A MITEL
PRODUCT
GUIDE

Unify OpenScape 4000 Assistant/Manager

Backup and Restore

Administrator Documentation
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Mitel

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1 Backup & Restore - Overview

'Backup & Restore' as a component of **OpenScape 4000 Assistant/Manager** saves configuration data or software from RMX and Linux applications to a backup copy file, and restores the data upon request. 'Backup & Restore' thus ensures that an accurate backup copy of the data and/or software will be available in the event of a system fault.

SFTP Servers for Backup & Restore

SFTP stands for Secure FTP based on SSH. The following SFTP servers have been reported to work with Backup & Restore:

on Linux:

- OpenSSH

on Windows

- OpenSSH based on cygwin
- SilverSHielD SSH/SFTP Server

NOTICE: Unify can not provide support for problems caused by the SFTP server software itself.

Related Topics

The User Interface of Backup & Restore

Functionality Overview

Functionality

Step by Step Instructions

Appliance Management Backup & Restore

The Appliance Management in OpenScape 4000 Assistant provides a GUI for the RISO (Recovery ISO) image creation. RISO can backup every appliance of a given OpenScape 4000 system, including host nodes, Quorum, Standalone/ Survivable/Integrated Softgate and AP-Emergency (APE).

The recovery process from the RISO image is identical to a fresh installation: it formats the hard disk, reinstalls and configures the whole system.

For more information, please see **OpenScape 4000 Assistant/Manager, Appliance Management, Administrator Documentation**.

Recovery Hard Disk

The OpenScape 4000 Platform configuration Portal provides Recovery HD functionality which enables to create a bootable hard disk including LINUX operating system and complete OpenScape 4000 appliance software.

In case of a total system failure (i.e. both node boards are defective), the Recovery Hard Disk can be used to restore the telephony functionality.

For more information, please see the chapter 4.3 of **OpenScape 4000, Platform Administration (Portal), Administrator Documentation**.

1.1 The User Interface of Backup & Restore

Starting Backup & Restore via the Start Page of OpenScape 4000 Assistant/ Manager

The Toolbar of Backup & Restore

1.1.1 Starting Backup & Restore via the Start Page of OpenScape 4000 Assistant/Manager

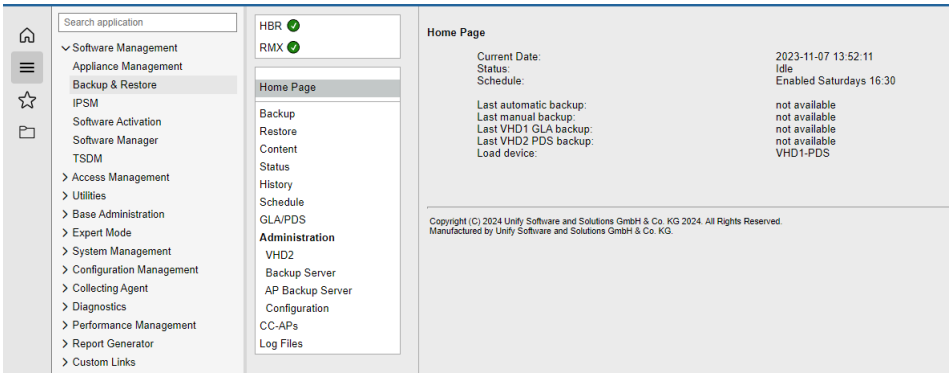
After logging on to the web server the Start Page of **OpenScape 4000 Assistant/Manager** will be displayed. The **'Backup & Restore'** application is located in the **Software Management** area. Click on **Software Management** to expand its contents and thus show the applications available in this area. Clicking on **Software Management** again will collapse the contents of this area, thus hiding the applications.

To start **'Backup & Restore'**, click the following link on the OpenScape 4000 start page:

- **Software Management –> Backup & Restore**

The Backup & Restore Home Page will be displayed.

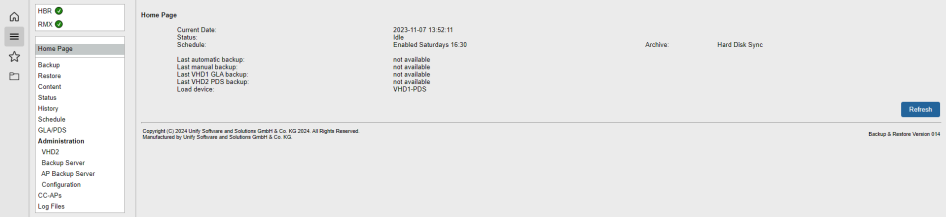
Starting Backup & Restore in OpenScape 4000 Manager/Assistant



1.1.2 Starting Backup & Restore with SSO activated

When SSO is activated, the **Backup & Restore** features can only be executed under certain circumstances:

- On a Master, Backup & Restore works normally (apart from that it can take up to 5 minutes of waiting time before SSO releases the lock.
- On a Slave, Backup & Restore is deactivated. In this case, only the **Home Page**, **Status**, **History** and **Log Files** options are displayed in the Navigation pane of the **'Backup & Restore'** homepage.



To re-activate the full functionality of ’Backup & Restore’ on a Slave, SSO has to be de-activated.

1.1.3 The Toolbar of Backup & Restore

The toolbar is displayed in all Backup & Restore dialogs.

The Backup & Restore toolbar contains the following symbols:

Help	Opens the online help and displays the help content topics.

1.2 Functionality Overview

The browser-oriented user interface will enable you to execute the following **functions**:

- **Backup** (see Backup page 17)
- Backs up specifically selected backup units or the entire RMX/UNIX system and/or configuration data to a medium (VHD1, VHD2 or tape) or to a backup server,
- **Restore** (see Restore page 37)
- Restores a backup set (consisting of several backup units) from a medium (VHD1, VHD2, or tape) or from a backup server,
- **Content** (see Content page 42)
- Displays the contents of an archive or of all archives
- **Status display** (see Status page 46 and History page 49)
- **History** (see History page 49)
- Displays the status list of the last 25 backup/restore operations
- **Schedule** (see Schedule page 50)
- Defines when and how often an automated backup cycle is executed
- **GLA/PDS (on OpenScape 4000 Assistant only)** (see GLA/PDS (on OpenScape 4000 Assistant only) page 54)
- Is only available on the OpenScape 4000 Assistant and exclusively refers to RMX-specific backup/restore processes
- **Administration (of external devices)**

- – **VHD2** (see Administration – VHD2 (on OpenScape 4000 Assistant only) page 59)
  – **Backup Server** (see Administration – Backup Server page 61)
  – **AP Backup Server** (see Administration – AP Backup Server page 64),
- **Log Files** (see Log Files page 73).

Differences between Backup & Restore features in OpenScape 4000 Assistant and OpenScape 4000 Manager

NOTICE: Backup & Restore can be installed on the OpenScape 4000 Assistant or on the OpenScape 4000 Manager. The functionality of Backup & Restore may differ according to the installation environment, i.e. different options and input fields may be displayed on the user interface for certain features. Differences relevant to the user are described and explained in this manual and in the online Help.

Backup & Restore Functional Chart

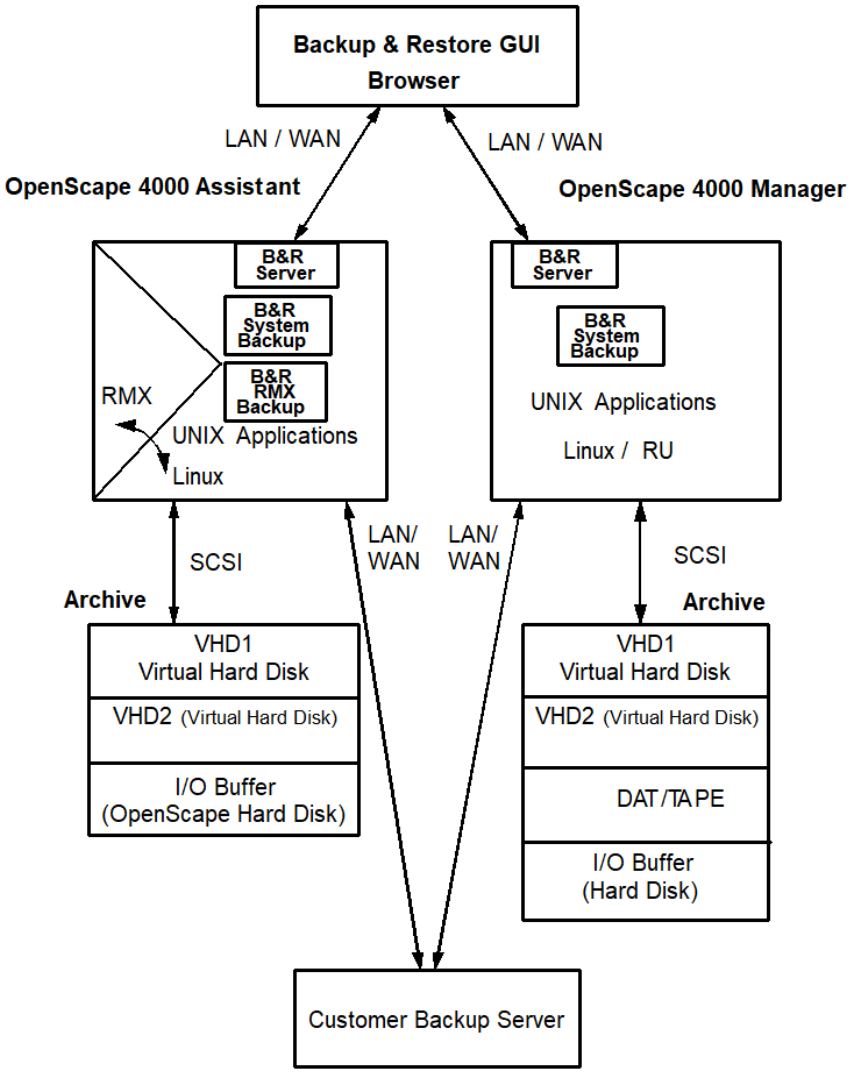


Figure 1: ***Backup & Restore Functional Chart: Overview***

Definition of Terms:

Table 1: Definition of Terms

Archive	A logical device, i.e. a mounted directory in a UNIX file system either on a virtual hard disk (VHD1 or VHD2), or what is referred to as the I/O buffer - a reserved area on the hard disk used for data transfer; or a device that is not mounted such as a DAT/TAPE device, for example, or a remote customer backup server (remote server).
Backup Set	A directory structure that contains software packages (one archive can contain several backup sets). Each backup set in an archive is identified by a three-digit number (within the range 000 to 999).

Package	A group of related files (generally definition files, configuration files and/or important data files which define the configuration of installed software.) This term is mainly used internally within Backup & Restore.
Backup Unit	See “package” above. This term is used in place of the term "package" on the user interface and within the interface for the registration service. **It is possible to define which backup unit each application belongs to.**

Individual backup sets can be saved to different storage media called "archives" (see Archive page 20) (e.g. virtual hard disk, VHD2) and are mainly used for restoring a system after a system error has occurred.

The data that is saved in binary format can also be used on an identical hardware platform for updating the software within the same software version (e.g. OpenScape). If for instance the contents of the Informix database are saved in binary files and no DBEXPORT is performed, then the data can only be used on an identical hardware platform and within the same software version.

Related Topics

The User Interface of Backup & Restore

Functionality

Step by Step Instructions

2 Functionality

The browser-oriented Backup & Restore user interface consists of the following components and functional areas:

Home Page

Backup

Restore

Content

Status

History

Schedule

GLA/PDS (on OpenScape 4000 Assistant only)

Administration – VHD2 (on OpenScape 4000 Assistant only)

Administration – Backup Server

Administration – AP Backup Server

Administration – Configuration

Log Files

Recovery VHD2

Related Topics

Backup & Restore - Overview

The User Interface of Backup & Restore

Step by Step Instructions

2.1 Home Page

The **Home Page** of **'Backup & Restore'** in **OpenScape 4000 Assistant/ Manager** (referred to as Home Page in this publication) is the entry-level page for Backup & Restore. In the navigation area on the left-hand side of the home page you can call up all of the basic **functions** (see Functionality Overview page 9) of Backup & Restore.

Navigation Area

The left hand navigation menu in the window is displayed in all subpages of **'Backup & Restore'** and gives access to the specific functions for the Manager and slightly different for the Assistant.

On the top, the navigation area also displays the status indicators for **Backup & Restore** (and in Assistant additionally for **RMX**):

- the 'stop' symbol
- the 'ready' symbol

The'stop' symbol at **Backup & Restore** indicates that Backup & Restore is not fully up yet. This shows up after booting, e.g. on APE after the restore and

reboot, when some status files must be updated and some processes must be started.

The 'stop' symbol at **RMX** indicates that ADP is not accessible.

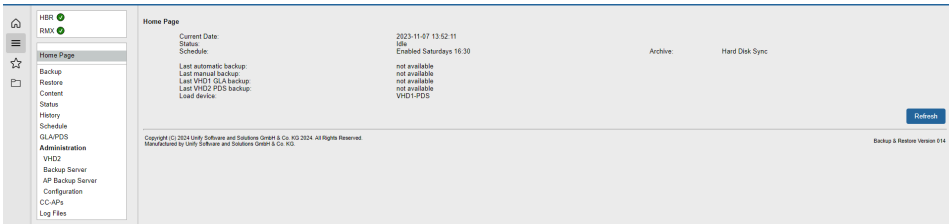


Figure 2: Home Page dialog, Backup & Restore, on OpenScape 4000 Assistant

Content Area

The content area on the right-hand side of the Backup & Restore home page displays information on the current **system status** (see Status page 46).

In some cases it might take a while to prepare some page when launching a function (especially if some AMOs must be executed); during this time the message »*Page loading. Please wait ...*« is displayed in the content area.

The following information is displayed in theright hand content area on the Backup & Restore **home page**:

- **Current Date**

  The current date (format YYYY-MM-DD) and the current time (format hh:mm:ss) of the system are displayed here.
- **Backup & Restore Status** (see Status page 46)

  Displays the current status of the Backup & Restore application.
- **Schedule** (see Schedule page 50)

  Lists the schedule data (time, date, and archive) for automatic backups configured under "Schedule".
- **Last Automatic Backup**

  Displays the date and archive of the last automatic backup procedure.
- **Last Manual Backup**

  Displays the date and archive of the last manual backup procedure.
- **Last VHD1-GLA Backup**

  Displays the date of the last VHD1-GLA backup.

  NOTICE: The status display **Last VHD1-GLA Backup** is only displayed on the version of Backup & Restore installed on the OpenScape 4000 Assistant.
- **Last VHD2-PDS Backup**

  Displays the date of the last VHD2-PDS backup on virtual hard disk VHD2.

  NOTICE: The status display **Last VHD2-PDS Backup** is only displayed on the version of Backup & Restore installed on the OpenScape 4000 Assistant.

- **Load Device**

  Device from which the RMX system data is loaded (VHD1-PDS, VHD1-GLA or VHD2-PDS).

  NOTICE: The status display **Load Device** is only displayed on the version of Backup & Restore installed on the OpenScape 4000 Assistant.

- **Refresh** (button)

  Updates the screen contents.

Related Topics

The User Interface of Backup & Restore

Backup & Restore - Overview

Step by Step Instructions

2.2 Backup

To start the **Backup** process, please proceed as follows:

1) Click on **Backup** on the **Home Page** of **'Backup & Restore'**. The Backup dialog is displayed.
2) Select the **Archive** type (see section Archive on page 20) that you want to specify as backup target by checking the corresponding radio button. You can choose between the following archive types:
3) - **Hard Disk** (see Archive Type: Hard Disk)
   - **Tape**, on OpenScape 4000 Manager only; displayed if the device physically exists (see Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)).
   - **Buffer** (see Archive Type: Buffer)
   - **Backup Server** (see Archive Type: Backup Server)

   Backup Server is only displayed if it is mounted (see Administration – Backup Server on page 61).

   - **AP Backup Server** (only displayed with locally installed Backup & Restore on OpenScape 4000 Assistant). See Archive Type: AP Backup Server (on OpenScape 4000 Assistant only).

   Underlined archives indicate that these archives have already run through the backup process (only on the **Home Page**).
4) Select a **Backup Type** (see Backup Type on page 28) by checking the corresponding radio button displayed in the **Type**area. You can choose between the following archive types:
5) - **Data** (see Backup Set of the Type "Data"),
   - **Logical** (see Backup Set of the Type "Logical"),

- **Access Point Emergency Data** (only displayed with locally installed Backup & Restore on OpenScape 4000 Assistant) (see Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)).

