04
Oracle	database	12.1.0.2	12.2.0.1 12.1.0.2	12.2.0.1 12.1.0.2	18 12.2.0.1 12.1.0.2	18 4) 12.2.0.1 12.1.0.2	18 12.2.0.1	19 18 12.2.0.1	19 18 12.2.0.1	19 18 12.2.0.1

1) From SimCorp Dimension version 6.4 and higher Windows 2016 is supported when on Oracle 12.2 (as Oracle supports this Operating System on 12.2, but not 12.1). Please note Windows Server 2016 covers Windows Server 2016 Standard and Windows Server 2016 Datacenter

2) SimCorp Dimension is supported on Current Branch for Business (CBB) and Semi-Annual Channel.

3) When support for a new Oracle version has been introduced (e.g. support for Oracle18 in 19.04) SimCorp will consider if retrospective support can be given for the new Oracle version in the two earlier SimCorp Dimension versions. If retrospective support is given it will be announced through this manual.

4) Please note you will need a new ins.ini file and the right SimCorp Dimension build level to be able to upgrade to Oracle 18. Please see System Administrator's Manual for version 19.01 and Preferred Oracle Configuration for further information.

8.2 Planned withdrawal of SimCorp Dimension components support.

- Remote OS authentication was deprecated by Oracle in version 11.1. SimCorp intends to remove the support for Oracle remote OS authentication in SimCorp Dimension version 21.07.
- The non-CDB architectural has been deprecated by Oracle since 12.1. SimCorp intends to remove support for non-CDB databases in SimCorp Dimension version 20.10.

9 Known Issues

This chapter contains information on a variety of issues relating to third party software encountered when running SimCorp Dimension, roughly ordered by the main third software product involved.

Usually only issues relevant for the current release of SimCorp Dimension are listed. Updates regarding older releases will instead be communicated elsewhere.

9.1 Anti-Virus

General risks with anti-virus products:

Anti-virus products typically hook up on OS driver level and can be rather intrusive. In certain rare cases, unpredicted side-effects can cause critical failures. The most recent incident (at the time of writing) was in the spring of 2015, where an update to Symantec anti-virus blocked the Windows OS from loading certain SimCorp .NET modules (assemblies). This caused critical failures at a number of SimCorp clients until the updates were rolled back and the issue was resolved by Symantec.

There are many anti-virus software suppliers, and the products are constantly updated. SimCorp assumes correct behaviour of anti-virus software in that sense, that it does not alter the behaviour of the Windows OS and other infrastructural components. One way to prevent these risks is to apply anti-virus updates to a test system and run a representative workflow here before applying the update to production. Such procedures are of course subject to a reasonable balance between risk and prevention-effort.

Errors with Dyalog component file system

Dyalog Support Service has reported that Norton Anti-Virus software may cause conflicts with Dyalog component file system. It appears that while Norton Anti-Virus is scanning the disk, it briefly opens each file in DENY_ WRITE mode. This can cause severe disruption to SimCorp Dimension.

Note

Allow Norton Anti-Virus (and other anti-virus programs) to skip files with a .DCF extension. Likewise, the SCD.LOG and MUCS.LOG files must be excluded from the scan.

Errors when printing reports on windows servers with hyper threading

Errors when printing reports have been reported on Windows servers with hyper threading enabled and where CA eTrust Anti-Virus is used. In these cases the errors have been limited by changing the anti-virus configuration to ignore the “dya*.exe”-process (for example dya1012lr.exe). Note that the actual name of the process is determined by the version and patch level of the actual SimCorp Dimension installation.

Errors during patchapply and upgrade

It has been reported that disabling Trend Micro Office Scan helped solve the following issues:

- The SimCorp Dimension patching process hangs and then dies, reporting that it can't find the .pat file that it actually started the patching with
- Manually unzipping the patch file took an amazing amount of time considering the size

See also section Virus Scan on page 107.

9.2 Citrix Presentation Server/XenApp/Terminal Services

9.2.1 Using DDE Links

Citrix does not support DDE links directly from server to client side application.

Note

If the DDE functionality of SimCorp Dimension is to be used together with MS Excel, both the SimCorp Dimension client and MS Excel must be installed and used on the Citrix server.

However, it is possible to save the MS Excel document directly on the client's hard disk.

9.2.2 Short Keys in SimCorp Dimension May Have a Different Function

Please be aware when running SimCorp Dimension using Citrix/Terminal Services, Short Keys may have been defined on the Citrix/Terminal server to have another function than the one documented in SimCorp Dimension. For example, in SimCorp Dimension the combination SHIFT+F1 normally provides field help; but on Citrix this short key combination may be defined to open the Windows **Start** menu.

Note

Short keys defined on a Citrix/Terminal server overwrite the definition provided in SimCorp Dimension

---

Please contact your Citrix Administrator for a redefinition of the short key function on your Citrix/Terminal server.

9.2.3 SimCorp Dimension Crashes without Normal Error Processing

If using Citrix management applications such as AppGuard, AppSense etc. you must ensure that all files delivered in the SimCorp Dimension installation are permitted for execution on the Citrix server. If SimCorp Dimension executable files are blocked it can cause serious instability and session crashes. In some cases the SimCorp Dimension session just disappears and the crashes can be hard to troubleshoot as no error is

logged by the application. A detailed function trace using “Toggle Trace” may help determining when the application stops without standard error handling.

Please also refer to section Generated DLL in %TEMP% sub-folders on page 160.

9.2.4 SimCorp Dimension Freeze when printing from Citrix XenApp 6.5 at Windows Server 2008 R2

Due to an error in the Citrix Software SimCorp Dimension can freeze when print using Crystal Report is executed. First print executes ok, but next time a print is executed the session freeze and has to be killed. The following hotfix from Citrix solved the issue XA650R01W2K8R2X64026. The hotfix is now part of Hotfix Rollup Pack 2 Beta for Citrix 6.5 for Microsoft Windows Server 2008 R2 dated May 1st 2013.

