

Documentation

HiPath 4000 V5

System Components - General Information

Service Documentation

A31003-H3150-S102-2-7620

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1 Product Versions for Connectivity to HiPath 4000 V5

| Application / Product | required version |
|--|------------------|
| Applications | |
| AC-Win IP | V1, V2 |
| AC-Win XP | |
| AC-4 | |
| HiPath BLF-Win | V3.0 R13.0.0 |
| HiPath Common Application Platform (CAP) | V3 R9 |
| HiPath ComAssistant | V2.0 |
| HiPath Cordless E (CMI) | V3.0 |
| HiPath DAKS | V2.1 und V3 |
| HiPath Deployment Service (DLS) | V2 R2.430.0 |
| HiPath Display Telephone book (DTB) | V9.0 |
| HiPath DS-Win | V3.0 & V4 |
| HiPath Hospitality Service Center | V2.0, V2.5 |
| HiPath Meet-Me Conference Server (MMCS) | V1.0.5 |
| HiPath MobileConnect | V2 |
| HiPath ProCenter Enterprise | V7 R2 |
| HiPath Trading | V3.0 |
| HiPath Xpressions | V5 |
| OpenScape Xpressions | V6 |
| PNE (Private Network Emulation) | V3.1 |
| HiPath clients / endpoints | |
| TDM endpoints | |
| OpenStage 10/15/20/40/60/80 T | |
| optiPoint 500 | --- |
| IP endpoints | |
| OpenStage 20/40/60/80 HFA | V1 R5 |
| optiPoint 410/420 | V5 R3 |
| optiPoint WL2 professional | V1.0 |
| SIP endpoints | |
| OpenStage 10/15/20/40/60/80 SIP | |
| optiPoint 150 S | V1.0 |
| optiPoint 410/420 SIP | V7.0 |
| OpenScape VHD 100 / 400 / 600 / VP100 | |

Table 1 Mandatory product versions for connectivity to HiPath V5

Product Versions for Connectivity to HiPath 4000 V5

| Application / Product | required version | |
|--------------------------------------|------------------|---|
| OpenScape VP100 (Audio Conferencing) | | |
| Soft clients | | |
| OpenScape Personal Edition | V3 | |
| optiClient 130 | V5.2 | |
| HiPath Meta Management | | |
| HiPath 4000 Assistant | V5 | |
| HiPath 4000 Manager | V5 | |
| HiPath Accounting Management | V2.0 R3 | |
| HiPath Fault Management | V3.0 R5.12.0 | |
| HiPath Performance Management | V2.0 | |
| HiPath QoS Management | V1.0 | |
| HiPath User Management | V2.0 R6.0.0 | |
| Platforms | | |
| HiPath 3000 | V7 | CorNet-NQ (TDM) and SIP-Q V2 |
| HiPath 4000 | V1.0 | Cornet-NQ (TDM) |
| HiPath 4000 | V2.0 | Cornet-NQ (TDM) and Cornet-IP |
| HiPath 4000 | V3.0 | Cornet-NQ (TDM), Cornet-IP and SIP-Q V1 |
| HiPath 4000 | V4 | Cornet-NQ (TDM), Cornet-IP and SIP-Q V2 (preferred) |
| OpenOffice EE | V1 | SIP-Q V2 |
| OpenScape Voice | V3.1 R2 | SIP-Q V2 |

Table 1 Mandatory product versions for connectivity to HiPath V5

Supported Features for HiPath Clients / Endpoints

| HiPath Clients / Endpoints | HiPath Feature Access (HFA) | SIP | TDM | Encryption |
|-------------------------------|-----------------------------|-----|-----|------------|
| optiClient 130 | x | --- | --- | x |
| optiPoint 150 S | --- | x | --- | --- |
| optiPoint 410/420 | x | --- | --- | x |
| optiPoint 410/420 SIP | --- | x | --- | x |
| optiPoint 500 | --- | --- | x | --- |
| optiPoint WL2 HFA | x | --- | --- | --- |
| OpenStage 10/15/20/40/60/80 T | --- | --- | x | --- |

Table 2 Supported Features for HiPath Clients / Endpoints

| HiPath Clients / Endpoints | HiPath Feature Access (HFA) | SIP | TDM | Encryption |
|----------------------------|-----------------------------|-----|-----|------------|
| OpenStage 20/40/60/80 HFA | x | --- | --- | x |
| OpenStage 20/40/60/80 SIP | x | --- | --- | x |

Table 2 Supported Features for HiPath Clients / Endpoints

2 License Packages

2.1 HiPath ComScendo

The communication software used by **Siemens HiPath Real Time communication systems** is known as **HiPath ComScendo** and offers an extensive range of enterprise-class features. The software is fully scalable and can satisfy the individual requirements of small as well as medium and large enterprises.