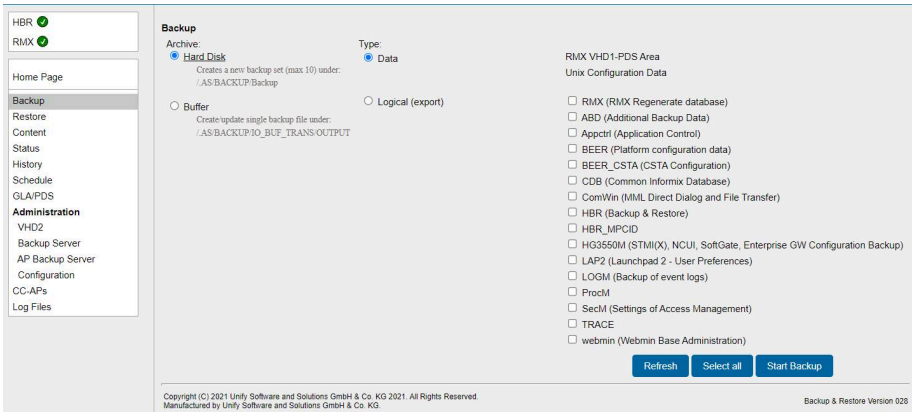


Figure 3: Backup dialog, 'Backup & Restore', on OpenScape 4000 Assistant

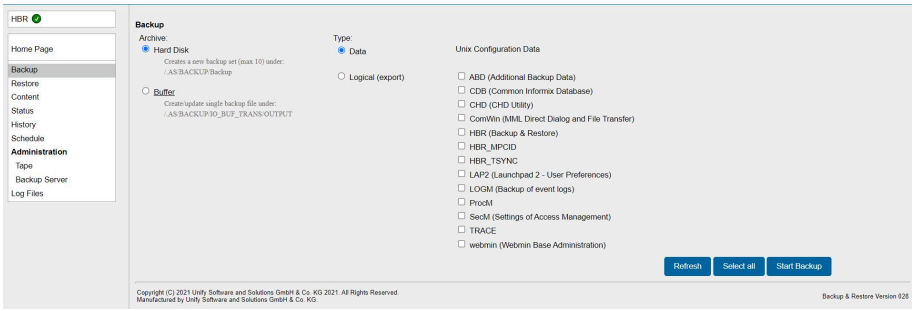


Figure 4: Backup dialog, 'Backup & Restore' installed on OpenScape 4000 Manager

Related Topics

Manual Backup

Preparing the Backup Process

Starting the Backup Process

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.2.1 Archive

"Archive" is the term used to refer to the storage medium for backup copies (backups) under Backup & Restore (see also Definition of Terms:on page 12).

Backup & Restore supports the following archive types (storage media):

- **Hard Disk** (HD) - see Archive Type: Hard Disk.
- **TAPE** (DAT tape drive, on OpenScape 4000 Manager only). The **TAPE** archive type is only available on the version of Backup & Restore installed on the OpenScape 4000 Manager and is optional. See Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only).
- **Buffer** (a logical area on the hard disk). For further information on this topic, please refer to Archive Type: Buffer on page 27.

NOTICE: In this context especially regard the Guidelines for Using the I/O Bufferon page 101.

- **Backup Server** (also referred to as remote server) - if set up. For further information on this topic, please refer to Archive Type: Backup Server on page 24, and Backup Set of the Type "Logical" on page 31
- **AP Backup Server** - see Archive Type: AP Backup Server (on OpenScape 4000 Assistant only).

Maximum values for the number of backup sets per type have been defined in the software for each storage medium.

Related Topics

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.2 Archive Type: Hard Disk

The archive on the hard disk can accommodate the following types of data:

- Manually stored data (1), type: "data"
- Manually stored data (1), type: "logical"
- Automatically stored data (10), type: "data"
- Can contain up to 10 “automatic” backup sets (generated on the basis of a specific algorithm).
- First automatically stored data (generated with the first automatic backup; cannot be overwritten)

Related Topics

Archive

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.3 Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Not more than 1 backup set is permitted. A new backup set overwrites a possibly existing backup set, even if the new backup set belongs to a different type.

The archive on the tape can accommodate the following types of data:

- Manually stored data (1), type: "data"
- Manually stored data (1), type: "logical"

- Automatically stored data (1), type: "data"

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.4 Archive Type: Backup Server

A maximum of 4 backup sets is permitted.

The archive on the backup server can accommodate the following types of data:

- Manually stored data (1), type: "data"
- Manually stored data (1), type: "logical"
- Automatically stored data (1), type: "data"

2.2.4.1 One File Backup (OpenScape 4000 Assistant only)

If the archive type "Backup Server" and the backup type "Data" are selected (and if a backup server is configured), an additional checkbox "One File Backup" is displayed below the "Backup Server" option (in all other cases the checkbox is disabled). Selecting this option enables you to create a single backup data file that can be used to restore the RMX database and the UNIX configuration data (DATA backups). This file is smaller than 5 MB, can be created off site and can be installed on a factory pre-configured system. The feature is restricted to OpenScape 4000 Assistant. The file is created on a (remote) SFTP server and can be transported by any means (e.g via e-mail) on site. The file can be additionally uploaded and restored through the browser.

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.5 Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

The **AP Backup Server** has been introduced as a new type of Backup & Restore archive for Access Point Emergency Data (APE) type backup sets. Any Windows or Unix based server running SFTP (server) or NFS can be used as AP Backup Server. Furthermore, the "Host" server itself or one of the AP servers can act as AP Backup Server.

The archive "AP Backup Server" can hold only one Backup Set of type Access Point Emergency Data (APE). Backup Sets of other types (Data or Logical) are not permitted.

In order to configure the software and data replication, the Unix IP address must be configured using ’Webmin’ first. Afterwards software and data replication can be configured via the **’Backup & Restore’** user interface (GUI).

2.2.5.1 Configuring and Administering the AP Backup Server

For details, please refer to Configuring and Administering the AP Backup Server

Scanning the AP Backup Server

If an AP Backup Server is configured and enabled, each AP scans the backup server every 10 minutes. If the AP is not in Emergency Mode, the ’Backup & Restore’ application checks for a complete, new backup set in the particular directory on the AP Backup Server. If a new Backup Set is found which is not locked by another CC-AP, it will be transferred to the local hard disk. Afterwards, the Restore operation will start.

AP Emergency Mode on Unix Side

The Restore operation cannot be stopped. No Undo functionality is available.

During the Restore operation no RMX exec-update is allowed.

NOTICE: Note: This feature is only available with Backup & Restore installed locally on the OpenScape 4000 Assistant.

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.6 Archive Type: VHD2-RMX

The archive installed on the VHD2-RMX (virtual hard disk with RMX-specific format) can only accept mo-rmx type data. This involves the creation of one-on-one copies (AMO DDRSM) of the RMX areas E, F, G, H and J, the Unix data will be stored in compressed format on the I area.

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.7 Archive Type: Buffer

Not more than 1 backup set is permitted. A new backup set overwrites a possibly existing backup set, even if the new back up set belongs to a different type.

The archive on the buffer area can accommodate the following types of data:

- Manually stored data (1), type: "data"
- Manually stored data (1), type: "logical"
- Automatically stored data (1), type: "data"

NOTICE: For further information on the I/O buffer please refer to Guidelines for Using the I/O Buffer on page 101.

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.8 Backup Type

When you have selected the required **archive type** (storage medium) you must then define the backup **type** to enable you to start the backup procedure.

- Backup & Restore supports the following backup types:

- Backup Set of the Type "Data"
- Backup Set of the Type "Logical"
- Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

Overview - Functionality of Backup Types

The following overview shows the varying functionality and modes of action of the individual backup types.

	Automatic	Manual	
Type	Data	Data	Logical
Archive	HD, VHD2, Buffer, Server	HD, VHD2, Buffer, Server	HD, VHD2, Buffer, Server
Comment			
Number of different Backups	10x for HD, 1x for others	1x each	1x each

Create Bootable Media

VHD1-PDS --> VHD1-GLA VHD1-PDS --> VHD2-PDS VHD1 --> VHD2

Start REGEN: Backup, Logical, RMX

Generate again using REGEN: Restore, Logical, RMX

A backup set is uniquely identifiable on the basis of the following parameters (this applies to all types):

Date/Time:	e.g. 2010-11-11 09:32
Backup Type:	Data,, Logical, AP Emergency Data
System no.:	• OpenScape 4000 Assistant: "System" parameter of the AMO DBC If this parameter is not set, the system number from AMO ANUM will be used, e.g. GOPHER (from AMO DBC) • L3101234567890123 (from AMO ANUM) • OpenScape 4000 Manager: IP addresses
Software:	• OpenScape 4000 Assistant: RMX version • OpenScape 4000 Manager: Unix version

Related Topics

Preparing the Backup Process

Starting the Backup Process

Manual Backup

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.2.9 Backup Set of the Type "Data"

A backup set of the type **data** can contain the following units:

- UNIX_CFDATA
- BEER
- BEER_CSTA
- HG3550M
- RMX

Related Topics

Preparing the Backup Process

Starting the Backup Process

Manual Backup

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.2.10 Backup Set of the Type "Logical"

A backup set of the type **logical** is used to import/export data of your choice (e.g. CDB or the contents of the database). Backup units that are registered under Backup & Restore are displayed under this backup type (multiple selection is possible), e.g. **CDB**, **Backup & Restore**, **RMX**.

Logical backup/restoration of data is executed in units. A unit consists of a group of interconnected applications. The term application is used here to refer to an installed software package or parts of such a package, or several parts of various packages that have been installed.

A new backup overwrites an already archived backup set of the same type in an archive. Backup sets of different types can be stored together in the same archive except for tape and I/O buffer.

A new backup set will overwrite an existing one in the archive if the software release and the archive type are identical.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Manual Backup

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.2.11 Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

The replication process from/to the AP Backup Server covers the following types of data:

- RMX software + RMX data (including patches).
- Unix software (partially) - i.e. only the Unix software parts needed on the CC-AP. The Unix configuration data are **not** included.

To cover all software (including patches) and configuration data, a **Backup Type "Access Point Emergency Data (APE)"** and an **Archive type "AP Backup Server"** have been defined.

Archive type "AP Backup Server"

For details, please refer to Archive Type: AP Backup Server (on OpenScape 4000 Assistant only).

Backup Type "AP Emergency Data" (APE)

For details, please refer to Configuring and Administering the AP Backup Server

Content of the "AP Emergency Data" Backup Type

The APE backup type includes the following data:

1) output of dump-aps code

2)
- output of dump-aps db
- patch directory
- SWT slice (Unix code)

APE backup sets do not include Unix configuration data.

Special (incremental) Backup & Restore handling for APE backup type

To minimize the traffic on the LAN/WAN, only the data that have changed since the last backup are transferred to the AP Backup Server (incremental backup).

To avoid parallel traffic caused by the APs, maximum 10 APs can transfer data from the Backup Server at the same time. See also

---

NOTICE: Note: This feature is only available with Backup & Restore installed locally on the OpenScape 4000 Assistant.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Configuring and Administering the AP Backup Server

Manual Backup

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.2.12 UNIX and RMX Functionality in Backup & Restore

UNIX Functionality

- Displays the content of the archive
- Saves data to an archive (a backup set is created or updated during this process)
- Cancels a backup procedure that is running
- Displays the status of the last backup executed or the one that is currently running
- Adds a backup set to an archive or updates an existing backup set in an archive
- Deletes a specific backup set
- Restores a backup set from an archive
- Enters a schedule for automatic backup procedures

Administration Functions

- Initializes (formats) and tests the VHD2 and TAPE/DAT devices.
- Configures the customer backup server

RMX Functionality

This part of Backup & Restore is responsible for backing up and restoring the RMX software and the RMX database as well as for controlling the GLA (Golden Load Area) and the PDS. The RMX backup functionality of Backup & Restore is only configured on the OpenScape 4000 Assistant. In Backup & Restore the RMX backup/restore functions are handled as a single interconnected, normal "backup unit".

Related Topics

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

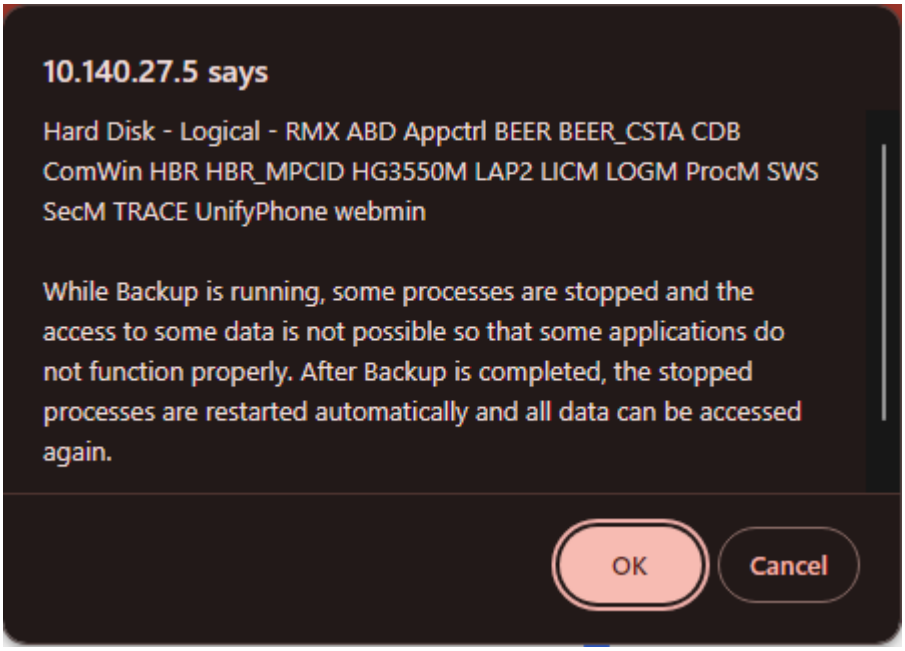
Manual Backup

Step by Step Instructions

Recovery VHD2

2.2.13 Manual Backup

A **Manual Backup** is started using the **Start Backup** button in the **Backup** dialog. An **Archive** (HD, VHD2, I/O buffer, Backup Server, AP Backup Server) and the **Backup Type** 'Data', 'Logical', or 'AP Emergency Data' (Assistant only) must be selected.



The backup function is executed in background mode, i.e. the browser window is enabled. You can display the backup status of the backup that is currently running or of the backup last executed by clicking the **Status** button (see Status on page 46).

Related Topics

Preparing the Backup Process

Starting the Backup Process

Step by Step Instructions

Archive

Archive Type: Hard Disk

Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)

Archive Type: Backup Server

Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Archive Type: VHD2-RMX

Archive Type: Buffer

Backup Type

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

UNIX and RMX Functionality in Backup & Restore

Recovery VHD2

2.3 Restore

To display the **Restore List** containing the backup units you must specify one or more **archives** as a source and select one or more **backup types** for the **Restore** process.

In the Restore dialog a drop down menu provides the option to upload a One File Backup (OFB; in Assistant only) to the server for restoration.

Figure 5: Restore dialog

Archive Types

The following **Archive** types are available for Restore operations. Multiple choice is possible.

- Archive Type: Hard Disk
- Archive Type: VHD2-RMX
- Archive Type: Buffer
- Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)
- Archive Type: Backup Server
- Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Backup Types

The following **Backup Types** are available for Restore operations. Multiple choice is possible.

- Backup Set of the Type "Data"
- Backup Set of the Type "Logical"
- Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

Click the **List** button to display the Restore Listfrom which you can select individual backup sets or units to be restored.

Restore Sequence on AP Emergency Switches (CC-AP)

For details, please refer to the Restore Process on AP Emergency (CC-AP) Switches.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Restore Process on AP Emergency (CC-AP) Switches

Step by Step Instructions

Restore List

Backup & Restore - Overview

Recovery VHD2

2.3.1 Restore List

The **Restore** list contains the individual backup units that can be selected for being restored. The RMX areas F, G, and H on VHD2-RMX are displayed, but can not be restored from this point. See Recovery VHD2.