9.3 Data Warehouse solution

9.3.1 ORA-02072 on query over database link

If ORA-02072 is received from the data warehouse functionality and the data warehouse database is remote, it may be due to different Oracle patch versions. If either of, but not both, the SimCorp Dimension database and the data warehouse database contains bug fix for Oracle bug 17890099 queries over database link can fail with ORA-02072: distributed database network protocol mismatch. Bug 17890099 is fixed in Oracle patch set 12.1.0.2.0 and at present on Windows platform also in 11.2.0.3 patch 36. This implies, if either of the databases is on any of these versions, but the other database is not, the error can occur. To avoid the error, patch for 17890099 must be applied on both sides of the database link. For more information please refer to My Oracle Support and e.g. article 1970666.1.

9.4 Microsoft Outlook

9.4.1 Outlook Email Security Update

In earlier versions of Outlook, Microsoft implemented an “E-mail Security Update” which is still relevant.

Apart from restrictions on attachments (many file extensions are not allowed by default), a new major restriction was that automatic sending of mails is blocked by a “security” pop up window asking a question like:

```
A program is trying to automatically send e-
mails on your behalf. Do you want to allow this?
```

SimCorp Dimension attempts to send e-mails automatically, just like many other applications on the Windows platform. All of these applications will experience this message.

A very good resource for detailed information about this issue is

http://www.slipstick.com/outlook/esecup.htm and has links to many places, including Microsoft.

In Outlook 2002 (version 10) and higher it is possible to disable it. In order to do this, follow the link “administrators can customise the security

settings" on the "slipstick" site mentioned above. Note that even if not using Outlook, this "feature" is present in the MAPI layer.

There have been attempts to automatically answer Yes to the pop up (see, for example, http://www.express-soft.com/mailmate/clickyes.html), but a known limitation is that it does not work when a PC is locked (or not logged in), which is exactly the situation where it is most needed.

9.5 Microsoft Windows

9.5.1 Problems When Many Windows Are Open

SimCorp have seen situations where the fact, that many windows were open, gave cause to problems with various versions of Microsoft Windows - when this happens it is most often a matter of adjusting the amount of available resources. Please refer to section Insufficient Windows Resources for a more detailed explanation and some hints on what to do.

9.5.2 Avoid Many Files in Single Folders on the File Server

Microsoft Windows in general performs poorly when folders with many files (several thousand or more) are accessed, especially when access is done over a network. This can be the case for certain SimCorp Dimension folders (for example the Communication Server folders) when regular cleanup is omitted. It cannot only degrade performance for a single SimCorp Dimension server, but also degrade disc performance on the file server to a degree where it fails to respond to other requests. In extreme cases, it has been observed that reading SimCorp Dimension program files during execution of SimCorp Dimension by other servers has failed (leading to "in page io" error 0xC0000006 crashes).

General ways to avoid many files in folders:

- Turn off excess logging after troubleshooting sessions have ended.
- Configure folder structures with respect to this issue if possible, for instance by keeping files only for a certain period of time in one folder.
- Implement regular cleanup procedures. Remove or move files away from active folders.
- Monitor folder structures for many files.
- Place folders with potentially many files on a local disk if possible, or on a separate file server.

9.5.3 Windows Marks a SimCorp Dimension Window as: (Not Responding)

Please be aware that Windows Repaint (the process which "draws" a SimCorp Dimension window in the Windows environment) cannot update the screen during a long running SQL query or a long running CPU operation on the host. This can appear to the end user as if SimCorp Dimension is hanging.

If you have a "(not responding)" window, for instance from a service, batch job group or the like, then first query the database to see if the corresponding session in the database is active and busy, instead of 'killing' the session. This can be done by querying the Oracle data dictionary view V$SESSION_WAIT, and establish that the related session is waiting on 'busy'

events, rather than an 'idle' event, such as for example “SQL*Net message from client”.

You can also check if the CPU usage is high on the local host running the client. Then the window is reported “(not responding)” because the screen cannot be refreshed.

9.5.4 SimCorp Dimension Services Need Restart After File Server Crash

Please be aware that if a crash of the file server housing the SimCorp Dimension application files has occurred or if the file server for other reasons has been booted, the MUCS (running as Windows service or manually) and SimCorp Dimension services may appear as still running. However, the MUCS and services might not be functioning. The services should be restarted when the file server is online again. It is recommended that all SimCorp Dimension sessions (inclusive MUCS and service agents) are closed prior to the file server, if this is being shut down in a planned action. Service agents can be shut down by blocking for logon in the MUCS and restarting the service platform.

9.5.5 Unable to start MUCS as a service

An error message can occur with a warning message “Windows could not start the SimCorp Dimension <servername>/Server:Mucs service on Local Computer Error2: The system cannot find the file specified.” This covers that there is a time and/or date difference between the client and server. The error message can be seen if the MUCS is started as a service from a command line.

Further information can be seen using the following link: http://social.msdn.microsoft.com/Forums/en-US/velocity/thread/aa171d8a-ae10-41dd-8f6f-e7ddd826f8a8.

9.5.6 "Scripts are usually safe. Do you want to allow scripts to run?" when opening help

You get this message because the Internet Explorer security setting Active Content is set to Prompt. Change the setting to Enable to avoid the prompt.

By default this option is set to Enable in the Local Intranet and Trusted sites zones in Internet explorer. If this option is set to Disable, the help system will not display.

9.5.7 Insufficient Windows Resources

If an insufficient windows resources error is generated when a message queue service or communication server is running, it might help to decrease the **Maximum number of cached forms** (**Miscellaneous Options**, on the **Filter/Message Queue/Data Format Setup** tab). Normally, a cache size around 10 would be fine. If running the message queue service as a Windows Service (also includes running the service as a scheduled task), the program does not have as many Windows resources as if the program was run by a Windows user logged on (it can be a factor three lower), meaning the maximum number of cached forms should be set accordingly.

For all SimCorp Dimension processes (including message queue and communication server), Windows resources can be increased to avoid

"insufficient Windows resources" errors. This can be done by editing Registry:

- Locate:
  `HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Session Manager\SubSystems`
- Edit the string named Windows and navigate to the parameter SharedSection. They usually appear like this: SharedSection=1024,20480,768 (on 64-bit Windows) the default values are 1024,20480,768.

The second value controls the heap size for interactive desktops. The third value (768) is used to control the heap size for services desktop. If many SimCorp Dimension batch jobs are run by a scheduler or another service based tool, increase this last value. After changing the values, you will be required to restart the Windows host.