The range of functions offered by **HiPath ComScendo** varies depending on the hardware configuration.

The following license packages ship with the **HiPath ComScendo** license:

- Operating system software
- Station access
- CO/networking
- CO networking
- CDR-E
- AP voice compression
- HiPath ComScendo Security

IMPORTANT: The **HiPath ComScendo Security license** released with HiPath 4000 V3.0 is integrated in the **HiPath ComScendo** license as of HiPath 4000 V4 and, thus, is no longer marketed separately for HiPath 4000 V4 systems.

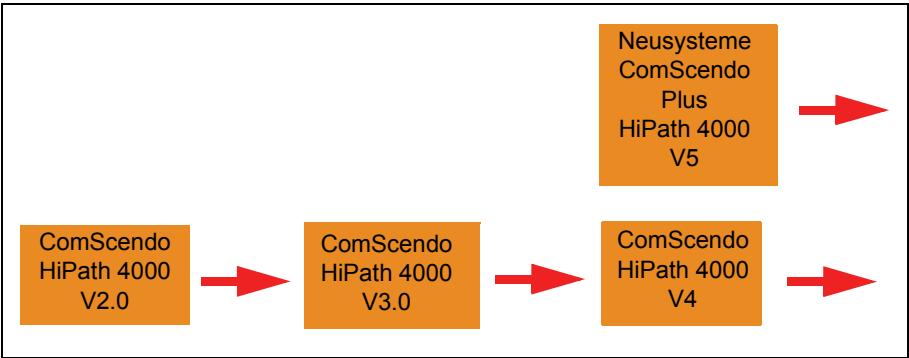
2.2 HiPath ComScendo Plus

HiPath ComScendo Plus is released for the first time with HiPath 4000 V4 and adds the following license packages to the **HiPath ComScendo** scope:

- Voicemail function: HiPath Xpressions V5.0 VM license
- CTI function: HiPath Xpressions Basic CTI Client

IMPORTANT: New HiPath 4000 V5 systems are only available with **HiPath ComScendo Plus**.

Upgraded systems will continue to be operated with **HiPath ComScendo**.



3 Hardware Architecture Table

The hardware architecture table is an ASCII file on the :PDS: area of the hard disk. It can be displayed with:

e.g. `STA-LIST: " :PDS:APSU/HWARCH0 " , , ,M,N;`

The hardware architecture table shows:

- which parameters are required for the AMOs DBC and APC for a given ARCHITECTURE and a given ARCHITECTURE TYPE.
- which selections must be available on the hard disk
- which memory modules must be inserted in the CC
- which jumpers must be inserted in the CC shelf backplane

You will also find further a wide range of useful tips (e.g. on generating systems).

4 Hardware Configurations

The following hardware configurations are released with HiPath 4000 V5:

- 80 CXE
- 600 ECS with cPCI server conversion
- cPCI

Three new architecture types have been added, specified as HiPath 4000 with cPCI shelf, in the following layout variants:

- Mono Processor

and

- Duplex Dual Processor system.

You can find more detailed information on the configurations in the hardware architecture table (see [Chapter 3, “Hardware Architecture Table”](#)).

5 Applications, Loading Tables and Selections

This chapter describes [ADP/ADS](#) and [SWU](#) applications (APL), loading tables (CLT) and selections (SEL) for HiPath 4000 V4.0.

These tables are used for loading the APS subsystems into the specific individual memory areas on HiPath 4000 V4.0 or on the hard disk.

All three table types are administered in CmCntrl (CLT type with APL element for applications and SEL for selections) and delivered as subsystems to the APSs.

5.1 Special Characteristics of CPCI Hardware (4000)

To configure CPCI systems, use the AMO-CPCI with following settings:
RTM=YES and MONO=YES/No.