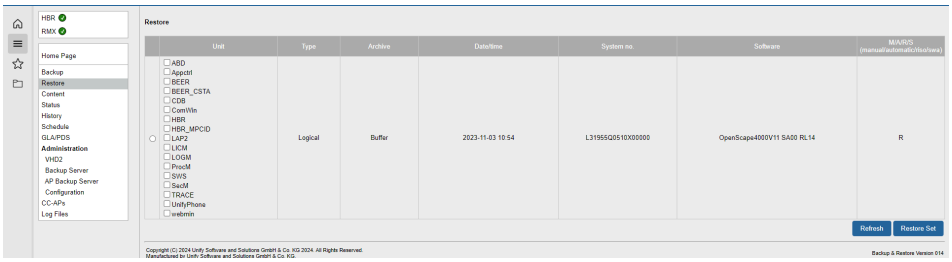


Figure 6: Restore List dialog

- To start the restore operation, click the **Restore Set** button.

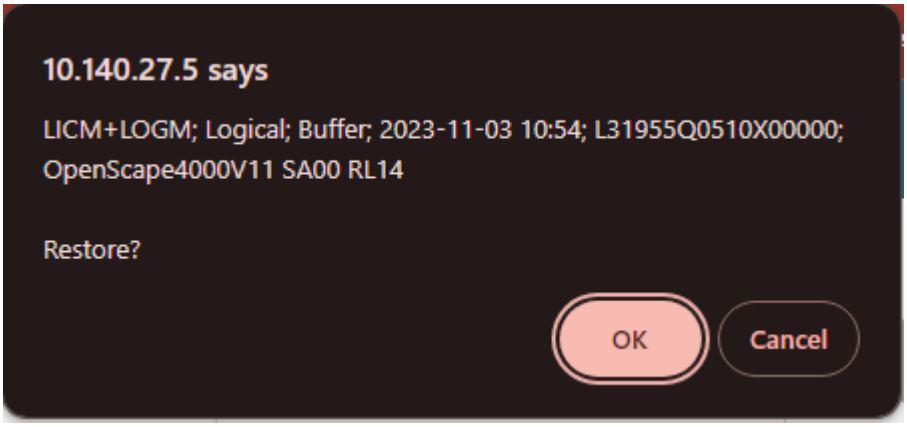
Once it has been confirmed by the user, the restore procedure runs in the foreground and is monitored by the user. When the restore operation has been concluded, a message indicating either the success or failure of the operation is displayed. If, during the restore process, the connection to the system should fail, restore will continue to run; the status can be displayed afterwards by clicking on the **Status** button.

A backup set is uniquely identifiable on the basis of the following parameters (this applies to all types):

Unit	UNIX_CFDATA, BEER, BEER_CSTA, HF3550M, RMX
Type	Backup type: Data, Logical, AP Emergency Data
Archive	Hard disk, Backup server, VHD2, Tape, AP Backup server, Buffer

Date/time	e.g. 2010-11-11 09:32
System no.	• OpenScape 4000 Assistant: "System" parameter of the AMO DBC If this parameter is not set, the system number from AMO ANUM will be used, e.g. GOPHER (from AMO DBC) • L3101234567890123 (from AMO ANUM) • OpenScape 4000 Manager: IP addresses
Software	• OpenScape 4000 Assistant: RMX version • OpenScape 4000 Manager: Unix version
M/A	Source: **A**utomatic or **M**anual backup

Restore Confirmation



On completing the restore operation, an appropriate message concerning success or failure is displayed. If, during the restore process, the connection to the system should fail, the procedure will continue to run; the status can be displayed afterwards by clicking on the **Status** button.

NOTICE: The same version (release and revision level) of the RMX software and the UNIX software must be installed on the system. It is not permitted to save data from a new version to an older software version. If data is to be restored selectively for RMX and UNIX, the user will be responsible for the consistency of the data.

If the restore process concludes with an error, the function will have to be repeated. You can check the status of the restore process by clicking the **Status** button (see Status page 46).

NOTICE: Once the RMX data has been restored, the RMX database is automatically reloaded (with the AMO "EXEC-LDB;"); this also causes the system to reboot

NOTICE: If Manager v3.0 and Manager v3.1 (being backed up) have different IP addresses, then a restart of Manager v3.1 must be performed **after the restore**. Otherwise communication errors will occur.

Restore Sequence on AP Emergency Switches (CC-AP)

For details, please refer to the Restore Process on AP Emergency (CC-AP) Switches.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Restore Process on AP Emergency (CC-AP) Switches

Step by Step Instructions

Restore

Backup & Restore - Overview

Recovery VHD2

2.4 Content

In the **Content** screen you can select one or more **archives** (storage media) as well as the **type** of the **backup** set whose content you would like to display. More than one archive and more than one backup set can be selected at the same time. When you click the **List** button, the content of the selected archive and backup set is displayed in a table - see Content List.

In the Content dialog a drop down menu provides the option to upload a One File Backup (OFB; in Assistant only) to the server for restoration.

Figure 7: Content dialog

As an option, you can activate the **Get original list from archive** check box under the **Options** entry. By activating this check box you specify that the original lists of the selected archive and backup types be displayed. The local cache is overwritten and/or cleared, respectively; this process may take a bit longer.

Archive Types

The following **Archive** types are available. Multiple choice is possible.

- Archive Type: Hard Disk
- Archive Type: VHD2-RMX
- Archive Type: Buffer

- Archive Type: TAPE – DAT Tape Drive (on OpenScape 4000 Manager 4000 only)
- Archive Type: Backup Server
- Archive Type: AP Backup Server (on OpenScape 4000 Assistant only)

Backup Types

The following **Backup** types are available. Multiple choice is possible.

- Backup Set of the Type "Data"
- Backup Set of the Type "Logical"
- Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

Related Topics

Displaying the Content

Step by Step Instructions

Content List

Backup & Restore - Overview

Recovery VHD2

2.4.1 Content List

When you click the **List** button in the **Content** screen, the backup sets stored in the selected archives are displayed in the **Content List**. If you want to edit a backup set, select it again.

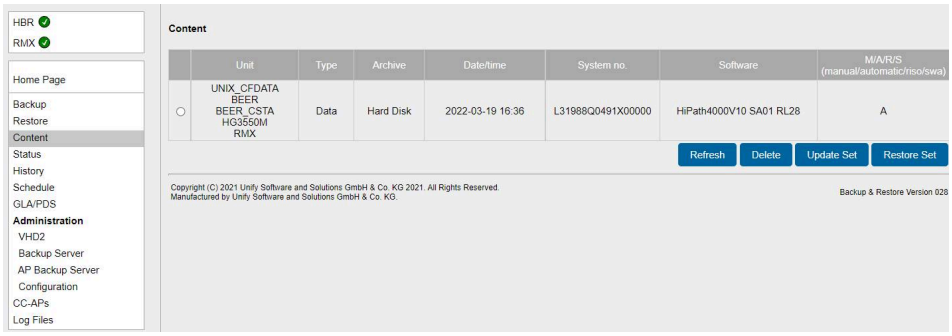


Figure 8: Content List dialog

A backup set is uniquely identifiable on the basis of the following parameters (applies to all types):

Date/Time:	e.g. 2010-11-11 09:32
Backup Type:	Data, Logical, AP Emergency Data
System no.:	• OpenScape 4000 Assistant: "System" parameter of the AMO DBC If this parameter is not set, the system number from AMO ANUM will be used, e.g. GOPHER (from AMO DBC) • L3101234567890123 (from AMO ANUM) • OpenScape 4000 Manager: IP addresses

Software:	• OpenScape 4000 Assistant: RMX version • OpenScape 4000 Manager: Unix version

Function of the Buttons

Refresh

Updates the screen contents. The backup status in the window is not automatically updated. When you select the **Refresh** function, the contents of the screen display are updated.

Delete

Deletes the marked backup set on the archive.

Update Set

Updates the marked backup set on the archive. The backup process is activated.

Restore Set

Restores the data from the marked backup set.

The RMX areas F, G, and H on VHD2-RMX are displayed but can not be restored from this point. See Recovery VHD2.

Related Topics

Displaying the Content

Step by Step Instructions

Content

Backup & Restore - Overview

Recovery VHD2

2.5 Status

The status of the backup/restore cycle currently running or of the last one to be executed is displayed in the **Status**screen. The information displayed includes the overall status of Backup & Restore, the status of backup/restore operations currently running and previous backup/restore operations.

The display is automatically updated every 20 seconds.

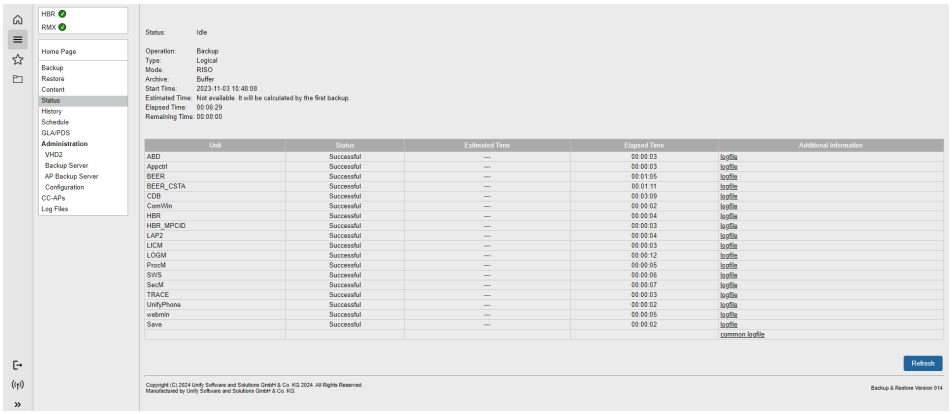


Figure 9: Status dialog

Status Display Messages in line ’Status’:

- **Idle**
- Indicates that there are no backup/restore processes running at the moment.

- **Backup running**
- Indicates that a backup process is currently being executed.
- **Restore running**
- Indicates that a restore process is currently being executed.
- **Backup cancelled**
- Indicates that a backup process has been cancelled. In this process, the backup process that is running is not cancelled immediately but only in the next backup step
- **Locked by Webmin**
- Indicates that a backup process has been locked by Webmin.
- **Locked by USV**
- Indicates that a backup process has been locked by USV.
- **Locked by Other Application**
- Indicates that a backup process has been locked by another application.
- **Saving to archive**
- Indicates that the data is currently being saved to an archive.

NOTICE: The status display **Success** indicates that the saving process has concluded successfully. The status of a saved backup set is only set to **Success** when the full backup set has been completely saved on the selected archive. This is particularly important with Tape/DAT drives because in the case of these drives the backup set is first saved to a temporary directory on the hard disk before it is transferred to the final destination drive. If you want to check whether this transfer has already finished, click the **Refresh** button to refresh the screen.

- **Status Table, table head**
- Upside the status table all basic data of the backup or restore process currently being executed is shown: Start time, estimated time, elapsed time, remaining time. The estimated time is the time of the previous backup or restore cycle. When started the first time no estimated time will be available. Line "estimated time’ then shows ’-----" instead of a time duration.

- **Status Table**
- One line is added to the backup or restore status table for each step (e.g. backup of RMX database). Each line contains the following parameters:

Unit:	Backup or Restore Unit (RMX, UNIX) or **Save** (last step in the backup procedure)
Status:	Running, Success, Error, Cancelled, Backup Error
Estimated time:	Shows the estimated time for the currently running process which is the time of the previous process. When started the first time no estimated time will be available and '------' is displayed instead of a time amount.
Elapsed time:	Shows the elapsed time for the currently running process..
Additional Information	Link to log file containing information on the last Backup/Restore operation executed.

You must always verify the restore status because a system boot that is running sporadically could terminate the operation with errors.

NOTICE: Save indicates that data is being saved to the specified archive. The backup procedure has concluded without an error only when **Save** has executed successfully (status: **Success**).

Progress Bar

The progress bar in the bottom of the window shows the appoximate finished percentage of the backup/restore operation.

Function of the Buttons

- **Refresh**
- Refreshes the screen. The status display is not refreshed automatically. This can be done by using the **Refresh** button.
- **Cancel backup**
- Cancels the current operation.

NOTICE: Only **backup** operations can be cancelled. **Restore** operations cannot be cancelled or interrupted.

Related Topics

Status

Step by Step Instructions

Backup & Restore - Overview

Recovery VHD2

2.6 History

A status list of the last backup/restore operations to be carried out is displayed on the **History** screen. Up to 25 backup/restore cycles can be displayed.

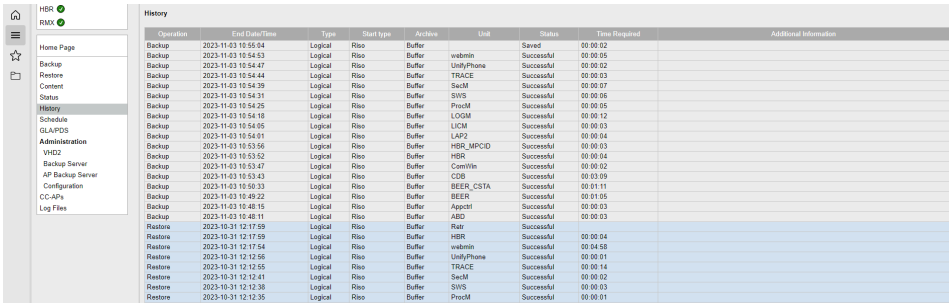


Figure 10: History dialog

Related Topics

History

Step by Step Instructions

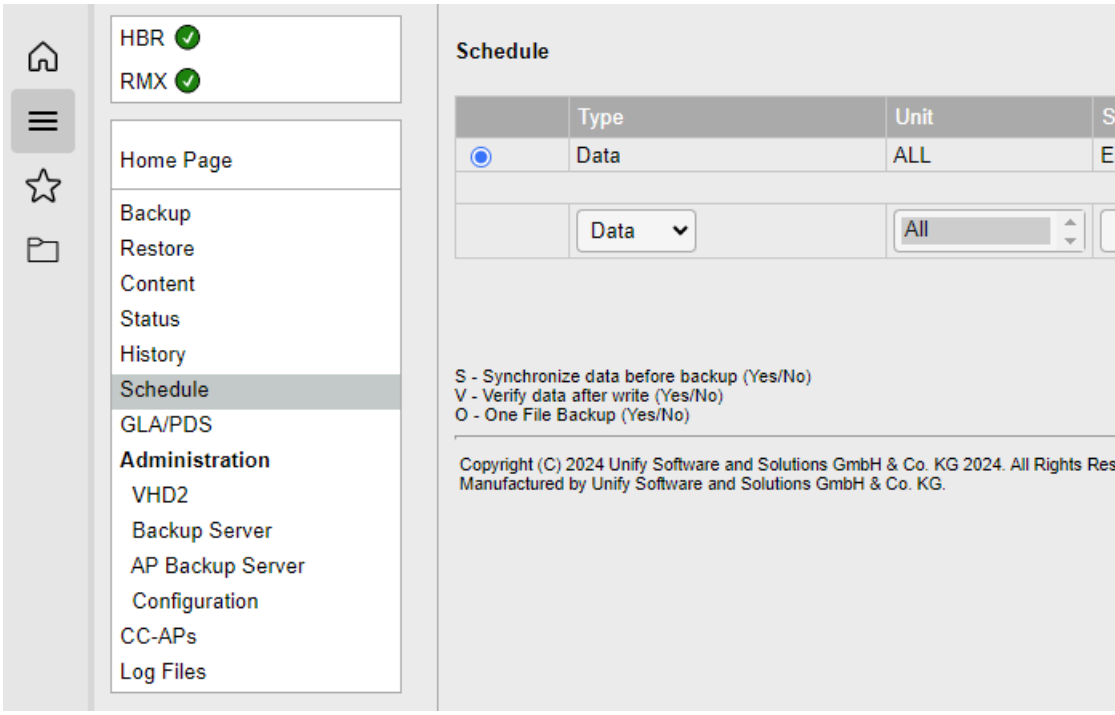
Backup & Restore - Overview

Recovery VHD2

2.7 Schedule

NOTICE: An automatic synchronization between RMX and Assistant (CM) is performed around **1:00 a.m**. Because Backup and Restore operations can influence this action, they should be **avoided** around this hour. For a better functionality, it is suggested to **schedule** your backups **between 3:00 a.m. and 10:00 p.m.**, according to your business hours.

NOTICE: After the first installation of Assistant or Manager, there will be automatically scheduled a **weekly backup on Saturdays** at **16.30 p.m.**



You can enter the data for several automated backup cycles in the **Schedule**dialog. You can define when and how often an automated backup cycle should be executed. For this purpose, new functions have been provided for adding, changing and deleting entries.