These resources are sometimes referred to as the Desktop Heap. Up to Windows XP / 2003, it was possible to download and install a "Desktop Heap Monitor" from Microsoft, but this is not supported by newer Windows platforms. Issues with interactive use are unlikely (with 20480). The issue may appear for non-interactive use (e.g. services). The third value should be changed to the lowest number (using steps of 256) where the problems disappear, for instance 1024 or 1280 (from 768). Setting this too high may cause resource exhaustion elsewhere.

If changing the registry key to obtain more resources for services does not help, SimCorp Dimension should not be operated as a service but instead as an interactive application.

Before changing values in the Registry please ensure to carefully read:

http://support.microsoft.com/default.aspx?scid=kb;EN-US;184802

Using the Local System account for SimCorp Dimension services is not recommended. All services executed under the Local System account with "Allow Service to interact with the Desktop" not selected share the desktop heap of the "Default" desktop in the non-interactive service Windows station. This places a limitation on how many SimCorp Dimension services can be started concurrently, as the heap size (the third value) is a maximum for all services running under the Local System account. Whereas every service process executed under a user account will receive a new desktop in a non-interactive Window station, meaning the heap size is now a maximum pr. service.

For instance, on a 64-bit Windows server using default settings, the SimCorp Dimension service consumes approx 12.4 % of the desktop heap. If the Local System Account is used, attempting to start an eighth (depending on what else is consuming desktop heap) SimCorp Dimension service will result in a Services message stating that the service could not be started and referring to service-specific error code 12.

9.5.8 Desktop Heap Limitations

The so called Desktop Heap has some static limits defined in the registry. Lack of desktop heap can cause various problems, such as programs simply not starting and bad behaviour in especially rich GUI programs. This can happen for both interactive and not-interactive mode execution. Please refer to Insufficient Windows Resources on page 220 for instructions to fix problems in either of these cases.

9.5.9 Window not in Focus

Microsoft Windows' ability to display several application windows at the same time leads to a need for defining how the focus should shift between these windows. This is normally being handled automatically in the background by Windows, but sometimes an application's needs makes it necessary for it to drag focus to a particular Window – which can then confuse the automatics.

Definition:

A window in focus will receive the keyboard input and will usually be displayed in front of the other windows on the screen, this way being the window that the user interacts with right now.

There are a number of identified situations where the Windows focus may be on a different window than expected by the SimCorp Dimension user. SimCorp is continuously working on finding solutions for such problems as they are being reported, but currently the following situations are unresolved:

- When multiple APL windows and at least one .Net window are visible, setting the focus on one APL window will bring other APL windows in front of .Net windows, regardless of where in the focus order the .Net windows were previously found. This also changes the ALT+TAB order of the windows.
- When the portal and at least one APL window and at least one .Net window are visible on the screen, closing the last APL window might change focus to the portal, no matter where in the focus order the portal is found.
- You can end up with a prompt box, that is awaiting input from user hidden behind other windows. From SimCorp Dimension version 5.8 the task bar icon flashes to inform the user of its existence.

9.5.10 Colored scd.exe icons are not visible in Windows 10 shortcut

It might be that when you create shortcut for scd.exe on your Windows 10 desktop and choose a colour the icon becomes blank.

This might be caused by a missing Windows Group Policy setting for the explorer to allow the use of remote paths in file shortcut icons. Please see:

https://support.software.dell.com/desktop-authority/kb/205074 for a description.

The solution is to use regedit and create the registry element.

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\Explorer

EnableShellShortcutIconRemotePath

reg_dword 1

9.5.11 .NET Based Windows not Shown in the Taskbar

In certain situations, when starting a .NET based window, the window is not shown as a Windows taskbar button. The window is still visible in the ALT+TAB and Task Manager lists.

When switching to a different application and then back to the .NET based windows in question, the taskbar button appears.

This issue has been seen in several versions of Microsoft Windows and seems to be due to an error in the Windows taskbar.

9.5.12 Serious Performance Degradation if .NET Applications are hit by Physical Memory Shortages

Application performance in general can be seriously degraded if there is a physical memory shortage. Windows tries to compensate for lack of physical memory (RAM) by using the disk (page file), which is several orders of magnitude slower than RAM. The impact can be fairly acceptable if it hits memory that has been unused for a longer while. "Managed memory" in .NET is garbage collected regularly, which means that none of it is unused for a longer while. A shortage in physical memory will trigger physical memory starvation of other parts of memory than .NET memory first, plus a higher frequency of garbage collects (higher CPU usage), and eventually a complete degradation if parts of .NET memory are forced out of physical memory (to the page file on disk).

The only safe cure is to ensure, that all .NET memory is backed by physical memory, either by adding more RAM, reducing the memory requirements by configuring the .NET application or by reducing the memory load on the machine otherwise.

In order to monitor the real physical memory requirements for a given .NET application, various peak load situations should be monitored on a computer with plenty of physical memory. Useful performance counters to check the running application (typically dya...exe) with e.g. Windows Perfmon (or Sysinternals Process Explorer, which only shows snapshots):

- NET CLR Memory / Total committed Bytes. This is all Managed Memory.

- Process / Working Set and Working Set Peak. This is the physical memory footprint of the entire process, also including anything else than Managed Memory. If the application setup is indeed the maximum anticipated load, Working Set Peak is roughly the amount of physical memory that should be available for this application at all times.
  - If the memory requirement is very high, an alternative is of course to configure (e.g. the Asset Manager) to be less memory demanding.
  - If Total committed Bytes (Managed Memory) comes near or over the Working Set size, serious performance degradation is very likely. A snapshot check of this kind can easily be made in Process Explorer at any time a .NET application is performing very slowly.
- Other useful indicators are .NET CLR Memory / % Time in GC versus Process / % Processor Time. The first should not be more than 10% of the latter on average (meaning that no more than 10% of CPU should be used for .NET Garbage Collections). Otherwise it indicates that the process is subject to physical memory shortage.
- Another good indication of possible memory shortage on the entire machine is Commit Charge (K) Peak as can be seen in Process Explorer (View / System Information). Please see: white paper ***Memory usage when using SimCorp Dimension*** for further information.