IMPORTANT: In the case of dual systems, you must perform the update within the ADS once the system configuration has been completed. Otherwise, the system will fail to reboot after a restart.

IMPORTANT: Wrong configuration settings will result in the message:

```
READING BOOT CONFIGURATION FILE
<APSC/CFW/BOOTCONF> OKAY
PROCESSOR TYPE = MONO, SHELF TYPE = LO_SHELF_DSCXL, MCM TYPE =
MCM_ADP
```

5.2 ADP/ADS

In the following sections you will find information about the [Applications](#), [Loading Tables](#) and [Selections](#) of the ADP/ADS.

5.2.1 Applications

ADP/ADS applications are delivered to the ZAPLTABD subsystem in the ADP/ADS APS.

ADP/ADS applications are function-specific. An ADP/ADS application contains one or more subsystems which are necessary for executing a specific function. ADP/ADS applications are individually activated as required to load the subsystems onto the system memory.

| Name of application | Short description |
|----------------------------|--|
| ACLBT | Automatic Communication Link Buffer and Block Task (buffers and signals ACL) |
| BS-ADP | ADP base application in a 600ECX Dual system |
| BS-ADPMP | ADP base application for all monoprocessor systems |
| BS-MPSTA | Base application for monoprocessor systems in stand-alone operation |
| BS-PCI | Application for PCI |
| BS-PCIMP | Base application for loading table for PCI |
| BSGENSUP | Application for the generation of a H80CM |
| BST | Background Signalling Task (printing out dependability messages from the terminal for Service) |
| DCF77D | Radio clock function for 80CM systems |
| DCF77P | Radio clock function for 80CM systems |
| ETD | Electronic Telephone Directory Support Task (ADS component) |
| OS-TFRM | OS test frame |

Table 3 *ADP/ADS applications*

5.2.2 Loading Tables

ADP/ADS contains "blank" and "filled" loading tables.

"Blank" loading tables

Subsystems are entered in "blank" loading tables when applications are activated.

- ZADSCAT0
- ZADSCMT0

"Filled" loading tables

"Filled" loading tables ensure that the ADP/ADS of a system is initially downloaded in accordance with a specific system configuration.

| Name of loading table | Short description |
|-----------------------|---|
| ZISUDAT0 | consists of the BS-ADP application = all subsystems for the startup of a 600ECX Dual configuration |
| ZISUDDT0 | consists of the BS-PCI application = all subsystems for the startup of a 600ECX Dual configuration (ISU/DD) |
| ZISUDMT0 | consists of the BS-PCI application = all subsystems for the startup of an 80CM monoprocessor system (ISU/DD) |
| ZISUDST0 | consists of the BS-PCIMP application = all subsystems for the startup of an 80CM monoprocessor system |

Table 4 ADP/ADS filled loading tables

5.2.3 Selections

ADP/ADS selections are delivered in the subsystem ZSELEDC0 in the ADP/ADS APS.

ADP/ADS selections are function-specific. They contain subsystems for a specific scope of functions. An ADP/ADS selection is activated to load the specific subsystems onto the hard disk.

Subsystems not listed in a selection are always loaded onto the hard disk (HD).

| Name of Selection | Short description |
|-------------------|---|
| ISCFG | Subsystems loaded from the SWU-APS in the case of monoprocessor systems |
| TEST | Test frame for OS test |

Table 5 ADP-/ADS selections

5.3 SWU

In the following sections you will find information about the [Applications](#) and [Loading Tables](#) of the SWU.

There are no selections in the SWU. All SWU-APS subsystems are always loaded onto the disk for each configuration level.

5.3.1 Applications

SWU applications are delivered in the ZAPLTABS subsystem in SWU APS.