In the Schedule dialog a drop down menu provides the option to schedule a One File Backup (OFB; in Assistant only) only when the Backup Server is selected and the backup Type is DATA.

Schedule dialog

The following parameters are configured:

Type	Data, Logical, VHD2-RMX, AP Emergency
Unit	All software components (applications) installed on the system and relevant for ’Backup & Restore’ are listed here.
Status:	Enabled, Disabled, Once
Frequency:	Daily, Weekdays, Monday, ... Sunday
Time:	hh:mm
Archive:	HD, Buffer, Backup Server, AP Backup Server, Tape. Backup Server, AP Backup Server, Tape if they are configured and if they physically exist.
S Synchronize:	Yes / No If **Yes** has been set here, the data is saved from the memory to the hard disk first, "exec-updat" is executed on the RMX side, and then the backup is executed.

V Verify transferred data	Yes / No If **Yes** has been set here, the transferred data will be verified (SFTP server and Tape only).
O One File Backup (Assistant only)	Yes / No If **Yes** has been set here, the transferred data will be copied into one single file (Data type only).
I Include installation partition (Assistant only)	Yes / No The flag is relevant only for AP Emergency type. If **Yes** has been set here, the AP backup will include the Assistant installation (so-called Installation Partition). Later when such backup (which includes Installation Partition) is restored on the CC-AP (AP-E/Survivable SG), the Backup & Restore automatically detects, if the current Assistant installation differs from the one in the backup. If a difference is found, the Assistant is reinstalled from the backup. Warning: Linux host platform (PLT) and CSTA are not included in this backup. Therefore if host system is updated by replacing system HD, then each connected AP-E/Survivable SG has to be either installed anew or updated with RLC of the same version as the new host HD.

Type

- Data
- Logical
- AP Emergency

Unit

The installed software units are listed depending on the Backup Type. The list displays the installed software components for which a ’Backup & Restore’ process **per type** can be executed. For the Backup Type **Logical**, for instance, the **Backup & Restore**, **Webmin**, **RMX** software units are displayed.

If you select the **ALL** entry, all software components of the selected Backup Type will be included in the ’Backup & Restore’ process.

Status

- Disabled
- Enabled
- Once

NOTICE: If the status has been set to **Once**, the backup is only executed once at the specified time, and then the status is reset to **Disabled**.

Frequency

- Daily

- Weekdays
- Sundays... Saturdays

Time (Select time)

Format: HH:MM.

Archive

- HD
- Backup Server - item is only displayed if a Backup Server is configured and if it physically exists
- AP Backup Server - item is only displayed if an AP Backup Server is configured
- Buffer
- Tape (DAT) - item is only displayed if it physically exists
- VHD2-RMX (VHD2 in RMX format)

In the case of automatic backup cycles, the default setting for the **type** of backup set to be created should be **Data**.

NOTICE: The edit line at the bottom of the table is not an entry in the schedule. The options that you have selected in the edit line are not accepted as an entry in the schedule until you click the **Add New** button.

S - Synchronize

- Y = Yes
- N = No

V - Verify transferred data

- Y = Yes
- N = No

O - One File Backup (Assistant only)

- Y = Yes
- N = No

I - Include installation partition (Assistant only)

- Y = Yes
- N = No

Function of the Buttons in the Schedule dialog

Refresh (update)

Click this button to update the contents of the screen. If you change existing entries, the contents of the screen are automatically refreshed.

Start now

Click this button to start the backup process immediately.

Delete

Click this button to delete the selected entry.

Change

Click this button to change existing values in the selected entry.

Add New

Click this button to add a new entry to the schedule.

Example

To configure and start a scheduled automatic APE backup cycle, please follow the steps described in the Starting the Backup Process Automatically via Schedule section.

Related Topics

Schedule

Step by Step Instructions

Backup & Restore - Overview

Recovery VHD2

2.8 GLA/PDS (on OpenScape 4000 Assistant only)

With the **GLA/PDS** options you can copy RMX areas, create a Recovery VHD2, or display the PDS version, respectively.

> **NOTICE:** The **GLA/PDS Handling** function is only available on the OpenScape 4000 Assistant and relates to RMX-specific backup/restore processes. If Backup & Restore is installed on the OpenScape 4000 Manager, this option is not displayed on screen.

The version number and the copy date of VHD1-PDS, VHD1-GLA and VHD2-PDS are not automatically updated in this screen. Up-to-date information can be displayed by clicking on the **Get Content** button.

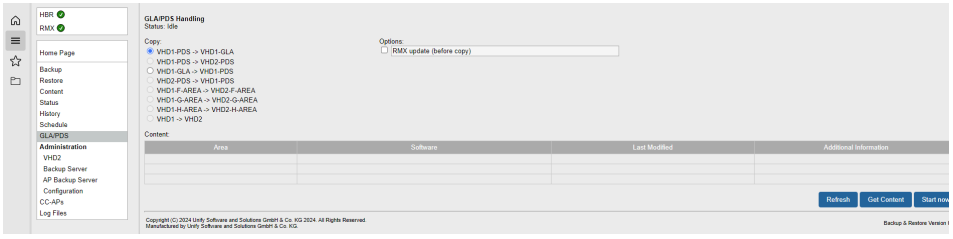


Figure 11: GLA/PDS Handling dialog, on OpenScape 4000 Assistant only

Copy

Data Source	Destination Media
VHD1-PDS	VHD1-GLA

VHD1-PDS	VHD2-PDS
VHD1-GLA	VHD1-PDS
VHD2-PDS	VHD1-PDS
VHD1-F-AREA	VHD2-F-AREA
VHD1-G-AREA	VHD2-G-AREA
VHD1-H-AREA	VHD2-H-AREA
VHD1	VHD2

Restrictions for GLA/PDS Handling

In OpenScape 4000 V6, some items may be disabled on the **GLA/PDS Handling** dialog, i.e. they can not be selected. For **VHD2** all items are enabled.

Options

- **RMX Update** (before copy)

  This option is only available if you selected **VHD1-PDS -> VHD1-GLA** or **VHD1-PDS -> VHD2-PDS**.
- **RMX Reload** (after copy)

  This option is only available if you selected **VHD1-GLA -> VHD1-PDS** or **VHD2-PDS -> VHD1-PDS**.
- **RMX REGEN** (before starting the Copy process)

  This option is only available if you selected **VHD1-F-AREA -> VHD2-F-AREA**.
- **RMX UPDATE** and **RMX REGEN** (before starting the Copy process)

  This option is only available if you selected **VHD1 -> VHD2** (Create Entire Recovery VHD2).

Function of the Buttons

- **Refresh**
- Updates screen display.

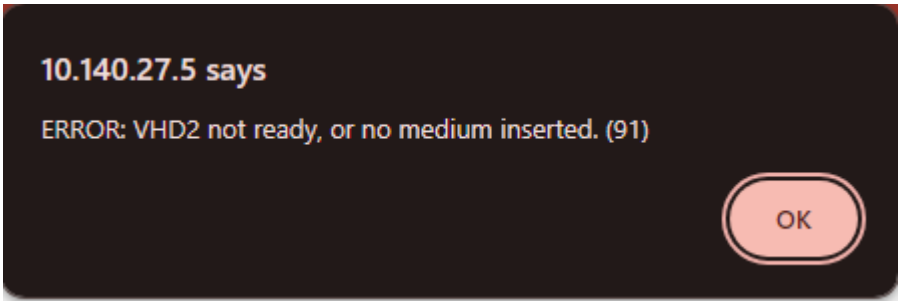
Get Content

Displays the software version number and the copy date/time of the existing VHD1-PDS, VHD1-GLA and VHD2-PDS backup copies.

Information on copy date and time are only displayed if you copied the backup copy via Backup & Restore.

Start Now

The copy procedure is started after a security check. In case the target device is not ready, an error message is displayed.



Error Message - Target device not ready

The PDS ("E" area on the RMX partition of the hard disk, which contains the RMX program system and the RMX data) can be saved either to the VHD1-GLA ("J" area in the RMX partition of the VHD1 virtual disk) or to the VHD2-PDS ("E" area of the VHD2 virtual disk).

The VHD1-GLA/VHD2-PDS contains a program system with either an identical or an older software version in relation to the PDS. The data in the VHD1-GLA/VHD2-PDS, which is not updated during normal system operation, is generally out of date. Consequently, the most up-to-date data for RMX still has to be restored from the backup archive even after the PDS has been restored.

Related Topics

GLA/PDS – Functionality and Operation

Generating a VHD1-GLA/VHD2-PDS

Restoring the VHD1-GLA/VHD2-PDS

Step by Step Instructions

Backup & Restore - Overview

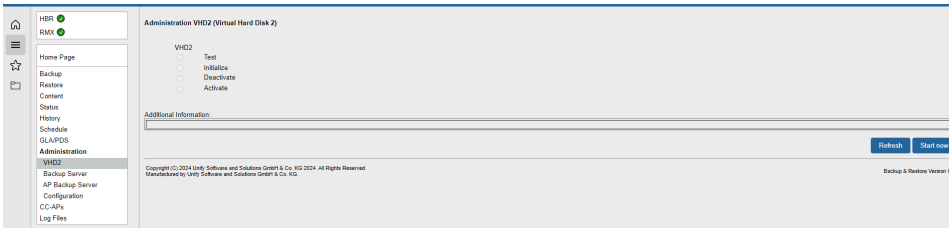
Recovery VHD2

2.9 Administration – VHD2 (on OpenScape 4000 Assistant only)

Administration VHD2 is used for administering disk on controller 6 of RMX (VHD2). The functions enable the user to initialize and test VHD2 and to update the RMX values (VHD2).

Administration VHD2 (Virtual Hard Disk 2)

Figure 12: Administration VHD2 dialog



VHD2

- **Test**

  This function is used to check the status of the VHD2. The messages output in the **Additional Information** field indicate the status, e.g. “Not present“, “empty“ or “not writable“. If the test was passed successfully, the message "Operation was successful" is displayed.
- **Initialize**

  The RMX part of the VHD2 is also initialized on the OpenScape 4000 Assistant with this function.
- **Reserve for RMX**

  The RMX areas on VHD1 are activated.

Function of the Buttons

- **Refresh**

  Updates screen display.
- **Start Now**

  The selected procedure (test, initialize or update) is started.

Related Topics

Guidelines for Using the VHD2 Disk

Step by Step Instructions

Backup & Restore - Overview

Recovery VHD2

2.10 Administration – Backup Server

The customer backup server is administered via the **Administration Backup Server** dialog. Depending on the protocol used not all of this information is required.

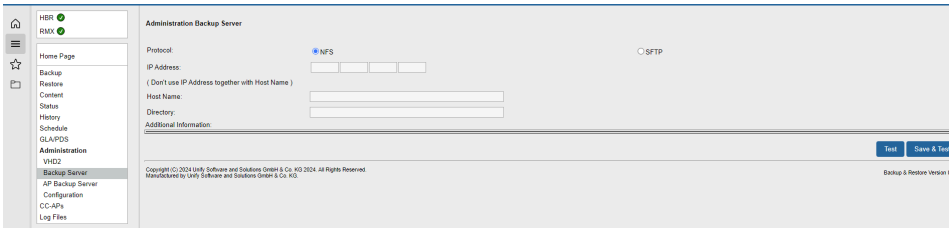


Figure 13: Administration Backup Server dialog, NFS transfer protocol

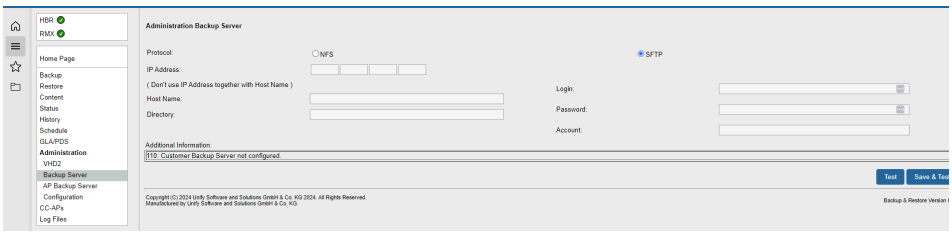


Figure 14: Administration Backup Server dialog, SFTP transfer protocol

Only SSH and SFTP are supported. It is not possible to enable deprecated/ insecure protocols (e.g Telenet, FTP).

NOTICE:

CoreFTP Mini SFTP Server (http://coreftp.com/server/index.html) is NOT recommended anymore, because it sporadically does not provide a reliable service.

This statement applies also to the licensed version of CoreFTP.

The following configuration data has to be defined:

Transfer Protocols

Backup & Restore supports the following transfer protocols:

- **NFS**

  When you select the **NFS Transfer Protocol**, only the input fields **IP Address, Host Name** and **Destination Directory** are displayed, i.e. only these fields need to be filled in.

  NOTICE: IMPORTANT In order to use the **NFS connection type**, the Linux/UNIX operating system needs to be running on the backup server.

- **SFTP**

  When you select the **SFTP Transfer Protocol**, the input fields **IP Address, Host Name, Destination Directory**, **Login**, **Password** and **Account** are displayed, i.e. additional information is required for login, password and account.

Input Fields

- **IP Address**

  Enter the IP address of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Host Name**

  Enter the host name of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Destination Directory**

  Enter the destination directory on the remote server here.

CAUTION:

The subdirectory specified in this field is NOT created automatically by OpenScape 4000; it has to be created manually on the SFTP server. Do not specify the letter of the drive, e.g. C:Take into account

that the SFTP server on the Customer Backup Server may change the relative and absolute paths.

Examples:

server1	Relative path: `server1` is a directory in the indicated user's home directory.
/backup/server	Absolute path of the `server` directory

- **Login** (only needed for SFTP)

  Enter the user name here that is to be used for logging onto the remote server.
- **Password** (only needed for SFTP)

  Enter the password associated with the user name here that is to be used for logging onto the remote server.
- **Account** (only needed for SFTP)

  Enter another account password here. This information needs not to be entered for some operating systems such as UNIX.
- **Additional Information**

  Shows status messages such as "Customer Backup Server not configured" if the server is not configured.

Function of the Buttons

- **Refresh**

  Updates the screen display.
- **Test**

  Tests the settings and saves if the test was successful.
- **Configure**

  The backup server is configured on the basis of the data entered.
- **Settings on the Remote Server**
- Regarding the server configuration settings please take into account the guidelines of the manufacturer.

Related Topics

Administration - Backup Server

Step by Step Instructions

Backup & Restore - Overview

Recovery VHD2

2.11 Administration – AP Backup Server

In order to support the Backup & Restore processes on Access Point Emergency Switches, the **'Backup & Restore'** application replicates the software (including RMX and Unix updates) and configuration data from the host control processor to the CC-APs (Survivability Units) automatically

(scheduled) and on demand. The ’Backup & Restore’ process is done via a Backup Server over TCP/IP.

Only SSH and SFTP are supported. It is not possible to enable deprecated/ insecure protocols (e.g Telenet, FTP).

NOTICE:

CoreFTP Mini SFTP Server (http://coreftp.com/server/index.html) is NOT recommended anymore, because it sporadically does not provide a reliable service.

This statement applies also to the licensed version of CoreFTP.

The replication process from/to the AP Backup Server covers the following types of data:

- RMX software + RMX data (including patches).
- Unix software (partially) - i.e. only the Unix software parts needed on the CC-AP. The Unix configuration data is **not** included.

To cover all software (including patches) and configuration data, a **Backup Type "Access Point Emergency Data" (APE)** and a **Archive type "AP Backup Server"** have been defined.

Archive type "AP Backup Server"

For details, please refer to Archive Type: AP Backup Server (on OpenScape 4000 Assistant only).

Backup Type "Access Point Emergency Data" (APE)

For details, please refer to Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only).

APE backup sets do **not** include Unix configuration data.