9.5.13 Crashes When Certain GUI Forms Exceed Windows GUI Object Limits

For legacy reasons, Windows has some relatively low limits for the number of certain GUI objects (actually due to backwards compatibility with 16 bit Windows). These are known as “USER Objects” and “GDI Objects”, and can be displayed in Task Manager. The default per-process limit is 10,000 for each of these objects. In addition to the per-process limit, there is a total limit per session of 32,768 User Objects and 65,535 GDI Objects. A session is basically a login context with an associated desktop. Task Manager can show the Session ID for each process, so the limit applies to the sum of either USER or GDI Objects having the same Session ID.

In SimCorp Dimension, various “Manager” forms are configurable with different layouts. In some cases, very “rich” layouts can consume quite a lot of mostly USER Objects, but potentially also GDI Objects. A combination of rich layouts and / or several concurrent instances of these forms can lead to USER or GDI Object exhaustion, which in turn can trigger anything from a specific error pop-up to a regular process crash (depends on where in the program flow the limitation is hit). This typically happens during opening forms or other actions where GUI objects are being created.

Use Task Manager to identify if this is actually the issue. In the Details or Processes (Windows 7/2008 R2) tab , View / Select Columns, and add Session ID, User Objects and GDI Objects. Monitor the Object values for the dya.....exe process while a new form is opened. Depending on the increase, a rough estimate can be made on how many forms of the same type can exist within the same process. If the Object consumption per form combined with the desired number of instances is close to or above the 10,000 limit, any or all of the following workarounds can be applied:

1. Consider reducing the “richness” of the layout to reduce GUI Object consumption per instance of a form.
2. Consider increasing the default 10,000 limit to the maximum 18,000 possible. This can be done in the Registry setting HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Windows\USERProcessHandleQuota, where 10000 is replaced by 18000 (decimal). Reboot the machine to make the new value effective.
3. Note that the above increases the per-process capability, but the 32k USER Object limit within a session remains. Consider separating GUI heavy SimCorp Dimension instances to different sessions if applicable.

Apart from the above specific Object count limits, there are also more subtle memory limits that can influence the number limits in a negative direction. This is more likely for GDI than USER Objects. For more in-depth technical insight, please refer to the articles “Pushing the Limits of Windows: USER and GDI Objects – Part 1 and Part 2” by Mark Russinovich (Microsoft Sysinternals). URLs: http://blogs.technet.com/b/markrussinovich/archive/2010/02/24/3315174.aspx , http://blogs.technet.com/b/markrussinovich/archive/2010/03/31/3322423.aspx

See also: Windows reports “Error creating window handle. (Win32Exception)” below

9.5.14 Windows reports “Error creating window handle. (Win32Exception)”

SimCorp Dimension may under some circumstances crash and produce an error log file with the header “Error creating window handle. (Win32Exception)”. The problem is reported when the process exceeds the maximum number of handles per process. The default value for this setting is 10.000.

To prevent the system from crashing you can increase the setting using the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Windows\USERProcessHandleQuota
```

The setting can be between 200 and 18.000.

Increase the setting to e.g. 18.000 for the user who has the problem.

We recommend you report the problem to SimCorp using the Operational Data Assistant. This helps determining the applications where the issue occurs.

For further details please refer to http://msdn.microsoft.com/en-us/library/windows/desktop/ms725486(v=vs.85).aspx

See also: Crashes When Certain GUI Forms Exceed Windows GUI Object Limits.

9.5.15 Task Manager Details view can trigger GUI CPU Usage while idle

Windows versions newer than Windows 7 / 2008R2 have a Task Manager / Details view that resembles the prior Windows version Task Manager / Processes view. Do not apply an active Task Manager / Details view together with SimCorp Dimension GUI forms for more than very limited investigations. Under some circumstances, it has been observed, that the dya….exe process CPU is continuously active just having the mouse cursor located on such a form (without any further activity). This can have a negative impact on CPU resource availability, especially when resources are shared on e.g. a Citrix Server.

For monitoring purposes while using SimCorp Dimension GUI forms, use either the Processes view instead of the Details view in Task Manager, or other tools like Process Explorer. This behavior has not been observed on Windows 7 / 2008R2 even though the Task Manager Processes view very much looks like the Details view on newer Windows versions.

9.5.16 Internet Protocol version 6 (IPv6)

SimCorp Dimension does not offer support for IPv6. IPv6 is primarily used to provide more host addresses which have less importance to private networks compared to the needs in the public internet address space. IPv6 is a prerequisite for accessing services via Microsoft DirectAccess, however in such a scenario Microsoft recommends to use the Microsoft Unified Access Gateway (UAG) to provide the functionality of providing the IPv6 to IPv4 translation.

Support of IPv6 in SimCorp Dimension is continuously evaluated.

9.6 Oracle RDBMS

9.6.1 Redundant Connection for Communication Server

The Communication Server uses Oracle Streams Advanced Queuing for internal communication in SimCorp Dimension. The Communication Server Mediator component is a multithreaded .NET application, which manages a set of Oracle Advanced queues - one for each SimCorp Dimension port defined in the **Parameter Setup** form.

Part of the management includes checking if it is possible to connect to the database first and then creating the port afterwards. This process can take a few moments and it is possible that more than one database connection could be created for a single port. This connection will not be disposed of but kept in the connection pool and would thus give a DBA the impression that there is an extra redundant connection. By reloading the mediator application it can be observed that the number of connections also grows. The only way to empty the connection pool is to completely restart the Communication Server. All connections will be discarded and restarting the server will create a whole new connection pool.

9.6.2 TNS: Could not Resolve Service Name

Please be aware that if parentheses are included in the netroot folder name or path for SimCorp Dimension it will not be possible to start the installation and the following error message will be produced: “Logon failed - unable to connect ORA-12154: TNS: Could not resolve service

name". SimCorp Dimension does not support parentheses in the folder structure naming. Please refer to section File Server - folder structure on page 87.

9.6.3 User Creation Fails When Password Verification Function Is Used

If an Oracle Password Verification Function is used, the flag Default password must be set in **System Security Options**. This will ensure that a prompt for password is shown when a user is created or has his password reset.

If the default password checkbox has been ticked in **System Security Options** you need to add a default password when you are running the `SYNCDBUSERS` command after for example a copy from production to test. Example: `...\sctest\Bin\scd.exe -np -job=SYNCDBUSERS -datpwd=<SCDATPW> -defaultpwd=<Xyz1>`

9.6.4 Using DISM May Cause Application or System to Hang

This issue has been observed on database platform Sun Solaris running Dynamic Shared Memory (DISM) on OS version: SunOS dbsrv15 5.10 with kernel patch older than 118833-36.

The symptoms can be described as the instance "hanging" when starting an Oracle instance. After a little while, also other applications on the machine get irresponsive and in the end, the OS hangs and a reboot is necessary.

Sun has identified this as bug no. 6367660 "segspt_dismpagelock() loops indefinitely". The bug is fixed in kernel patch no. 118833-36.

9.6.5 Parent Row Delete Does Not Influence Index Monitoring

When Oracle checks if it is ok to delete a parent row (that there are no children) it uses the foreign key index if present. However the index will not be marked as "Used". If such an index is deleted Oracle will need a full table scan in order to check if it is safe to delete the parent.

9.6.6 Locked Statistics May Cause SimCorp Dimension to Fail

SimCorp Dimension patch, upgrade and the tasks **Verify Database Structure** and **Database Performance Maintenance** can fail if Oracle statistics on SimCorp Dimension tables or indexes have been locked.

Note

Per default Oracle queue tables are created with statistics locked. This is also the case for queue tables created by SimCorp Dimension when creating the various Advanced Queues in the system. Locked statistics on these queue tables will not trigger the above described failure. The statistics should remain locked and does not require statistics gathered.

9.6.7 Sequences Skipping Large Intervals

SimCorp Dimension is caching sequences in order to optimise performance when inserting new data. In certain situations if there is a large load (a high amount of parsing) on the Shared Pool, for example in an environment where many reports run concurrently with normal business transactions,

the sequences may be aged out of Shared Pool frequently (pushed out of memory) and thereby resulting in gaps in the sequence values and the value numbers increasing fast.

The Oracle Shared Pool Advisor (SYS.V_$SHARED_POOL_ADVICE) can be used to determine an appropriate size for Shared Pool. It must be noted though, that Oracle on instances with a heavy load on the Shared Pool frequently advice sizes above the reasonable limit within the available capacity. SimCorp Dimension normally benefits more from a higher DEFAULT cache (DB_CACHE_SIZE) than from an extreme Shared Pool. In such situations, to minimise the possibility of gaps in sequence numbers, these sequences can be marked so they are kept in memory and no longer candidates for being aged out of Shared Pool. This can be done by creating a procedure as shown in the example below and calling the procedure from a start-up trigger. The trigger could, for example, be made in the SYSTEM schema:

```
CREATE OR REPLACE PROCEDURE pinSeqOnStartupProc IS
   /* Pin the cached sequences to avoid unnecessary
gaps in sequence numbers due to cached sequences being
aged out */
CURSOR seqNameCur IS
SELECT Sequence_Owner Owner,Sequence_Name Name
FROM   ALL_SEQUENCES
WHERE  Sequence_owner = 'SCDAT'
AND    Cache_Size > 1
AND    Last_Number > 50 * Cache_Size /* Only cache
sequences that has actually been used */
;
BEGIN
FOR seqCur IN seqNameCur LOOP
  SYS.Dbms_Shared_Pool.Keep
(seqCur.Owner||'.'||seqCur.Name,'Q');
END LOOP;
END;
/
CREATE OR REPLACE TRIGGER pinSeqOnStartup
  AFTER STARTUP ON DATABASE
   /* Call procedure to pin the cached sequences to
avoid unnecessary gaps in sequence numbers due to
cached sequences being aged out */
BEGIN
pinSeqOnStartupProc;
END;
/
```

SCDAT should be replaced by the relevant name of the SimCorp Dimension data owner where applicable.

9.6.8 SQLNet Trace Files Cannot Be Written To \bin\log\ Due to ADR

The Oracle Instant Client have been seen to prevent SQLNet trace files from being output, a problem related to Automatic Diagnostics Reporting (ADR) feauture. Sqlnet.log file shows how SQLNet fails to create an ADR directory structure:

```
Create Relation ADR_CONTROL
Create Relation INC_METER_IMPT_DEF
Create Relation INC_METER_PK_IMPTS
Directory does not exist for read/write
[C:\oracle\oracle12c\log]
[C:\oracle\oracle12c\log\diag]
```

SQLNet expects a known folder structure to be present, but the expected top level folder structure is not there or cannot be found (for instance because current folder on Windows is something else) and therefore SQLNet cannot add a `\diag` sub-folder to it.

A solution:

1. Leave ADR enabled within sqlnet.ora.
2. In addition, define ADR_BASE, for instance: `ADR_BASE=C:\oracle\oracle12c\NETWORK\log`
3. Connections now create the ADR repository structure in: `C:\oracle\oracle12c\NETWORK\log\oradiag_xyz\diag\clients\user_xyz\host_3809771380_11`.
4. SQLNet.log and trace files are output within the `trace\` sub-folder.

Please also refer to the Oracle Net services Reference Guide at http://docs.oracle.com/database/121/NETRF/E17611-13.pdf for more information.

9.6.9 ORA-20984 : SCD_USER_CONSTRAINTS is missing after it has been installed

If for some reason the SCD_USER_CONSTRAINTS view is missing from the database an error will occur when Align Objects tasks are performed. Please see Align Objects on page 108 for further information about Align Objects tasks.

If the view is missing an Oracle DBA needs to create the view as described in section Viewing User Constraints – Optimised View on page 136. After the view is created it is necessary to connect as the `datowner` and drop the package T_VERSION_S and afterwards force the package to be recreated using **Verify Database Structure** from inside SimCorp Dimension.

9.6.10 Executing Statistics Gathering following Upgrade may cause Performance Instability

When Oracle statistics are gathered using SIZE AUTO in METHOD_OPT Oracle automatically determines when to create column histograms based

on the database workload information. If a column has never been used in a query Oracle won't create a histogram for that column. Technically, Oracle keeps track of column usage by making an entry in sys.col_usage$ for the object id when the column is first used in a predicate.

The SimCorp Dimension upgrade creates the new version of a table by creating the 'new' table and copying data from the 'old' and then deleting the 'old' table. This implies that the 'new' table gets another object id, and from an Oracle perspective this means that the table (and thereby its columns) has never been referenced in SQL statements – there is no workload information on the columns yet. Therefore the upgrade process will for each table being changed, collect statistics using SIZE SKEWONLY in METHOD_OPT. This way the upgrade ensures adequate histograms on the SimCorp Dimension tables despite workload information not being available until the system has been used for a period of time.

In this respect it is also important to note, if statistics are gathered with SIZE AUTO following the upgrade, but before a proper SimCorp Dimension workload has been executed, you risk losing the histograms otherwise secured by the upgrade. The same risk applies to SimCorp Dimension tasks run very infrequent, where there is a likelihood the scheduled Oracle statistics job will run sooner than the first execution of the task following the upgrade.

From the application perspective, the symptom is certain functionality on its initial run, following the upgrade, performs inadequately. The problem rectifies itself at a later time, which coincides with the Oracle statistics job has been run in the period in-between.

For this reason it is also strongly recommended to refrain from gathering Oracle statistics immediately following a SimCorp Dimension upgrade, but allow the system time to obtain adequate workload information.

To establish when statistics were last gathered on a given table, as the data owner you can use:

```
SELECT TO_CHAR(LAST_ANALYZED, 'DD-MON-YY HH24:MI')
FROM USER_TABLES
WHERE TABLE_NAME ='<table name>';
```

If the time is later than the end time of the SimCorp Dimension upgrade, it indicates that statistics have been gathered on the table following the upgrade.

To establish if a given column has histogram, as the data owner:

```
SELECT HISTOGRAM
FROM USER_TAB_COL_STATISTICS
WHERE TABLE_NAME='<table name>' AND COLUMN_
NAME='<column name>';
```

To view the histograms for given column, as the data owner:

```
SELECT ENDPOINT_NUMBER, ENDPOINT_VALUE
FROM USER_HISTOGRAMS
WHERE TABLE_NAME =  '<table name>' AND COLUMN_
NAME='<column name>';
```

9.6.11 Connecting to Oracle through Shared Server seriously impact performance.

Tests in SimCorp has revealed severe runtime overhead if the SimCorp Dimension database sessions are connected through Oracle Shared Servers as opposed to dedicated server.

The Oracle Shared Server Architecture is designed for applications with numerous client connections to limit the memory footprint as the amount of clients increases more than available server resources can be scaled. Shared Server is best fitted applications making short sporadic transactions and where the rate of client connections and disconnections are high, whereas long running queries are best in Dedicated Server mode. A SimCorp Dimension database session is established at application start-up and not disconnected until the application is closed down, and the database activity is a mix of shorter transactions and longer running queries. For some types of sessions the application idle time is very low.

To identify if Shared Server has been configured for the SimCorp Dimension connections, the following SQL statement can be used:

SELECT name, value FROM v$parameter WHERE name IN ('shared_ servers','dispatchers', 'service_names');

If shared_servers is 0 the connections to the database are through dedicated server.

If shared_servers is >= 1 it depends on the values in ‘dispatchers’:

- If dispatchers=“(PROTOCOL=tcp)”, and service_names includes the service to which the SimCorp Dimension session connects, connection is done through Shared Server
- If dispatchers=“(PROTOCOL=tcp)(SERVICE=<service name>)” and <service name> is equal to the one used by SimCorp Dimension, connection is done through Shared Server.
- If <service name> isn’t equal to the one used by SimCorp Dimension, the connections are done through Dedicated Server.

To identify the service name used by the connections from SimCorp Dimension:

- If the Cnf.ini parameter dbname is specified use Oracle utility Tnsping <dbname>, or look directly in the tnsnames.ora file, and view the SERVICE_NAME entry for the dbname alias.
- If the Cnf.ini dbconnect* parameters are used, look at the dbconnectservice entry.

To ensure SimCorp Dimension connections are done as Dedicated Server connections, a few options are available:

- If Shared Servers configuration is not required by other database connections, set shared_servers=0 on the database, or remove the dispatches entries from the database initialisation parameter file
- Remove dispatches="(PROTOCOL=tcp)" if such exist.
- Ensure the service name used by the SimCorp Dimension connections does not appear in the dispatchers entry.
- Add SERVER=dedicated to the CONNECT_DATA part of the tnsnames.ora entry for the SimCorp Dimension dbname (this option is unavailable if the Cnf.ini dbconnect* parameters are used).

For further information on Shared or Dedicated Server configuration please refer to the Oracle® Database Net Services Administrator's Guide.

9.6.12 Updates to the Order Manager client are delayed if INBOUND_CONNECT_TIMEOUT is specified in OM server's SQLNET.ORA

When working in the Order Manager client the panels/blotter may not be updated after carrying-out any of the functions that rely on Oracle notifications for their updates. This includes:

- Accepting from the inbox
- Placement
- Manual fills
- Allocation
- Aggregation

No errors are seen but after a subsequent process is carried-out the update will appear & the client is updated as expected.

The problem is caused by having the INBOUND_CONNECT_TIMEOUT parameter specified in a SQLNET.ORA file that is local to or centrally accessed by the Order Manager server. Depending on the value of this parameter it will cause the Oracle notification connection, from the Oracle server to the Order Manager management or message bridge servers to disconnect after the given period (seconds). If the connection is disconnected at the same time as an Oracle notification is received by the Order Manager server then this notification is lost.

Remove the INBOUND_CONNECT_TIMEOUT parameter from the SQLNET.ORA file on the Order Manager server or set its value to 0 (zero). A restart of the Order Manager services will be required after making this change.

9.6.13 Patching an Oracle Database 12c instance fails with ORA-01017

When patching an instance using the utility datapatch it will fail unless OS authentication is setup for the user executing the utility. The issue is caused by bug 18151716. Oracle Support Document ID 1635007.1 describes the issue further and provides a workaround.

9.6.14 Deadlock, ORA-742 "Log read detects lost write" or ORA-600 [kcrfrgv_nextlwn_scn] during instance OPEN, preventing database start up

This issue is relevant for anyone running the Oracle database on IBM AIX.

We have identified a serious issue with ORACLE on IBM AIX RDBMS Version 12c both 12.1.0.1 and 12.1.0.2. On Oracle's recommendation, clients running the database on this platform should Apply Patch 21915719 to prevent this issue from happening.

Note

Note that once that the patch is applied, parameter _use_single_log_writer=true is no longer needed and the default value of false should be used.

The patch does not repair the inconsistency in the online redo log causing the ORA-600 but prevents it. For more information, please read the Oracle official document (Doc ID 1957710.1) available on My Oracle Support

9.6.15 ORA-00600 [kgl-heap-size-exceeded]

Please be aware of this error: ORA-00600 internal error code arguments: [kgl-heap-size-exceeded]. This error can occur on 12c. The error has typically occurred in SimCorp Dimension upgrades or **Verify Database Structure**, but could potentially occur anywhere. It is due to Oracle Bug 19708342. On a case from SimCorp Oracle Support gave the following workaround which fixed the actual database:

Set "alter system set "_kgl_large_heap_warning_threshold"= 750000000

and "_kgl_large_heap_assert_threshold"=1500000000

and increased Shared_pool_size to 10G.

This work-around is of course scaled to the database in question, so please don't apply this work-around indiscriminately.

Another work-around suggest by MOS article "Bug 19708342 - Package compilation fails with ORA-600 [KGL-heap-size-exceeded] (Doc ID 19708342.8)" is to set the above mentioned underscore parameters to 0.

9.6.16 Performance slowdown of data extracts following upgrade to 12c

Please be aware of Oracle bug 22077191 which can cause performance issues for DEX loads after upgrading the database to 12c. The bug could potentially also have a negative impact on run times for SimCorp Dimension upgrade, patch and **Verify Database Structure**, if tables are being "full copied".

According to My Oracle Support (MOS) note: Bug 22077191 - SubOptimal execution plan (Costly Nested Loop / Can't force Hash Join) on Create Table As Select / INSERT SELECT with ANSI Joins (Doc ID 22077191.8), the bug is fixed with 12.1.0.2.160119 (Jan 2016) Bundle Patch for Windows Platforms, meaning the bug fix is included in the minimum version for 6.0 on Windows platform. The bug fix is also ready-available on MOS for several other platforms.

Please refer to the above mentioned MOS note for a description of the bug and how to identify if your symptoms fit the bug.

9.6.17 Sessions fail with ORA-20001: Latest xml inventory is not loaded into table

In SimCorp Dimension version 6.0 the method was changed for how the application checks for Oracle required patches. SimCorp Dimension now uses the Oracle SYS.DBMS_QOPATCH package instead of SCDXMLDIR.

If your receive a database error displaying ORA-20001: Latest xml inventory is not loaded into table, please engage your DBA.

The error can be result of faulty database software configuration or Oracle platform specific bugs. My Oracle Support (MOS) article: Queryable Patch Inventory - Issues/Solutions for ORA-20001: Latest xml inventory is not loaded into table (Doc ID 1602089.1) provides some suggestions.

The following SQL (resembling the query from SimCorp Dimension) can be used for reproduction and troubleshooting:

```
WITH a AS (SELECT SYS.DBMS_QOPATCH.get_opatch_bugs bugs_output
FROM DUAL)

SELECT x.bug_id

FROM a,

XMLTABLE('buginfo/bugs/*'

PASSING a.bugs_output

COLUMNS

bug_id number path '@id'

) x;
```

9.6.18 ORA-01792 raised even though table or views have less than 1000 columns

If you receive ORA-01792 "MAXIMUM NUMBER OF COLUMNS IN A TABLE OR VIEW IS 1000" and the failing query does not select that many columns, it can be due to Oracle bug 19509982.

Patches for the issue do exist on My Oracle Support (MOS). Alternatively, see MOS article: Bug 19509982 - Disable raising of ORA-1792 by default (Doc ID 19509982.8) for a work-around.

9.6.19 Oracle Scheduler cannot start any jobs

If a SimCorp Dimension upgrade is unintentionally interrupted or otherwise stopped mid-process, you risk it will not be possible to restart the upgrade because the Oracle Scheduler is unable to schedule and execute jobs. This is due to Oracle bug 23708892. If you end in this situation the only viable work-around is to restore the database back to a point before the upgrade was initiated. The bug is fixed by either applying Oracle patch 23708892 or patch 26101140. When the database is on Windows platform, bugfix 23708892 is included in the minimum bundle patch required from SimCorp Dimension 6.2. If your database platform is Unix/Linux you are strongly

encouraged to obtain either patch for 23708892 or 26101140 from My Oracle Support.

The following symptoms can be observed in the situation where restart of the upgrade fails:

- select count(*) from DBA_SCHEDULER_CHAIN_STEPS where owner='<data owner>' returns 0
- select count(*) from DBA_SCHEDULER_CHAIN_RULES where owner='<data owner>' returns 0
- select count(*) from DBA_SCHEDULER_PROGRAMS where owner='<data owner>' returns a relative high number (thousands)
- select count(*) from DBA_SCHEDULER_RUNNING_JOBS shows 0 jobs are running
- select * from DBA_SCHEDULER_JOB_LOG order by log_date desc shows that the latest entry in the scheduler log is a stop chain call
- select * from DBA_SCHEDULER_JOBS where owner='<data owner>' will show a lot of sub jobs (chain steps). These are normally cleared up when a chain is stopped, but not here due to bug 23708892.
- Execute the following 'dummy' job:

  ```
  begin
        DBMS_SCHEDULER.CREATE_JOB(
              job_name => 'myjob',
              job_type => 'PLSQL_BLOCK',
              job_action => 'BEGIN NULL; END;',
              enabled => TRUE);
  end;
  /
  ```

  The procedure completes successfully, but if you: select * from DBA_SCHEDULER_JOB_LOG order by log_date desc you will see that the latest entry in the log is still the stop chain call from earlier. In other words no more jobs are being processed by the Scheduler.

The issue can potentially also happen during SimCorp Dimension patch apply or Verify Database Structure.

9.6.20 Missing statistic on Oracle scheduler background tables

During SimCorp Dimension upgrades and executions of **Verify Database Structure** there have been issues of missing statistics during execution of Oracle scheduler. The issues are caused by internal tables (all related to Rules) by default have limited number of rows. When an upgrades inserts for example 20000 rules the statistics are no longer valid and the optimizer chooses wrong plan for execution.

Oracle Support have tried to provide workarounds for the issue but none have been usable for integration to SimCorp Dimension due to need of

stronger privileges to the dataowner or because it are causing administrative overhead.

A workaround is to insert fixed statics with Dbms_Stats.Set_Table_Stats and Dbms_Stats.Set_Index_Stats before starting the upgrade or **Verify Database Structure**.

Tables involved are RULE_SET_ROP$, RULE_SET_IOT$, RULE_SET_RE$, RULE$, RULE_SET_FOB$, RULE_SET_EE$ and these tables' indices.

If rowcnt is >= 200,000 there is no need to change

If rowcnt is <=200,000 you can either

1. set rowcnt to 200,000 and avgrln to 37 for all above listed tables and indices or
2. you can ask your local SimCorp technical upgrade consultant for a script to align statistics, the script have to be executed as Oracle SYS owner, The script will update with appropriate statistic values for the involved tables and indices.

9.6.21 ORA-07445 [kkqctIsPushableSharedPredVG() +1601] after upgrade to 12.2 and AO is not able to start scheduler job

On Windows platforms Oracle internal bug 27939669 can cause the Oracle Automatic SQL Tuning task to fail with the above shown ORA-07445 argument. The error is noted in the database alert log following entry for: Begin automatic SQL Tuning Advisor run for special tuning task "SYS_AUTO_SQL_TUNING_TASK". Oracle has ficed the but in WINDOWS DB BUNDLE PATCH 12.2.0.1.180717.

SimCorp has worked together with Oracle support, testing the work-arounds suggested in My Oracle Support article: Query Raises ORA 7445 [kkqctIsPushableSharedPredVG] in 12.2 (Doc ID 2371157.1). Unfortunately none of them have proven feasible in the case of the Oracle automated maintenance tasks. The only way to work-around the issue is therefore to disable the Automatic SQL Tuning task from the Oracle maintenance window where it is scheduled to run, e.g.:

```
BEGIN

dbms_auto_task_admin.disable(client_name => 'sql tuning advisor',
operation => NULL, window_name => NULL);

END;
```

A consequence of the error is that the Oracle Scheduler is unable to spawn job-processes. From SimCorp Dimension perspective this shows up as AO (Align Objects) not being able to start jobs (e.g. when patching, upgrading, verify database structure). Once the database ends in this situation, a bounce of the database is required in order to get the Scheduler working again.

9.6.22 Starting SimCorp Dimension fails with "Could not load file or assembly 'Oracle.DataAccess'

During startup SimCorp Dimension will load Oracle DLLs with a specific version, from the bin folder. However, the .NET framework may override

what DLLs to load and if incompatible versions are loaded, SimCorp Dimension will fail with the above-mentioned error. One of such places were an override can be specified is in the .NET framework configuration file “machine.config” which specifies machine-wide settings. The “machine.config” file is placed in the folder “C:\Windows\Microsoft.NET\Framework64\v4.0.x\Config”.

Oracle software installation process does in some cases write to “machine.config” and in some cases, that might interfere with SimCorp Dimension. If you encounter the above-mentioned error check the file for a “section” element placed in “configuration/configSections”:

<configuration>

<configSections>

<section name="oracle.unmanageddataaccess.client" …..

Either remove or comment out using the entire “section” element

9.6.23 Enterprise Manager Express causing grant statements to fail with ORA-04021

On several occurrences SimCorp has seen issues with GRANT statements failing with ORA-04021 “timeout occurred while waiting to lock object %”. GRANT statements are issued in:

- **Database User Schema Administration** (during creation of a new schema)
- **Verify Database Privileges** (if missing/redundant privileges are added/revoked)
- during upgrades.

When the issue occurs the GRANT statement will be waiting to acquire the lock, only to time out after five minutes (default) and report ORA-04021. SimCorp has identify that in multiple occurrences the blocking sessions are created by users logging on using Enterprise Manager Express. The user appears to be no longer connected, however, the session is still present in the database and is locking objects. In these situations, SimCorp has found no other workaround than to restart the database. Killing the session using ALTER SYSTEM command, and other solutions have had no effect. Please refer to MOS note 1486712.1 for details on how to analyse the lock situation and MOS note 2054798.1 for details on Enterprise Manager Express making locks in the database.

9.6.24 ORA-3113 in SimCorp Dimension with ORA-7445 [kkqctIsPushableSharedPredVG] in the Oracle alert log

If the SimCorp Dimension database is on a Windows host and on release 12.2 between version 12.2.0.1.180116 and 12.2.0.1.180417, then the above error can occur. It is due to Oracle bug 26639937 and work-around can be done by setting "_fix_control" = '19503668:off' in the database. Oracle has included the bug fix with the 12.2 July 18 release update. For more information please refer to My Oracle Support: Query Raises ORA 7445 [kkqctIsPushableSharedPredVG] in 12.2 (Doc ID 2371157.1).

9.7 SAP Crystal Reports

9.7.1 Missing Compatibility in Crystal Reports

Crystal Report has, in a number of cases, been used as an interface tool for generating export files from SimCorp Dimension.

However, Crystal Reports does not guarantee format compatibility with older versions and this may – when upgrading (for instance from Crystal Reports 2008 to Crystal Reports 2011) – result in a situation where an export interface suddenly does not work any longer. Therefore, it is strongly recommended that you avoid using Crystal Reports for such purposes.

9.7.2 Crystal Reports on Citrix/Terminal Server

Crystal Reports have not been tested in the Citrix and Terminal Server environments by the vendor SAP. Therefore, troubleshooting issues in these environments is limited by the ability to reproduce the issue in a non-Citrix/Terminal Server environment such as a local desktop computer. Please see known issue SimCorp Dimension Freeze when printing from Citrix XenApp 6.5 at Windows Server 2008 R2

9.7.3 Crystal Reports and Automatic Smart Linking

Recent versions of Crystal Reports have the option **Automatic Smart Linking** enabled as default. When having this option enabled on a database with a structure such as SimCorp Dimension, there is a risk that Crystal Reports will run considerably slower.

Disabling **Automatic Smart Linking** in Crystal Reports is done by clearing the **File/Options/Database/Advanced Options** check box within Crystal Reports.

9.7.4 Missing Crystal Reports Installation File on Windows Server 2008 R2

If SimCorp Dimension is running on Windows Server 2008 SP2, report execution may fail with varying error messages if a valid default printer has not been installed on the executing machine. The error text may include “invalid printer” or “missing SmAgentApi.dll”.

Please note that this also concerns reports not actually being printed.

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