SWU applications are configuration-specific. There is a basic application which is delivered in every SWU configuration level.

| Application name | Short description |
|---|---|
| Base applications for each configuration level | |
| BS-FEA | Application for CP/DH/DB |
| COMLAN | LAN, SWU application |
| COMV24 | V24, SWU application |
| DCL-MP | 80CXE Coprocessor |
| BS-DUAL | Hicom 600ECX Dual -128MB, SWU application |
| BS-MONO | Hicom 600ECX Mono - 48MB, SWU application |
| DUAL128 | 600ECX Dual |
| Generation applications | |
| APGENATL | Base subsystem for generation on the support system |
| DBLARGE | Data base subsystem for 4000 (CPCI) 256MB, SWU application |
| DBLSUP | Data base subsystem for 4000 (CPCI) 256MB, SWU application for support systems |
| DBMEDIUM | Data base subsystem for 4500 (600ECX), 128MB, SWU application |
| DBMSUP | Data base subsystem for 4500 (600ECX), 128MB, SWU application for support systems |
| DBSMALL | Data base subsystem for 4300 (80CXE Mono), 128MB, SWU application |
| DBSSUP | Data base subsystem for 4300 (80CXE Mono), 128MB, SWU application for support systems |
| Applications for the call charge pool | |
| I-POOL1 | internal call charge pool for the 4500 configuration (128 MB) |
| I-POOL2 | internal call charge pool for three 4300 configurations (64 MB) |
| I-POOL3 | internal call charge pool for the test lab only |
| POOL1 | external call charge pool for the 4500 configuration (128 MB) |
| POOL2 | external call charge pool for three 4300 configurations (64 MB) |
| POOL3 | external call charge pool for the test lab only |

Table 6 SWU applications

The appropriate applications for the call charge pool (internal and external) are loaded for all configurations.

All SWU applications are loaded via the AMOs DBC and APC. The assignment of application to place of loading is defined for every configuration in the hardware architecture table (see [Chapter 3, “Hardware Architecture Table”](#)). The configurations are identified there by ARCHITECTURE and ARCHITECTURE TYPE.

5.3.2 Loading Tables

There are three blank loading tables for SWU:

- ZSWUBPT0
- ZSWUCAT0
- ZSWUCMT0

The loading tables are completed by the AMO APC during loading on the basis of the information in the hardware architecture table (see [Chapter 3, “Hardware Architecture Table”](#)). The memories are then loaded from this table.

6 Generating Systems

Requirements

Old architectures for HiPath 4000 V1.0 and higher can be generated on the 80 CMX or 600 ECX Mono systems.

The new systems with 3,5 inch IDE hard disks can be generated on cPCI systems.

The hardware architecture table describes the procedure or processor and memory component placement for generating systems (see [Chapter 3](#), “[Hardware Architecture Table](#)”).

IMPORTANT: Generation should always take place using the customer dongle.

7 Hard Disk

80 CXE (SCSI) systems:

At least a 36 GB HD must be used.

cPCI systems:

At least a 60 GB HD must be used.

- Approx. 4 GB for RMX
- the rest of the hard disk is required for UnixWare7 (not visible on the RMX side)

7.1 Layout

Areas on the hard disk (RMX)

| AREA | Logical name | Size in 64k blocks | Size in MB |
|------|---------------------|--------------------|------------|
| A | Administration area | 2 | 0 |
| E | PDS | 7200 | 450 |
| F | DBDA | 1600 | 100 |
| G | CGD | 2400 | 150 |
| H | DMS (DSY) | 1120 | 70 |
| I | SCR | 32767 | 2047 |
| J | GLA | 7200 | 450 |
| K | DIAG | 9868 | 617 |

Table 7 Hard disk layout

7.2 Configuration Batch

Set up the hard disk on controller 1

```

/*****
/* Set up standard V5 HD with approximately 4 GB on controller 1
/*****
ADD-DTSM:A1,HD,62158,512,"STDH5";
ADD-DCSM:A1,1,HD,"STDH5";
ADD-
DASM:A1,1,7200&1600&2400&1120&32767&7200&9868,4096&4096&4096&409
6&4096&4096&4096;
ADD-DLSM:A1,1,E," :PDS: ";

```

Hard Disk

Configuration Batch

```
ADD-  
DLSM:A1,1,F," :DBDA:"&":DBD:"&":TMD:"&":PAS:"&":AMD:"&":DMP:" ;  
ADD-DLSM:A1,1,G," :CGD:" ;  
ADD-DLSM:A1,1,H," :DMS:"&":DSY:" ;  
ADD-DLSM:A1,1,I," :SCR:" ;  
ADD-DLSM:A1,1,J," :GLA:" ;  
ADD-DLSM:A1,1,K," :DIAG:" ;
```


8 Magnetic Optical Disk (MOD)

NOTE: As of HiPath 4000 V5 MOD will no longer be supported on cPCI systems! MOD will only be supported on SCSI systems!