User Interface

Administration AP Backup Server dialog on HOST systems

Administration AP Backup Server dialog on CC AP systems

2.11.1 Administration AP Backup Server dialog on HOST systems

User Interface

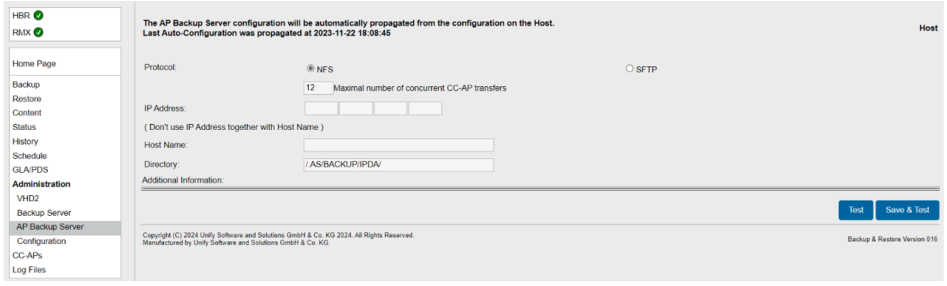


Figure 15: Administration - AP Backup Server on Host system, NFS transfer protocol

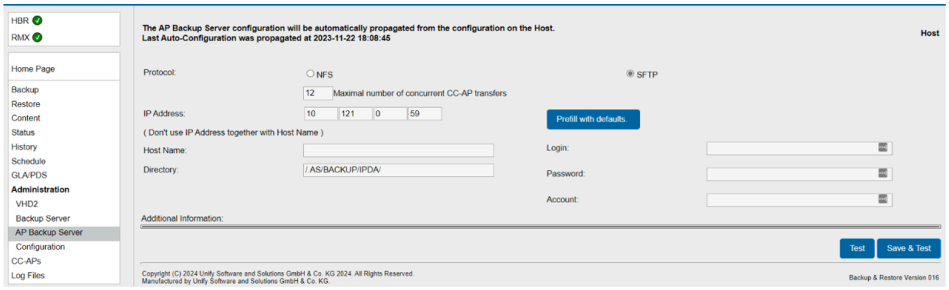


Figure 16: Administration - AP Backup Server on Host system, SFTP transfer protocol

Use the **Administration AP Backup Server** dialog displayed on **Host** systems to define the following configuration data and settings:

Transfer Protocols

Backup & Restore supports the following transfer protocols:

- **NFS**

  Select the **NFS** Transfer Protocol by activating the radio button. The input fields **IP Address, Host Name** and **Directory** are displayed, i.e. these fields need to be filled in.

  NOTICE: Important: In order to use the **NFS connection type,** the Linux/UNIX operating system needs to be running on the backup server.

- **SFTP**

  Select the **SFTP** Transfer Protocol by activating the radio button. The input fields **IP Address, Host Name, Destination Directory**, **Login**, **Password** and **Account** are displayed, i.e. additional information is required for login, password and account.

Input Fields

- **Maximum number of concurrent CC AP transfers**

  This entry field is only displayed on Host systems.

  Enter the value for the maximum number of concurrent CC AP transfers into this field. Since the maximum number of supported CC AP units is 83 it only makes sense to enter values between 1 and 83 here.

- **IP Address**

  Enter the IP address of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.

- **Host Name**

  Enter the host name of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.

- **Destination Directory**

  Enter the destination directory on the remote server here. The recommended destination directory is `/.AS/BACKUP/IPDA`.

  The subdirectory specified in this field is **NOT** created automatically by OpenScape 4000; it has to be created manually on the SFTP server. Do not specify the letter of the drive, e.g. `C:`Take into account that the SFTP server on the Customer Backup Server may change the relative and absolute paths.

  Examples:

server1	Relative path: `server1` is a directory in the indicated user's home directory.
/backup/server	Absolute path of the `server` directory.

- **Login** (only needed for SFTP)

  Enter the user name here that is to be used for logging onto the remote server.
- **Password** (only needed for SFTP)

  Enter the password associated with the user name here that is to be used for logging onto the remote server.
- **Account** (only needed for SFTP)

  Enter another account password here. This information needs not to be entered for some operating systems such as UNIX.
- **Additional Information**

  Shows status messages such as "Customer Backup Server not configured" if the server is not configured.

Function of the Buttons

- **Refresh**

  Updates the screen display.
- **Test**

  Tests the settings and saves if the test was successful.
- **Save & Test**

  The AP backup server configuration is saved and tested based on the data entered. At the same time, the configuration is transferred to any connected APE entities.

Related Topics

Configuring and Administering the AP Backup Server

Step by Step Instructions

Administration AP Backup Server dialog on CC AP systems

2.11.2 Administration AP Backup Server dialog on CC AP systems

Use the **Administration AP Backup Server** dialog displayed on **CC AP systems** (Survivability Units) to define the following configuration data and settings:

Transfer Protocols (NFS or SFTP, respectively)

Backup & Restore supports the following transfer protocols:

- **NFS**
- Select the **NFS** Transfer Protocol by activating the radio button. The input fields **IP Address, Host Name** and **Directory** are displayed, i.e. these fields need to be filled in.

  NOTICE: Important: In order to use the **NFS connection** type, the Linux/UNIX operating system needs to be running on the backup server.

- **SFTP**
- Select the **SFTP** Transfer Protocol by activating the radio button. The input fields **IP Address, Host Name, Destination Directory**, **Login**, **Password** and **Account** are displayed, i.e. additional information is required for login, password and account.

Input Fields

- **Automatic Restore disabled**
- **Deactivated** - If this checkbox is deactivated Backup & Restore will automatically start the scanning of the AP Backup Server.

  Activated - If this checkbox is activated Backup & Restore will NOT scan the AP Backup Server. This setting avoids conflicts between the APE activities and the Service activities.
- **IP Address**
- Enter the IP address of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Host Name**
- Enter the host name of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Destination Directory**
- Enter the destination directory on the remote server here. The recommended destination directory is `/.AS/BACKUP/IPDA`.

  The subdirectory specified in this field is **NOT** created automatically by OpenScape 4000; it has to be created manually on the SFTP server. Don’t specifiy the letter of the drive, e.g. `C:`Take into account that the SFTP server

on the Customer Backup Server may change the relative and absolute paths.

Examples:

server1	Relative path: `server1` is a directory in the indicated user's home directory.
/backup/server	Absolute path of the `server` directory.

- **Login** (only needed for SFTP)
- Enter the user name here that is to be used for logging onto the remote server.
- **Password** (only needed for SFTP)
- Enter the password associated with the user name here that is to be used for logging onto the remote server.
- **Account** (only needed for SFTP)
- Enter another account password here. This information needs not to be entered for some operating systems such as UNIX.
- **Additional Information**
- Shows status messages such as "Customer Backup Server not configured" if the server is not configured.

Function of the Buttons

- **Refresh**

  Updates the screen display.
- **Test**

  Tests the settings and saves if the test was successful.
- **Save & Test**

  The AP backup server configuration is saved and tested based on the data entered. At the same time, the configuration is transferred to any connected APE entities.
- **Auto-Configure**

  Pull and test the AP backup server configuration from the host to the current APE.

Related Topics

Configuring and Administering the AP Backup Server

Step by Step Instructions

Administration AP Backup Server dialog on HOST systems

2.12 Administration – Configuration

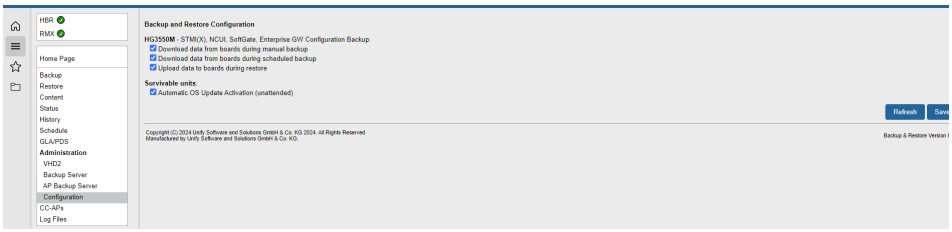


Figure 17: Backup and Restore Configuration page

Use the **Backup and Restore Configuration** dialog to define the HG3550M CGW/NCUI configuration backup and restore settings.

HG3550M backup can be decoupled from Backup & Restore. This enables automatic backups, without downloading data from gateways and thus avoids switchover to maintenance mode. In decoupled mode only the last stored data in the Assistant storage of the gateway data will be saved in the backup set. Gateways will not be contacted during Backup & Restore backup.

You can activate or deactivate one or more options:

- Download data from boards during manual backup.
- Download data from boards during scheduled backup.
- Upload data to boards during restore.

Function of the Buttons

- **Refresh**

  Updates the screen display.
- **Save**

  The HG3550M CGW/NCUI configuration backup is configured on the basis of the selection.

Related Topics

Administration – VHD2 (on OpenScape 4000 Assistant only)

Administration – Backup Server

Administration – AP Backup Server

2.13 Log Files

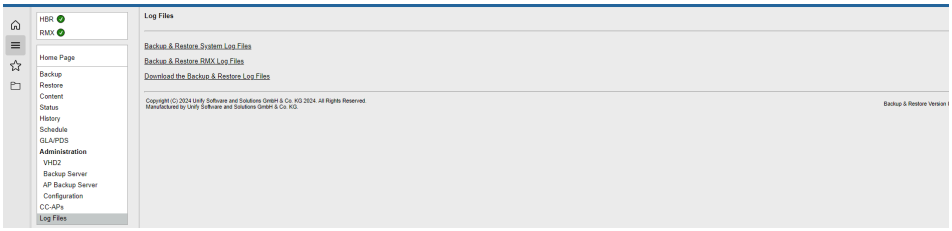


Figure 18: Log Files page

Error Logs

The debug and error log files for the system (UNIX) and RMX backup cycles of Backup & Restore are listed in the **Log Files** dialog under the following links:

- Backup & Restore System Log Files

Contains the debug and error log files for the system backup cycles (UNIX) of Backup & Restore.

and

- Backup & Restore RMX Log Files

Contains the debug and error log files for the RMX backup cycles of Backup & Restore.

Depending on whether Backup & Restore has been installed on the OpenScape 4000 Assistant or on the OpenScape 4000 Manager, different log files may be displayed.

- Download the Backup & Restore Log Files

If you click on this link you download complete Backup & Restore log files (hbr_logs.tar.gz) to your local PC.

Status Logs

Status of the Host and all CC APs

Displays the current status of the Host system and of all CC AP systems (Survivability Units).

This link is only displayed if the AP Backup Server is configured.

Related Topics

Log Files

Step by Step Instructions

Backup & Restore - Overview

2.13.1 Backup & Restore System Log Files

The debug and error log files for the system backup cycles (UNIX) and of Backup & Restore are listed in the **Backup & Restore System Log Files** screen. This list includes the log files for every application registered under Backup & Restore.

NOTICE: All files only serve for diagnostics purposes.

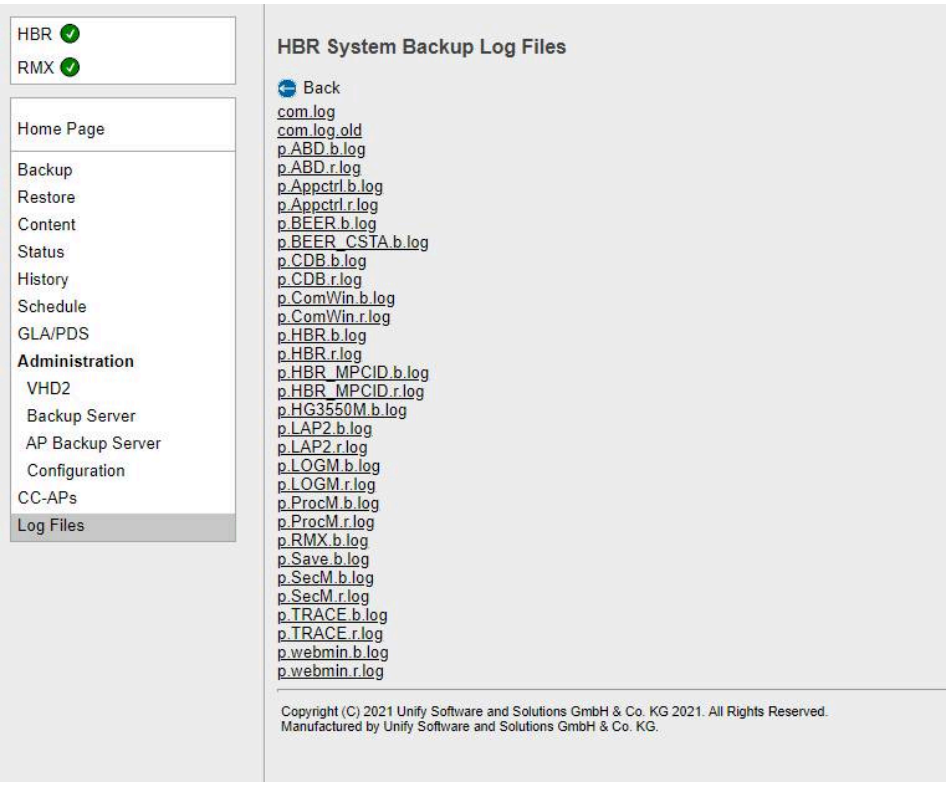


Figure 19: Backup & Restore System Log Files

Related Topics

Backup & Restore RMX Log Files

Status of the Host and all CC APs

Download the Backup & Restore Log Files

Backup & Restore - Overview

Step by Step Instructions

2.13.2 Backup & Restore RMX Log Files

The debug and error log files for the RMX backup cycles of Backup & Restore are listed in the **Backup & Restore RMX Log Files** screen.

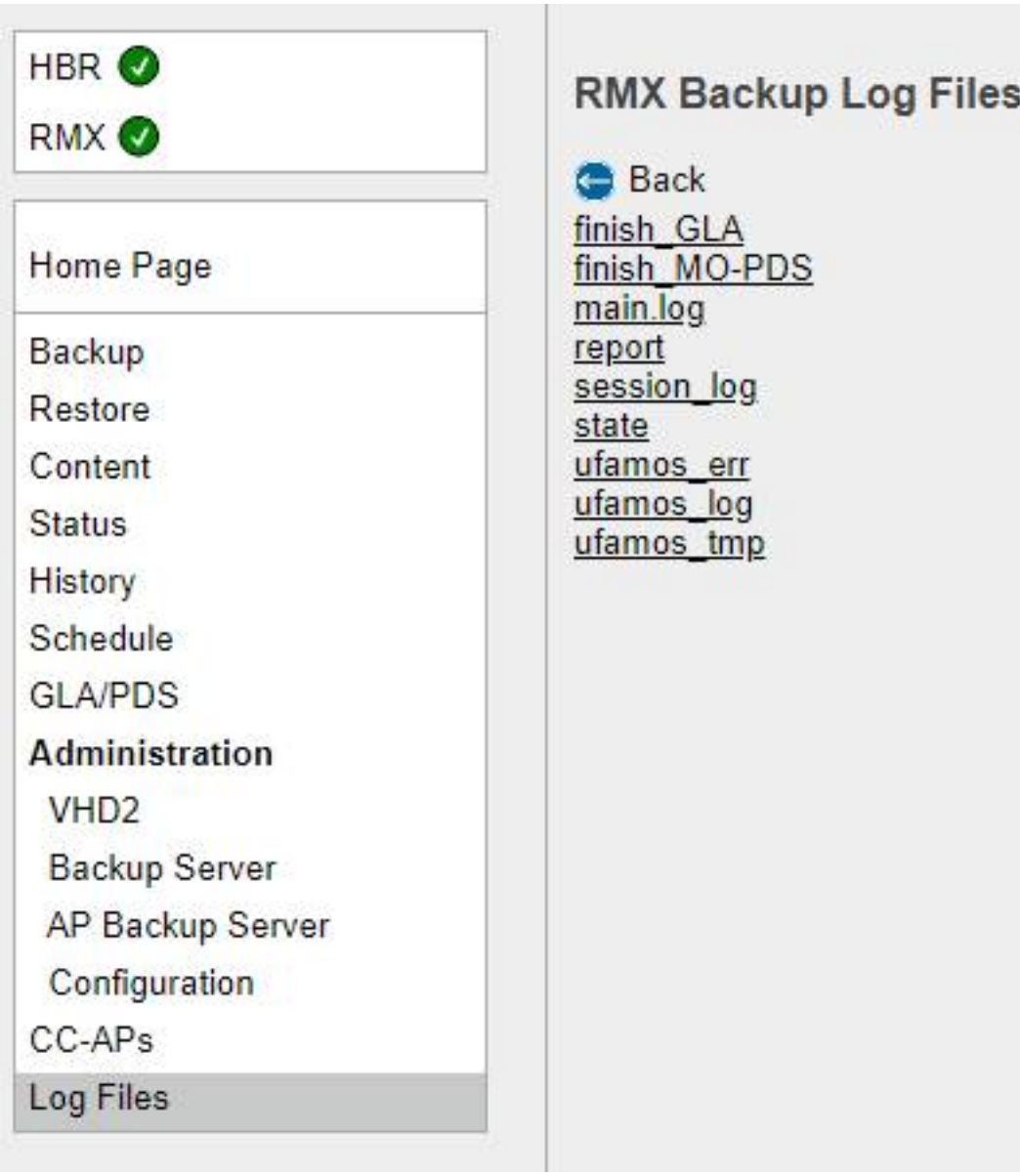


Figure 20: Backup & Restore RMX Log Files

Related Topics

Status of the Host and all CC APs

Download the Backup & Restore Log Files

Backup & Restore - Overview

Step by Step Instructions

2.13.3 Download the Backup & Restore Log Files

Using this link you can download the complete Backup & Restore log files (hbr_logs.tar.gz) to your local PC.