8.1 Controller 6

8.1.1 Layout

The MO disk configured on Controller 6 can be used as a HD substitute.

HiPath 4000 V5 has a new hard disk, CF card and MOD layout. This results in certain **Restrictions**.

Because of a larger PDS area 2 MO disk layouts exist for HiPath 4000 V5. Both layouts can be used on RMX side:

- **MO #1** with usual RMX areas (but small MO1-SCR area) - for system installation
- **MO #2** with dummy areas E-H and with large MO2-SCR area - for UW7 installation

Both, MO#1 and MO#2, use the maximum device size ~1182 MByte (also known as 1.3GByte).

Layout MO #1

| AREA | Logical name | Size in blocks of 64 k | Size in MB |
|------|---------------------|------------------------|------------|
| A | Administration area | 2 | 0 |
| E | PDS | 7200 | 450 |
| F | DBDA | 1600 | 100 |
| G | CGD | 2400 | 150 |
| H | DMS | 1120 | 70 |
| I | MO1-SCR | 6609 | 413 |

Table 8 Layout MO #1

Layout MO #2

| AREA | Logical name | Size in blocks of 64 k | Size in MB |
|------|---------------------|------------------------|------------|
| A | Administration area | 2 | 0 |
| E | PD2 | 1 | 0 |
| F | DBD2 | 1 | 0 |
| G | CG2 | 1 | 0 |
| H | DM2 | 1 | 0 |
| I | MO2-SCR | 18925 | 1182 |

Table 9

Layout MO #2

8.1.2 Configuration Batch

```

/*#####
/* Configure a 1.3GB MOD drive on controller 6
/*#####
ADD-DCSM:A1,6,HD,"MO1G3";
ADD-DASM:A1,6,7200&1600&2400&1120&6609,4096&4096&4096&4096;
ADD-DLSM:A1,6,E," :PDS: ";
ADD-
DLSM:A1,6,F," :DBDA: "&" :DBD: "&" :TMD: "&" :PAS: "&" :AMD: "&" :DMP: ";
ADD-DLSM:A1,6,G," :CGD: ";
ADD-DLSM:A1,6,H," :DMS: "&" :DSY: ";
ADD-DLSM:A1,6,I," :MOD-SCR: ";

```

NOTE: MO#2 can only be created with PCHI tool.

8.2 Controller 4

The MO disk which is configured on Controller 4 can be used for conventional data transfer.

```

ADD-DCSM:A1,4,HD,"MO500";
ADD-DASM:A1,4,7997,4096;
ADD-DLSM:A1,4,E," :MO: "&" :XT: ";

```

9 Hard Disk Compact Flash (HDCF)

9.1 Controller 6

HiPath 4000 V5 has a new hard disk, CF card and MO disk layouts.

Differences to HiPath 4000 V4:

- The areas E , F , G and H have the same size on all mediums (HD,CF,MO#1).
- The size of area I (till now known as SCR or MOD-SCR) has been changed, and it is medium dependent. Following table shows the layouts on all possible mediums.

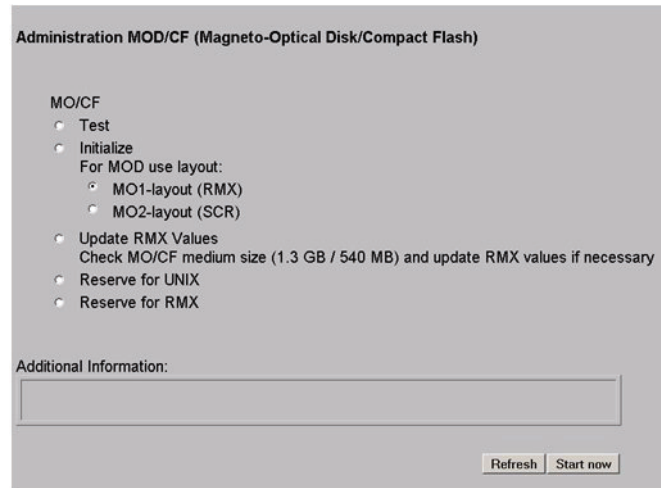
| AREA | Logical name | Size in MB | | | | Size in 64k-blocks | | | |
|------|---------------------|------------|------|-------|-------|--------------------|-------|-------|---------|
| | | HD | CF | MO #1 | MO #2 | HD | CF | MO #1 | MO #2 |
| A | Administration area | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| E | PDS | 450 | 450 | 450 | 0 | 7200 | 7200 | 7200 | :PD2:1 |
| F | DBDA | 100 | 100 | 100 | 0 | 1600 | 1600 | 1600 | :DBD2:1 |
| G | CGD | 150 | 150 | 150 | 0 | 2400 | 2400 | 2400 | :CG2:1 |
| H | DMS (DSY) | 70 | 70 | 70 | 0 | 1120 | 1120 | 1120 | :DM2:1 |
| I | SCR | 2047 | 1183 | 413 | 1182 | 32767 | 18940 | 6609 | 18925 |
| J | GLA | 450 | - | - | - | 7200 | - | - | - |
| K | DIAG | 616 | - | - | - | 9868 | - | - | - |

Table 10 Layout of hard disk, compact flash and magneto optical disk

9.1.1 Administration with HiPath 4000 Assistant

After exchanging the HD/MO board with the HD/CF board the CF-Card has to be configured:

- login to HiPath 4000 Assistant with user **engr**
- Open **Software Management - Backup & Restore - Administration - MOD/CF**



1. Insert CF card.
2. Choose **Update RMX Values** for updating the data base.

For more information please refer to the administrator documentation of „Backup and Restore“ in the Intranet (<http://apps.g-dms.com:8081/techdoc/en/P31003H3450M1130176A9/index.html>).

9.1.2 Administration with AMOs

The RMX AMOs support the CF card without any changes.

There is one visible difference in AMO behavior: If the physical disk devices are queried using AMO DDSM (type SCSI) no device will show up in the list as long as there is no card inserted, since in this case only a CF-Card adapter is present in the system (and no disk-type device).

If a „pure“ AMO configuration is needed (instead of using the HiPath Backup & Restore application) the following steps are necessary for a CF-Card setup:

1. Remove the previous device setup from the database:

```
DEACT-DSSM:A1, 6;  
DEL-DASM:A1, 6;  
DEL-DCSM:A1, 6;
```

2. Define a new device type for the CF-Card:

```
ADD-DTSM:A1, HD, 31263, 512, "CF2G0";
```

Notes:

- In HiPath 4000 V5 the whole device capacity of the CF card is used: 2 GB.

- In HiPath 4000 V5 the size of the CF card and the MOD are different (areas E till H have the same size but the area I has a different size). Refer also to Table 10, "Layout of hard disk, compact flash and magneto optical disk".

3. Configure the new device:

```
ADD-DCSM:A1,6,HD,"CF2G0";
ADD-DASM:A1,6,7200&1600&2400&1120&18940,4096&4096&4096&4096;
ADD-DLSM:A1,6,E," :PDS: ";
ADD-
DLSM:A1,6,F," :DBDA: "&" :DBD: "&" :TMD: "&" :PAS: "&" :AMD: "&" :DMP: ";
ADD-DLSM:A1,6,G," :CGD: ";
ADD-DLSM:A1,6,H," :DMS: "&" :DSY: ";
ADD-DLSM:A1,6,I," :MOD-SCR: ";
```

9.2 Restrictions

- Since there is no medium locking mechanism in CF-Cards additional care has to be taken that the device is deactivated both on the RMX (DEACT-DSSM) and Unix (umount if necessary) side before it is removed.
- Due to the standard Unix device handling mechanism it is necessary to have a card inserted during the Unix boot phase, otherwise no device resources will be allocated for the CF-Card.

After startup the device can be changed.

- It is not permitted to start device operations under Unix if no card is inserted, because it results in a hanging I/O operation. (But it does not relate to operations started in dipas_batch, since these run on the RMX side.)
- Any CF-Card greater than 2 GByte will be treated as an 2 GByte CF in HiPath Backup & Restore.

9.3 New Features with HDCF

9.3.1 Support of Duplication Function HDMO/HDCF

RMX software is able to handle a second HDCF/HDMO board and data duplication process is supported with AMO DUP.

9.3.2 Mixed Operation HDMO/HDCF

Mixed operation of HDMO/HDCF in the switch and the access point is supported. The HBR application recognizes the configured CF or MO device and reconfigure it after the backup/restore process on the Access Point Emergency.