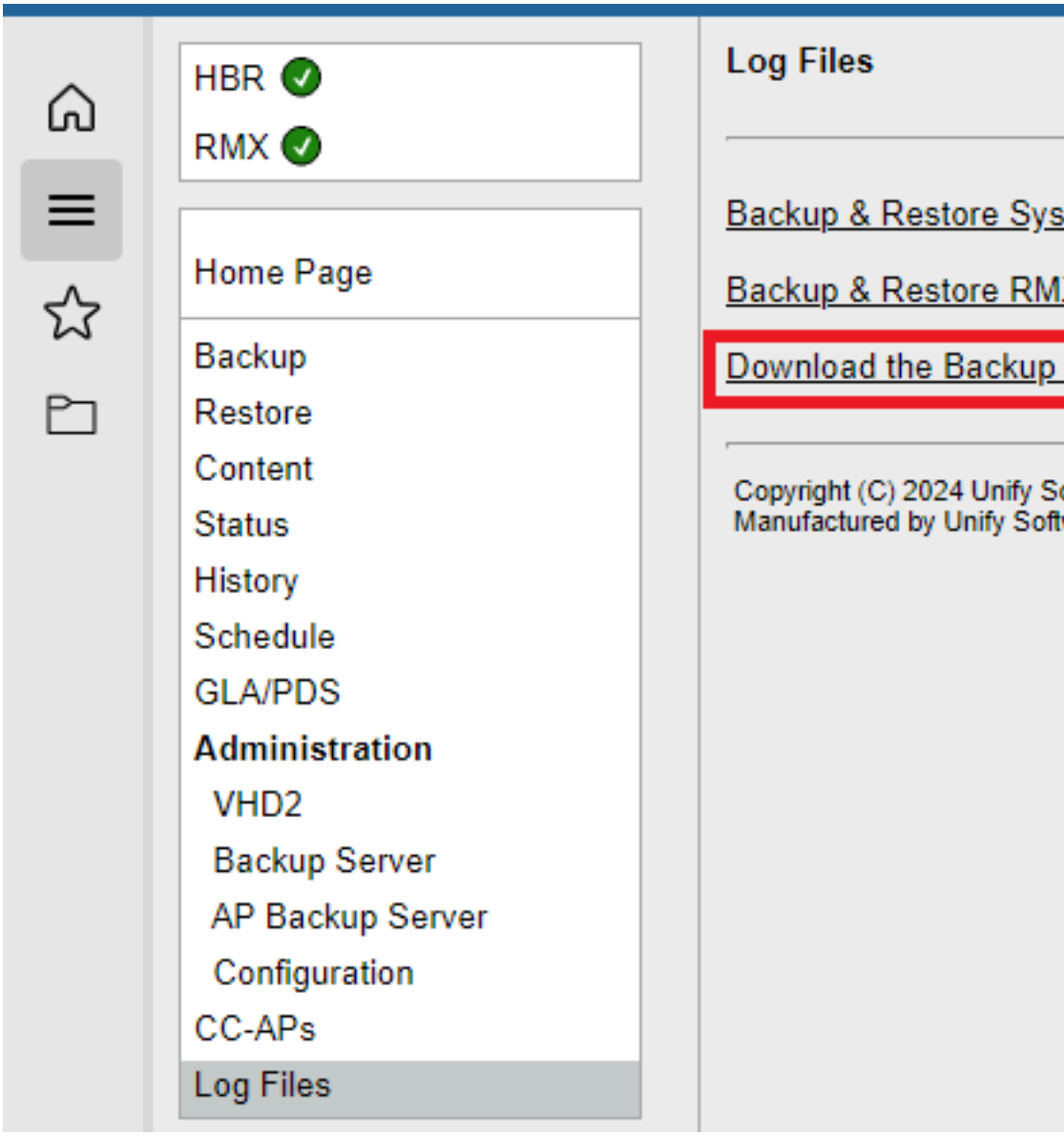


Figure 21: Download the Backup & Restore Log Files

Related Topics

Backup & Restore System Log Files

Status of the Host and all CC APs

Backup & Restore - Overview

Step by Step Instructions

2.14 Recovery VHD2

The Recovery VHD2 can be used to copy the ADP software (RMX and Unix) to a virtual hard disk. From this hard disk the current system data can then be restored. RMX can be booted from the Recovery VHD2.

Areas on the Recovery VHD2

The Recovery VHD2 comprises the following areas:

- VHD2-PDS area (E AREA): Physical copy of the hard disk VHD1-PDS.
- Areas F, G, H: Physical copies of the hard disk areas.
- I area: Unix data.

Creating a Recovery VHD2

1) Initialize the VHD2 (must only be done once per VHD2) via **Administration VHD2**.
2) Transfer the data to the VHD2.
   a) **VHD2-GLA/VHD2-PDS** menu.

      You can either copy individual areas or create the entire VHD2.

      The output of the REGEN AMO is copied together with the F area.

      All areas or alternatively the entire VHD2 can also be generated using the time control feature of the **Schedule** menu.

      If the backup fails 3 times, a "minor" alarm is generated.

      If Unix is updated via SWA, Backup & Restore automatically creates an entry in the schedule for the Unix area.

      The creation of the entry is programmed for the third day after the SWA activation, at 4:00 o´clock.

Restoring a new hard disk using the Recovery VHD2

NOTICE: Attention: This feature can not be started via Backup & Restore.

---

1) Boot RMX from the VHD2.
2) Initialize the hard disk using the sta-init AMO.
3) Copy the areas E through H to the hard disk using the AMO DDRSM.
4) Boot RMX from the hard disk.

Related Topics

GLA/PDS (on OpenScape 4000 Assistant only)

Archive

Backup Type

UNIX and RMX Functionality in Backup & Restore

Backup & Restore - Overview

Step by Step Instructions

3 Step by Step Instructions

This chapter contains practical hints on the use of Backup & Restore and on the execution of the Backup & Restore functions.

The following topics are dealt with:

Preparing the Backup Process

Starting the Backup Process

Preparing the Restore Process

Starting the Restore Process

Restore Process on AP Emergency (CC-AP) Switches

Displaying the Content

Status

History

Schedule

GLA/PDS – Functionality and Operation

Guidelines for Using the VHD2 Disk

Guidelines for Using the I/O Buffer

Administration - Backup Server

Configuring and Administering the AP Backup Server

Log Files¨

Related Topics

The User Interface of Backup & Restore

Backup & Restore - Overview

Functionality

3.1 Preparing the Backup Process

Initially install a backup server or insert a tape or a VHD2. Before you can start the backup process you must specify an **archive** (hard disk, VHD2, DAT tape drive, backup server or buffer) (see Archive page 20) as a target for the backup copy, and select a backup **type** (or several backup types) (see Backup Type page 28).

You can prepare a backup process with Backup & Restore by following the steps described below:

Define an Archive Type

1) Click on the **Backup** option in the navigation section of the Backup & Restore home page.

The **Backup** screen is displayed.

1) Select the archive type that you want for the backup process by clicking the appropriate check box in the **Backup** screen:

Backup & Restore supports the following archive types (storage media):

- **Hard disk** (HD)
- **VHD2** (virtual hard drive). The archive type **VHD2** is only available on the version of Backup & Restore installed on the OpenScape 4000 Assistant and is optional.
- **TAPE** (DAT tape drive). The archive type **TAPE** is only available on the version of Backup & Restore installed on the OpenScape 4000 Manager and is optional.
- **Backup Server** (also referred to as a remote server).
- **AP Backup Server** (backup server for Access Point Emergency (APE) switches)
- **Buffer** (a logical area on the hard disk).

The maximum values for the number of backup sets per type have been defined for each storage medium.

Define a Backup Type

When you have selected the required **archive** (storage medium) you must then define the backup **type** to enable you to start the backup procedure.

1) Select the archive type that you want for the backup process by clicking the appropriate check box in the **Backup** screen:

Backup & Restore supports the following backup types:

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

You may only select the types that are permitted for the selected archive type.

Always Back Up/Restore Webmin and CDB Backup Units in One Step

---

NOTICE: The backup units 'Webmin' (Webmin Tool for System Base Administration) and CDB (database used by System Management) have functional interdependencies. Therefore, we strongly recommend to back up/restore these two units in one step. Backing up/restoring these two units separately is only possible in exceptional cases.

Related Topics

Starting the Backup Process

Backup & Restore - Overview

Functionality

3.2 Starting the Backup Process

Once you have selected the archive and backup type that you want you can start the backup process.

Starting Backup Immediately (Manual Backup)

Starting the Backup Process Automatically via Schedule

Related Topics

Preparing the Backup Process

Backup & Restore - Overview

Functionality

3.2.1 Starting Backup Immediately (Manual Backup)

1) Once you have selected the archive and backup type click the **Start Backup** button on the **Backup** screen.

The backup process is started immediately.

Related Topics

Starting the Backup Process Automatically via Schedule

Backup & Restore - Overview

Functionality

Manual Backup

3.2.2 Starting the Backup Process Automatically via Schedule

1) In the **Schedule** screen define the parameters required for time, date, frequency and synchronization as well as the archive type for the backup process to be executed.
2) **Example for Archive Type "AP Backup Server":** Open the Schedule dialog. Choose the **Status "Enabled"**, the **Frequency**, e.g. **Daily**, the **Time**, e.g. **10:00**, set **Synchronize** to **Yes** (for exec update before backup) or to **No**, choose the **Archive** type **AP Backup Server**, and click on **Add New** to activate this schedule entry.

   The backup process is executed automatically on the specified date.

   NOTICE: In order to avoid synchronization failure in Assistant, please schedule the backup process after 03:00.

   For further information on this topic, please refer to Schedule on page 95.

Related Topics

Starting Backup Immediately (Manual Backup)

Backup & Restore - Overview

Functionality

Schedule

3.3 Preparing the Restore Process

Initially install a backup server or insert a tape or connect to a virtual hard disk (VHD2).

Before you can start the restore process you must specify an **archive** (hard disk, VHD2, DAT tape drive or buffer) (see Archive page 20) as a source and select a backup **type** (or several backup types) (see Backup Type page 28).

You can prepare a restore process with Backup & Restore by following the steps described below:

Define an Archive Type

1) Click the **Restore** option in the navigation section of the Backup & Restore home page.

The **Restore** dialog is displayed.

1) Select the archive type that you want for the restore process by clicking the appropriate check box in the **Restore** screen:

Backup & Restore supports the following archive types (storage media):

- **Hard disk** (HD).
- **VHD2** (virtual hard drive). The archive type **VHD2** is only available on the version of Backup & Restore installed on the OpenScape 4000 Assistant.
- **Tape** (DAT tape drive). The archive type **TAPE** is only available on the version of Backup & Restore installed on the OpenScape 4000 Manager.
- **Backup Server** (remote system).
- **AP Backup Server** (AP Emergency system).
- **Buffer** (a logical area on the hard disk).

Define a Backup Type

When you have selected the required **archive** (storage medium) you must then define the backup **type**.

1) Select the backup type that you want for the restore process by clicking the appropriate check box in the **Restore** screen:

Backup & Restore supports the following backup types:

Backup Set of the Type "Data"

Backup Set of the Type "Logical"

Backup Set of the Type "AP Emergency Data" – APE (on OpenScape 4000 Assistant only)

Backup Set of the Type "All"

Select a backup set

Having selected the backup type you have to select a backup set to enable you to start the restore process.

1) Click the **List** button in the **Restore** screen. The list of all backup sets you can select is displayed.
2) Mark the backup set in the list.

Related Topics

Starting the Restore Process

Preparing the Backup Process

Starting the Backup Process

Backup & Restore - Overview

Functionality

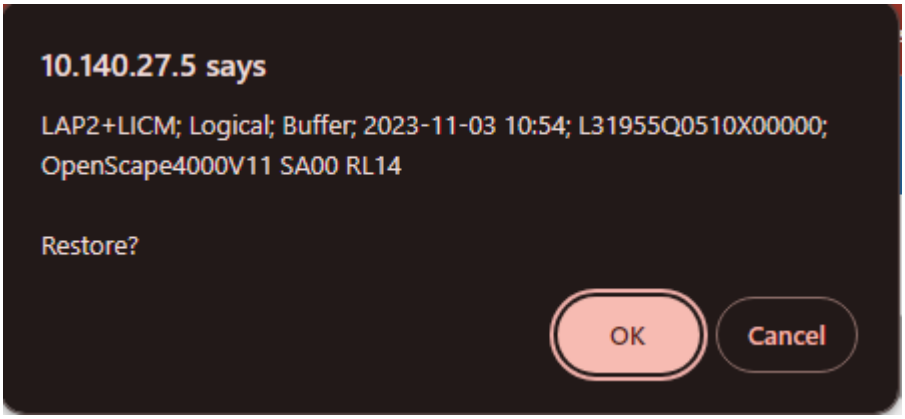
Restore

3.4 Starting the Restore Process

To start the restore operation, click the **Restore Set** button.

Once it has been confirmed by the user, the restore procedure runs in the foreground and is monitored by the user.

Restore Confirmation



On completing the restore operation, an appropriate message concerning success or failure is displayed. If, during the restore process, the connection to the system should fail, the procedure will continue to run. The status can be displayed afterwards by clicking the **Status** button.

NOTICE: The same version (release and revision level) of the RMX software and the UNIX software must be installed on the system. It is not permitted to save data from a new version to an older software version. If data is to be restored selectively for RMX and UNIX, the user will be responsible for the consistency of the data

---

If the restore process concludes with an error, the function will have to be repeated. You can check the status of the restore process by clicking the **Status** button (see Status page 46).

NOTICE: Once the RMX data has been restored, the RMX database is automatically reloaded (with the AMO "`EXEC-LDB;`"); this also causes the system to reboot.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Preparing the Restore Process

Restore Process on AP Emergency (CC-AP) Switches

Backup & Restore - Overview

Functionality

Restore

3.5 Restore Process on AP Emergency (CC-AP) Switches

On AP Emergency (CC-AP) switches the Restore process is normally running automatically, but it can also be started manually.

NOTICE: Important: On AP Emergency (CC-AP) switches the Restore operation can only be performed if the system is configured as **Slave**.

Restore Sequence

After Backup & Restore has transferred (fully or partially) the Backup Set from the AP Backup Server to the local Unix hard disk, the following steps are performed:

- Check if RMX software has been changed. If yes, then:
  - Copy "host files" to :scr: area (Backup & Restore will remove files from :scr: area if space is needed!!!
  - Call AMO test-aps
  - Call AMO copy-aps (Install RMX APSes from :SCR: to RMX device (E area))
- Check if server data has been changed, if yes, then:
  - Copy "host files" to :scr: area
  - Call AMO test-aps
  - Call AMO copy-aps
- Overwrite SWU load tables with APE load tables
- Check and copy the RMX patch directory
- Check Unix software and add new MR/FR and/or new HF
- Execute an RMX system reload
- Set "Restore OK" flag on AP Backup Server.

Related Topics

Preparing the Backup Process

Starting the Backup Process

Preparing the Restore Process

Restore

3.6 Displaying the Content

In the **Content** screen you can select one or more **archives** (storage media) as well as the **type** of the backup set whose content you would like to display. More than one archive and more than one backup set can be selected at the same time. When you click the **List** button, the content of the selected archive and backup set is displayed.

1) Click the **List** button in the **Content** screen.

The backup sets stored in the selected archives are then displayed in the **Content List** screen.

Related Topics

Backup & Restore - Overview

Functionality

Content

3.7 Status

You can display the status of the Backup & Restore backup/restore processes as follows:

1) Click on the **Status** option in the navigation section of the Backup & Restore home page.

The **Status** screen is displayed.

NOTICE: The status display **Success** indicates that the saving process has concluded successfully. The status of a saved backup set is only set to **Success** when the full backup set has been completely saved on the selected archive. This is particularly important with VHD2 and DAT drives because in the case of these drives the backup set is first saved to a temporary directory on the hard disk before it is finally transferred to the definitive destination drive. If you want to check whether this transfer has already finished, click the **Refresh**button to refresh the screen.

One line is added to the backup status for each backup step (e.g. backup of the RMX database).

Each line contains the following parameters:

Operation:	Backup
Date / Time:	e.g. 2010-11-04 14:23
Type:	Data, Logical, AP Emergency
Archive:	HD, Buffer, Backup Server, AP Backup Server, Tape
Unit:	Backup Unit (RMX, UNIX) or **Save** (last step in the backup procedure)

Status:	Running, Success, Error, Cancelled, Backup Error
Mode:	Manual, Automatic
Additional Information	Link to log file containing information on the last Backup/Restore operation executed.

NOTICE: **Save** indicates that data is being saved to the specified archive. The backup procedure has concluded without an error only when **Save** has executed successfully (status: **Success**).

You must always verify the restore status because a system boot that is running sporadically could terminate the operation with errors.

One line is added to the restore status for each restore step (e.g. restoring RMX data).

Each line contains the following parameters:

Operation:	Restore
Date / Time:	e.g. 2010-01-04 14:23
Type:	Data, AP Emergency
Archive:	HD, VHD2, Buffer, Backup Server, AP Backup Server, DS Backup Server, Tape
Unit:	Backup Unit (RMX, UNIX)
Status:	Success, Error
Modus	Man (Manual)
Additional Information	Link to log file containing information on the last Backup/Restore operation executed.

Related Topics

Backup & Restore - Overview

Functionality

Status

3.8 History

A status list of the last backup/restore operations to be carried out is displayed on the **History** screen. Up to 25 processes can be displayed.

Related Topics

Backup & Restore - Overview

Functionality

History

3.9 Schedule

You can define when and how often an automated backup cycle should be executed in the **Schedule** screen.

The following parameters are configured:

Type	Data, Logical, VHD2-RMX, AP Emergency
Unit	All software components (applications) installed on the system and relevant for ’Backup & Restore’ are listed here.
Status:	Enabled, Disabled, Once
Frequency:	Daily, Weekdays, Monday, ... Sunday
Time:	hh:mm
Archive:	HD, Buffer, Backup Server, AP Backup Server, Tape. Backup Server, AP Backup Server, Tape if they are configured and if they physically exist.
S Synchronize:	Yes / No If **Yes** has been set here, the data is saved from the memory to the hard disk first, "exec-updat" is executed on the RMX side, and then the backup is executed.
V Verify transferred data	Yes / No If **Yes** has been set here, the transferred data will be verified (SFTP server and Tape only).
O One File Backup (Assistant only)	Yes / No If **Yes** has been set here, the transferred data will be copied into one single file (Data type only).
I Include installation partition (Assistant only)	Yes / No The flag is relevant only for AP Emergency type. If **Yes** has been set here, the AP backup will include the Assistant installation (so-called Installation Partition). Later when such backup (which includes Installation Partition) is restored on the CC-AP (AP-E/Survivable SG), the Backup & Restore automatically detects, if the current Assistant installation differs from the one in the backup. If a difference is found, the Assistant is reinstalled from the backup. Warning: Linux host platform (PLT) and CSTA are not included in this backup. Therefore if host system is updated by replacing system HD, then each connected AP-E/Survivable SG has to be either installed anew or updated with RLC of the same version as the new host HD.

NOTICE: If the status has been set to **Once**, the backup is only executed once at the configured time, and then the status is reset to **Disabled**.

In the case of automatic backup cycles the backup set **Type** is always **Data**.

Starting the Backup Process Automatically via Schedule

Related Topics

Backup & Restore - Overview

Functionality

Schedule

3.10 GLA/PDS – Functionality and Operation

The following GLA/PDS functions are described here:

Generating a VHD1-GLA/VHD2-PDS

Restoring the VHD1-GLA/VHD2-PDS

Related Topics

Backup & Restore - Overview

Functionality

GLA/PDS (on OpenScape 4000 Assistant only)

Recovery VHD2

3.10.1 Generating a VHD1-GLA/VHD2-PDS

A new VHD1-GLA/VHD2-PDS should always be generated if the program system is evaluated as being correct following a first-time installation or a software update.

You can start the copy function by clicking first on the **VHD1-PDS -> VHD1-GLA** or **VHD1-PDS -> VHD2-PDS** option and then by clicking **Start now**.

The user is prompted to confirm the copy function again. If you activate the **RMX Update** check box, EXEC-UPDAT is executed before the copy procedure. The contents of the VHD1-GLA/VHD2-PDS are overwritten. On copying from VHD1-PDS to VHD1-GLA, PDS is switched off: Thereby current AMOs are interrupted and starting further AMOs is prohibited.

NOTICE: If the VHD2 is not an RMX-VHD2, the contents of the entire VHD2 are lost.

Related Topics

Restoring the VHD1-GLA/VHD2-PDS

Backup & Restore - Overview

Functionality

GLA/PDS (on OpenScape 4000 Assistant only)

Recovery VHD2

3.10.2 Restoring the VHD1-GLA/VHD2-PDS

If you want to copy the VHD1-GLA/VHD2-PDS back to the VHD1-PDS, you must first select the **VHD1-GLA -> VHD1-PDS** or **VHD2-PDS -> VHD1-PDS** option and then start the operation with **Start now**. The user is prompted to confirm the function again. If the **Reload** check box was activated, the system is reloaded from the VHD1-PDS (virtual hard disk) after the VHD1-GLA/VHD2-PDS has been restored to the VHD1-PDS (by means of the AMO `EXEC-REST:System,RELOAD,STD;`).

If this operation is canceled or the VHD1-GLA/VHD2-PDS does not include an executable RMX system, it could cause the entire system to crash.

NOTICE: You must always run an RMX system with the OpenScape 4000 Assistant during normal operation.

Depending on the software version (version, release, revision level), one of the following steps must be performed after the VHD1-GLA/VHD2-PDS has been restored to the VHD1-PDS:

- If the software versions of RMX and UNIX are identical following restoration of the VHD1-GLA/VHD2-PDS, the current data (RMX data and UNIX application data) has to be restored from the restore archive (see also Restore page 37).
- If the software versions of RMX and UNIX are not identical following restoration of the VHD1-GLA/VHD2-PDS, the program systems for RMX and UNIX must be restored from the restore archive in order to achieve a consistent system status (see also Restore page 37). The most up-to-date data is then restored in a second step by means of the restore procedure (type: **data**).

NOTICE: Depending on the starting position, either an older or the latest software version is installed after a backup set of the type **system** has been restored. If an older software version has been installed, the software may have to be updated to the latest version at a later date.

Related Topics

Generating a VHD1-GLA/VHD2-PDS

Functionality

GLA/PDS (on OpenScape 4000 Assistant only)

Recovery VHD2

3.11 Guidelines for Using the VHD2 Disk

The VHD2 in the system can be used by RMX. However, the device can only be used exclusively by RMX (to save a copy of the PDS for example)

Access to the VHD2 is synchronized manually by switching the VHD2 controller on and off using the AMO DSSM.

By default the VHD2 is reserved for RMX, if the VHD2 controller is switched on.

Related Topics

Guidelines for Using the I/O Buffer

Backup & Restore - Overview

Functionality

GLA/PDS (on OpenScape 4000 Assistant only)

Recovery VHD2

3.12 Guidelines for Using the I/O Buffer

The buffer is a special area on the hard disk of the system. It is used for transferring backup sets from the system to a "remote" server or from a remote server to the system.

Following a backup operation to the "buffer" archive, the directory "/IO_BUF/OUTPUT" will contain a backup set called "backup_set*" (* consists of the date, time and possibly other extensions). The backup set generated in this way can then be transferred to a remote server using SFTP.

In reverse, i.e. to restore a backup set from a remote server to a OpenScape 4000 system, the backup set is transferred from the remote server using HFM or SFTP to the "/IO_BUF/INPUT" directory and stored under the name "backup_set*" (* can be any character string). The procedure can then be checked with "Archive Content List" or activated with "Restore". The new backup set is automatically copied to the "/IO_BUF/OUTPUT" directory and deleted from the "/IO_BUF/INPUT" directory.

Related Topics

GLA/PDS – Functionality and Operation

Guidelines for Using the VHD2 Disk

Backup & Restore - Overview

Functionality

Archive Type: Buffer

3.13 Administration - Backup Server

The customer backup server is configured and administered in the **Administration Backup Server** screen.

When the Backup & Restore application data is being backed up, the configuration data of the SFTP or NFS connection to the customer backup server should also be backed up.

NOTICE: Important: In order to use the **NFS connection** type, the UNIX or Linux operating system needs to be running on the backup server.

NOTICE: NFS configuration for Backup & Restore From OpenScape 4000 V8 R1 the Assistant Backup & Restore NFS uses Platform management IP address in addition to Assistant IP for mounting the remote NFS server. Therefore it is important to configure the IPs of Node1 and Node2 in addition to the Assistant IP in the NFS server exports and in the customer Backup Server Firewall.

The automatic backup jobs entered under **Schedule** should also be backed up if a backup is being created by Backup & Restore itself. When Backup & Restore is being installed, preset default jobs are generated for executing automatic backup jobs.

Transfer protocols

Backup & Restore supports the following transfer protocols:

- **NFS**

  When you select the **NFS Transfer Protocol**, only the input fields **IP Address, Host Name** and **Destination Directory** are displayed, i.e. only these fields need to be filled in.
- **SFTP**

  When you select the S**FTP Transfer Protocol**, the input fields **IP Address, Host Name, Destination Directory**, **Login**, **Password** and **Account** are displayed, i.e. additional information is required for login, password and account.

Input Fields

- **IP Address**

  Enter the IP address of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Host Name**

  Enter the host name of the remote server here. The input fields **IP Address** and **Host Name** are both used to identify the system. If you have entered the IP address, you must not enter the host name, and vice versa.
- **Destination Directory**

  Enter the destination directory on the remote server here.
- **Login** (only needed for SFTP)

  Enter the user name here that is to be used for logging onto the remote server.

- **Password** (only needed for SFTP)

  Enter the password associated with the user name here that is to be used for logging onto the remote server.
- **Account** (only needed for SFTP)

  Enter another account password here. This information is required for BS 2000 and need not be entered for other operating systems such as UNIX, for example.
- **Additional Information**

  Shows status messages such as "Customer Backup Server not configured" if the server is not configured, for example.

3.14 Configuring and Administering the AP Backup Server

To configure and administer the AP Backup Server, please perform the following steps:

- Setting Up the AP Backup Server as Archive for Access Point Emergency
- Administering the AP Backup Server on the Host (System)
- Setting up and activating the automatic backup configuration (via the Schedule dialog)
- Configuring UNIX on the CC-AP
- Creating the GLA (Golden Load Area) on the CC-AP
- Administering the AP Backup Server on the CC-AP
- Configuration transfer automatically between host and CC-AP

NOTICE: This feature is only available with Backup & Restore installed locally on the OpenScape 4000 Assistant.

3.14.1 Setting Up the AP Backup Server as Archive for Access Point Emergency

In order to configure the software and data replication, the Unix IP address must be configured via 'Webmin' first. Afterwards software and data replication can be configured with **'Backup & Restore'**.

3.14.2 Administering the AP Backup Server on the Host (System)

Modifications to the configuration data on the Host have to be done only once, irrespective of the number of CC-APs.

Any Windows or Linux/Unix based server running SFTP (server) or NFS can be used as AP Backup Server. Furthermore, the "Host" server itself or one of the AP servers can act as AP Backup Server.

The archive "AP Backup Server" can hold only one backup set of type APE (Access Point Emergency Data). Backup sets of other types (Data, System or Logical) are not permitted.

Configuring the HOST

- Start the **'Backup & Restore'** application.
- Select **Administration AP Backup Server** in the navigation area.
- Choose the desired **Protocol** radio button (**SFTP** or **NFS**).
- Enter the **IP address** or the **Host Name** of the AP Backup Server.
- Enter the **Directory** on the AP Backup Server intended for 'Backup & Restore'. The recommended destination directory is `/.AS/BACKUP/IPDA`.
- If the **SFTP** protocol is used, enter the **Login name** and **Password** for the AP Backup Server.

NOTICE: For security reasons use 'apeftp' as login. For details refer to Service Documentation, section "Complex Solutions, Configuring the APE Feature".

If the AP Backup Server needs an **Account**, enter it as well.

- Click the **Test** button to test the configuration entered.
- Click the **Save & Test** button to save and test the configuration data entered. Also, the configuration is transferred to any connected APE entities.
- Open the **Schedule** dialog - see Setting up and activating the automatic backup configuration (via the Schedule dialog).

3.14.3 Setting up and activating the automatic backup configuration (via the Schedule dialog)

- Open the Schedule dialog.
- Choose the **Status "Enabled".**
- Choose the **Frequency**, e.g. **Daily**, the **Time**, e.g. **10:00**.
- Set **Synchronize** to **Yes** (for exec update before backup) or to **No**.
- Choose the **Archive** type **AP Backup Server.**
- Click on **Add New** to activate this schedule entry.

3.14.4 Configuring UNIX on the CC-AP

Normal Unix configuration via 'Webmin', as performed on any CC-AP.

Example: IP address and default Gateway have to be configured as minimum configuration for Backup & Restore via UBA.

3.14.5 Creating the GLA (Golden Load Area) on the CC-AP

See GLA/PDS (on OpenScape 4000 Assistant only), **VHD1-PDS -> VHD1-GLA** option.

3.14.6 Administering the AP Backup Server on the CC-AP

A Backup & Restore cycle of the AP data is performed automatically.

Configuring the AP Backup Server on the CC AP (Survivability Unit)

Configure the AP Backup Server in the same way as for the HOST.

- Start the **'Backup & Restore'** application
- Select **Administration AP Backup Server**in the navigation area
- Choose the desired **Protocol** radio button (**SFTP** or **NFS**)
- Activate or deactivate, respectively, the **Automatic Restore Disabled** button.
  - **Deactivated** - If this checkbox is deactivated Backup & Restore automatically starts the scanning of the AP Backup Server.
  - **Activated** - If this checkbox is activated Backup & Restore does NOT scan the AP Backup Server. This configuration avoids conflicts between the APE activities and the Service activities.
- Enter the **IP address** or the **Host Name** of the AP Backup Server
- Enter the **Directory** on the AP Backup Server intended for 'Backup & Restore' . The recommended destination directory is `/.AS/BACKUP/IPDA`.
- If the **SFTP** protocol is used, enter the **Login name** and **Password** for the AP Backup Server.

  NOTICE: For security reasons use 'apeftp' as login. For details refer to Service Documentation, section "Complex Solutions, Configuring the APE Feature".

- If the AP Backup Server needs an **Account**, enter it as well.
- Click the **Test** button to test the configuration entered.
- Click the **Save & Test** button to save and test the configuration data entered.
- Click the **Auto-Configure** button to pull and test the AP backup server configuration from the host to the current APE.
- The configuration settings for automatic restore are **not** displayed in the **Schedule** dialog, and it is **not** possible to configure or change these settings.

  NOTICE: When the initial setup of the system is performed, a backup process is started automatically in order to find out the delta to the Host data, i.e. the data that has changed as compared to the Host data. Based on this delta, only the changed data will be transferred from the AP Backup Server to the CC AP system.

  NOTICE: This feature is only available with Backup & Restore installed locally on the OpenScape 4000 Assistant.

Related Topics

Backup & Restore - Overview

Functionality

Administration – AP Backup Server

3.14.7 Configuration transfer automatically between host and CC-AP

- When the Backup & Restore package is installed, every APE tries to pull automatically AP backup server configuration from the host. The propagation date will be displayed in GUI.
- On every APE, when the Backup & Restore package is installed, a CRON-JOB is used to pull automatically the AP backup server configuration from the host. Every APE will have a different launching time after midnight.

3.15 Log Files

The Log Files area contains the following kind of error and status logs:

Error Logs

- Backup & Restore System Log Files

  The debug and error log files for the system (UNIX) and RMX backup cycles of Backup & Restore are listed in the **Backup & Restore System Log Files** and **Backup & Restore RMX Log Files** screens. Depending on whether Backup & Restore has been installed on the OpenScape 4000 Assistant or on the OpenScape 4000 Manager, different log files may be displayed.

  The debug and error log files for the system backup cycles (UNIX) of Backup & Restore are listed in the **Backup & Restore System Log Files** screen. This list includes the log files for every application registered under Backup & Restore.
- Backup & Restore RMX Log Files

  The debug and error log files for the RMX backup cycles of Backup & Restore are listed in the **Backup & Restore RMX Log Files** screen.

Status Logs

- Status of the Host and all CC APs

  Displays the current status of the Host system and of all CC AP systems.

Related Topics

Backup & Restore - Overview

Functionality

Log Files

4 Backup & Restore - API

The Backup & Restore API is a RESTful web service which enables the external programs to configure the backup server and perform backup or restore operation.

It offers the following:

- Perform Logical or Data backup
- Perform Restore of the Logical/Data backup set
- Configure the parameters of the Backup Server
- Get the List of backup sets (archive content listing)
- Get the Status of executed backups/restores
- Get the current Backup Server configuration
- Test the Backup Server configuration

4.1 Security

Authentication

- Authentication is realized using HTTP header sent to specific URL on OS4k Assistant
- Authentication can be done with any CLI http client (like wget or curl) or programatically with any http client
- URL: https://<assistant>/USSW/secmcj
- Format of header is: 'X-SECMCJ: doLogin <user>:<password>'

- OpenScape 4000 uses cookie ASUNITY_SESSION cookie, value of cookie is in output from request (see examples):

  ```
  curl -k -H 'X-SECMCJ: doLogin <user>:<password>'
  "https://<IP>/USSW/secmcj"
  ```

  Example:

  ```
  curl -k -H 'X-SECMCJ: doLogin engr:MySecretPasswd'
  "https://10.82.20.79/USSW/secmcj”
  ```

  Response

  ```
  returnCode=<return_code>
  ```

  ```
  slogin=session=<cookie_value>&key=login-
  form&role=<security_role>
  ```

  Example (Success):

  ```
  returnCode=SECM_OK_BOUNDARY
  ```

  ```
  slogin=session=SRo7ytf7ytuAUgkAzAc&key=login-
  form&role=engr
  ```

  Example (Invalid password):

  ```
  returnCode=SECM_INVALID_LOGIN
  ```

  ```
  errorReason=ussc:SECMDB_E_ACCESS:*
  ```

  Example (force password change). Further authenticated requests are not possible in this case. Password must be changed over GUI.

  ```
  returnCode=SECM_FORCECHANGE_PWD
  ```

  ```
  slogin=session=DImwWfTFNcZAyfr0Fvk&key=login-
  chgpwd&role=engr
  ```

  Example (User is locked):

  ```
  returnCode=SECM_USER_LOCKED
  ```

  ```
  errorReason=ussc:SECMDB_E_LOCKED:*
  ```

  Return codes

  Most of the codes are self-explanatory. Only some of them are related to authentication.

`#define SECM_OK_BOUNDARY 0`	`//Success`
`#define SECM_INVALID_LOGIN 1`	`//Invalid user or password`
`#define SECM_FORCECHANGE_PWD 2`	`//Password is required to be changed`
`#define SECM_FATAL_ERROR 3`	`//Fatal error, Security Management is probably not working`

#define SECM_INVALID_SESSION 4	
#define SECM_INVALID_TOKEN 5	
#define SECM_NOT_PERMITTED 6	
#define SECM_UNKNOWN_URI 7	
#define SECM_PWD_INSECURE 9	
#define SECM_PWD_OLDNOMATCH 10	
#define SECM_PWD_NOUSER 11	
#define SECM_OK_COMMON_URI 12	
#define SECM_TOO_MANY_SESSIONS_HARD 13	//Too many sessions are opened
#define SECM_TOO_MANY_SESSIONS_SOFT 14	//Too many sessions are opened
#define SECM_USER_LOCKED 15	//User is locked
#define SECM_CONNECTION_ERROR 16	
#define SECM_USER_ALOCKED 17	//User is automatically locked and will be unlocked after time

Authorization

Access rights for the API can be configured in **Access Management --> Access Right Group Configuration** and assigned to specific users in Access Right Configuration.

User with '**Read Access'** access right can read any data about history and running Backup/Restore jobs.

User with '**Backup**' access right can execute Backup or Restore jobs and get list of Backup Sets.

User with '**Administration of backup devices and servers'** can read and configure backup server.

4.2 API Description

4.2.1 GET /rest/backupManager/jobs/{id}

Provides status information of the given job.

Parameters:

id - identifier of the job which to be ID of the job to be queried.

Returns:

```
HTTP 200:
{
"archive": "BUFFER",
"backupType": "LOGICAL",
"id": "bml1519108252000",
"job": "BACKUP",
"overallStatus": "SUCESSFUL",
"startType": "MANUAL",
"time": "2018-02-20 07:30:52",
"units": [
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ABD"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "Appctrl"
},
{
"requiredTime": 126,
"status": "SUCCESSFUL",
"unit": "CDB"
},
```

```
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ComWin"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "HBR"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "HBR_MPCID"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "LAP2"
},
{
"requiredTime": 16,
"status": "SUCCESSFUL",
"unit": "LOGM"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ProcM"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "SecM"
},
{
"requiredTime": 1,
```

```
"status": "SUCCESSFUL",
"unit": "TRACE"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "webmin"
}
],
"url": "/rest/backupManager/jobs/bml1519108252000"
}
```


4.2.2 GET /rest/backupManager/backupSets

Returns a list of all backup sets in all available archives.

Returns:

Array of available backup sets, which can be used for restore. response.

HTTP 200:


```
[
{
"archive": "HARDDISK",
"id": "000HD",
"software": "V8R2.10",
"startType": "MANUAL",
"sysNo": "L31915Q0910X00001",
"time": "2018-03-23 15:23",
"type": "DATA",
"units": [
"ABD",
"Appctrl",
"BEER",
"BEER_CSTA",
"CDB",
"ComWin",
"HBR",
"HBR_MPCID",
"HG3550M",
```

"LAP2",
"LOGM",
"ProcM",
"RMX",
"SecM",
"TRACE",
"webmin"
]
}
]

4.2.3 GET /rest/backupManager/status

Provides current status of backup manager.

Returns:

Status of backup manager. Possible values are:
"IDLE" - ready to accept job requests
"BACKUP_RUNNING" - backup job is running
"RESTORE_RUNNING" - restore job is running
"BACKUP_CANCELLED" - last backup is cancelled
"LOCKED_BY" - backup manager is locked by a system job
"SAVING_TO_ARCHIVE" - transferring backup set to archive
Example response:
{
"status": "IDLE"
}

4.2.4 GET /rest/backupManager/administration/backupServer

Returns backup server configuration.

Returns:

HTTP 200:
{
"directory": "/home/apeftp/sftp",
"host": "10.82.61.5",
"login": "apeftp",
"protocol": "SFTP",

"url": "https://10.82.15.5/rest/backupManager/administration/backupServer"
}

4.2.5 POST /rest/backupManager/administration/backupServer

Configures the backup server.

Parameters of body:

protocol - server protocol can be "SFTP" or "NFS"
host - IP address of the backup server
directory - destination directory on the backup server
login - user name for logging in to backup server
password - password associated with the given login
body:

```
{
"protocol": "SFTP",
"host": "10.82.61.5",
"directory": "/home/apeftp/sftp",
"login": "apeftp",
"password": "$apeftp%",
}
```

Returns:

List of jobs
HTTP 200:

```
{
"message": "Server configured",
"result": true
}
```

4.2.6 GET /rest/backupManager/jobs

Provides the history of recent backup jobs including their statuses.

Returns:

Array of backup jobs.
HTTP 200:

```
[
{
"archive": "BUFFER",
```

"backupType": "LOGICAL",
"id": "bml1519108252000",
"job": "BACKUP",
"overallStatus": "SUCESSFUL",
"startType": "MANUAL",
"time": "2018-02-20 07:30:52",
"units": [
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ABD"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "Appctrl"
},
{
"requiredTime": 126,
"status": "SUCCESSFUL",
"unit": "CDB"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ComWin"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "HBR"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "HBR_MPCID"
},

```
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "LAP2"
},
{
"requiredTime": 16,
"status": "SUCCESSFUL",
"unit": "LOGM"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "ProcM"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "SecM"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "TRACE"
},
{
"requiredTime": 1,
"status": "SUCCESSFUL",
"unit": "webmin"
}
],
"url": "/rest/backupManager/jobs/bml1519108252000"
}
]
```


4.2.7 POST /rest/backupManager/jobs

Depending on parameter "job" starts a new backup job or starts a restore job .

BACKUP JOB

Starts a new backup job. It can be a DATA or LOGICAL backup. The backupSet is saved to the specified archive.

Parameters of body:

job - "BACKUP" for a backup job.

archive - specifies backup archive for storage of backupSet. It can be one of "SERVER", "HARDDISK" or "BUFFER".

type - Backup type. It can be either "DATA" or "LOGICAL".

body

{

"job": "BACKUP",

"archive": "HARDDISK",

"type": "DATA"

}

Returns:

HTTP 200:

{

"archive": "HARDDISK",

"backupType": "DATA",

"id": "bmd1524500850000",

"job": "BACKUP",

"overallStatus": "RUNNING",

"url": "https://10.82.15.5/rest/backupManager/jobs/bmd1524500850000"

}

RESTORE JOB

Starts a restore job of a given backup set.

Parameters of body:

job - "RESTORE" for restore job.

backupSet - ID of the backup set to be restored. Note this is not a job ID.

body

{

"job": "RESTORE",

"backupSet": "002HD"

}

Returns:

HTTP 200:

{
"id": "rmd1524561319000",
"overallStatus": "RUNNING",
"url": "https://10.82.15.5/rest/backupManager/jobs/rmd1524561319000"
}

4.2.8 GET /rest/backupManager/administration/backupServer/test/

Tests the current configuration of backup server

Returns:

HTTP 200:

{
"message": "Server test successful.",
"result": true
}

5 Using the Help

5.1 Layout

Navigation

The navigation area is displayed at the left of the browser window and contains the following tabs:

- **Contents** tab The **Contents** tab displays all topics relevant to the Help. Click the “**+**” or “**-**” icon, respectively, to expand or collapse the subtopics. Click any entry to display the relevant topic in the Topic area.
- **Index** tab Click the **Index** tab to view all index entries. An alphabetical list of keywords for each topic is displayed. Click any index entry to display the relevant topic.
- **Search** tab Click the **Search** tab to search for a word or phrase. Enter the search term and click **Go**. If you do not know the exact word or phrase, you can enter a star "*" before or after the term. Click any search result entry to display the relevant topic. (For details see "Searching Within the Help").

Contents

The Contents include entries from the FrameMaker TOC (English) or IVZ (German) file. The individual topics can be expanded or collapsed. If no H2 title follows, a page icon appears instead of the “**+**” or “**-**” icon.

Index

The Index contains entries from the FrameMaker IX (English) or SIX (German) file. The index entries are either shown collectively or appear under individual letters of the alphabet in cases where there are several index entries associated with an alphabet.

Search

One or more search terms can be specified. The section titles of the corresponding search results are displayed. Clicking / double-clicking on a topic opens that topic and shows the search results with the search terms highlighted. The ranking entries for the individual search results reflect the frequency of hits as a percentage. When searching a multi-volume, the book title appears in addition to the section titles.

Favorites (only with Java)

The user can add links to frequently visited pages to his or her Favorites (only possible with Java)

Toolbar

The toolbar is displayed at the top of the browser window and contains the following buttons:

- Display in Contents Click this button to synchronize the contents currently displayed in the Topic area with the list of contents. If you navigate through the Topic area with the "Previous Topic" or "Next Topic" buttons, you can use

the "Display in Contents" button to display the relevant topic entry in the list of contents.

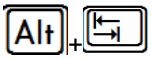
- Previous Topic Click this button to revert to the previous related topic. By contrast, click the "Back" button of the browser to revert to the last topic viewed.
- Next Topic Click this button to jump to the next related topic.
- Print Click this button to print the topic currently displayed in the Topic area. (For details see "Printing Help Topics").

Topic

The Topic area is at the right of the browser window and displays the information on the selected topics.

The browser's caption displays the title of the current Help page.

5.2 Overview of Key Functions

- Key combination 

You can use this key combination to switch between the Help and the application.
- Text highlighted in blue (links) Within a Help topic, you can click a link (text highlighted in blue) to obtain further information about the topic. This information is displayed in the Topic area as well.
- Popup windows Within a Help topic, you can click a link (text highlighted in blue - bold) to obtain further or more detailed information in an additional window (popup). These popup windows are displayed in the lower left corner by default.
- If you click another popup link while a popup window is open, the contents of the popup window will be changed accordingly.

  A popup remains displayed until it is closed or the entire Help is closed.
- Drop down text If you click on text identified with the icon within a Help topic, a drop down text box containing additional information will open under the text. Click the icon again to collapse this text box. To collapse all drop down text boxes in a Help topic, click the browser's **Refresh** button.
- Start page Click the first entry in the table of contents to open the start page for the Help. The start page may contain the following information about the open Help:
- – Title of the Help
  – Help ID number
  – Link to **HTML download**
  – Link to **PDF download**
  – Link to **Feedback**
  – Version number and release date of the Help

5.3 How to Use the Help

You can use the following functions to navigate the Help system:

- Open the Help Window
- Searching Within the Help

- Printing Help Topics
- Key Combinations in the Help

5.3.1 Open the Help Window

There are different ways of opening the Help depending on the application.

Display the Help topics

- Open the contents of the integrated Help by using the **Help** menu in the application.
- Or
- Left-click the Help icon in the application toolbar to open the content of the Help.
- Or (if implemented)
- Left-click the Help icon or the Help button in the application window.

Context-sensitive help for a window (if implemented)

- Press key F1 if you require information about a window.

Context-sensitive help for an element (if implemented)

- Select an element (field, button, tab, etc.) in the user interface and press the ⇧ + F1 keys to open the context-sensitive help.
- Or
- Open the context-sensitive help by using the **Help** menu in the application.
- Or
- Left-click the Help icon in the application toolbar. The cursor will become a question mark . Now click an element (field, button, tab, etc.) in the user interface to view the relevant Help text.

5.3.2 Searching Within the Help

The Help has an integrated full-text search function which makes it easy for you to find the information you need.

1) To search for a word or phrase, click the **Search** tab in the Navigation area on the left.
2) Enter the search term in the input field. To optimize the search, you can search for several words at the same time. If you do not know the exact word or phrase, you can insert an asterisk "*" before or after the term. Spaces between words are interpreted as AND operators (see examples). The search is not case-sensitive.

3) **Examples**

   `Te*` This will display all topics containing a phrase beginning with the letters *Te...* or *te...*, such as *text, teleworking, telephone, telephone connection, Telephone Connection,* etc.

   `Find text` This will display all topics containing the word *find* or *text* or both.

4) If the Help consists of several books, you can optionally select a specific book. In this case a drop down list showing the names of all books will be displayed. The preselected option in this drop down list is **All available books**. If you select this entry, the search is run in all available books. The search result displayed indicates the source (book).
5) Click the **Start** button to initiate the search.
6) Click an entry in the list of search results (in the **Title** column) to display the required topic.
7) The more often the search term occurs on the page, the higher its **priority** will be. Results also have priority if the search term occurs in the heading.

   The **title** shows the heading of the chapter in which the term occurs.

   The **book** in which the term occurs is displayed last.

NOTICE: You can also use your browser's (CTRL + F) search function to run a search within a Help topic.

5.3.3 Printing Help Topics

- Right-click the topic you want to print and click the **Print** button.
- Or
- Click the **Print** icon in the toolbar.
- Or
- Press the CTRL + P keys.

NOTICE: Popup windows: To print the contents of a popup Help topic, right-click anywhere in the popup window and click Print topic.

NOTICE: Drop down list: If you wish to print the information displayed in dropdown text, it must be visible. Be sure to open the desired drop down text boxes prior to printing the topic.

5.3.4 Key Combinations in the Help

Key combinations	Action
ALT+TAB	Switch between the Help and other open windows.
TAB	Jump to the next link within a Help topic.

Key combinations	Action
SHIFT+TAB	Revert to the previous link within a Help topic.
F5	Refresh the display.
CTRL+POS1	Go to the top of the page.
CTRL+END	Go to the end of the page.
CTRL+A	Select all the text in a window.
CTRL+F	Search within a Help topic.
CTRL+P	Print a topic.
ALT+left arrow	Revert to the previously displayed topic.
ALT+right arrow	Go to the next (previously displayed) topic.
ALT+F4	Close the Help.

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