10 Notification Mechanism and Usage Scenarios

This section is intended to provide clarification of functionality and interaction when AMOs and HiPath 4000 Manager and/or HiPath 4000 Assistant are used at the same time for switch configuration.

Information is provided in the form of answers to frequently asked questions (FAQ).

Section 10.2, “Networks without HiPath 4000 Manager” addresses networks involving AMOs and HiPath 4000 Assistant, but without HiPath 4000 Manager.

Section 10.3, “Networks with HiPath 4000 Manager” addresses networks involving AMOs, HiPath 4000 Assistant and HiPath 4000 Manager.

10.1 The Notification Mechanism

How the Assistant database is synchronized with the switch database

This section of the document explains the notification mechanism. This mechanism keeps the Assistant database synchronized with the switch database when AMO commands are executed (with anything other than the Assistant itself: direct AMO commands, AMO commands coming from the HiPath Manager, etc.).

10.1.1 Operation of the Notification Mechanism

This is how the notification mechanism works (numbered steps refer to Figure 1 Notification Mechanism):

1. An AMO command is executed on the switch.
2. The switch updates its database.
3. The switch sends a notification to the Assistant, with the AMO command that was executed.
4. The Assistant puts the notification in its internal queue.
5. As soon as it can, it retrieves the notification from that queue.
6. The Assistant generates one or more query AMO commands to retrieve the changes from the switch database (query AMO commands are commands like REG-<NOUN>, DISPLAY-< NOUN>, EXEC-UPLOL, EXEC-UPLO2, that is, AMO commands that read the switch configuration).
7. The Assistant updates its database using the information just queried from the switch.

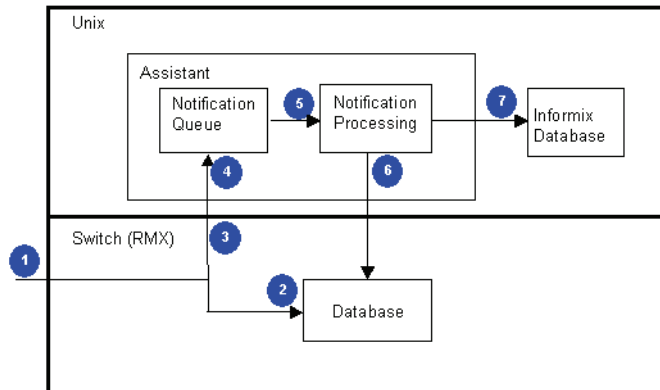


Figure 1 Notification Mechanism

10.1.2 AMO Commands Generated for Notifications

The Assistant generates as few AMO commands as possible, only enough to retrieve the changes from the switches, but it also takes care of all ramifications of an AMO command. For example, if the user adds a new station (ADD-SBCSU), the Assistant executes the following query AMO commands to update its database (the newly created station is the first line, then comes the DIMEN counters, dial plans, PINs, etc., all related to that station):

```
EXEC-UPLO2:TYPE=PORT,STNO=<NUMBER>,DMSVER=V600;
EXEC-UPLO2:TYPE=COSX,DMSVER=V600;
EXEC-UPLO2:TYPE=DIMEN,DMSVER=V600;
EXEC-UPLO2:DIMEN,V600;
EXEC-UPLO2:DPLNET,<NUMBER>,,,V600;
EXEC-UPLO2:DPLN2,<NUMBER>,,,V600;
EXEC-UPLO2:DPLN1,<NUMBER>,,,V600;
EXEC-UPLO2:PIN,<NUMBER>,,,V600;
EXEC-UPLO2:DYNKEY,<NUMBER>,,,V600;
```

10.1.3 Possible Sources of AMO Notifications

Any action that changes the switch database will generate notifications to the Assistant. The most obvious source of database changes is direct AMO commands. A second source of AMO commands is the HiPath Manager. All configuration changes executed on the Manager are translated into AMO commands sent to the affected switches. These AMO commands result in notifications for the Assistant. A third source of AMO commands are changes

made from telephones, for example, fixed call forwarding, name key programming, etc. These changes have to be stored in the switch database. Therefore, the switch also sends notifications when they happen.

10.2 Networks without HiPath 4000 Manager

IMPORTANT: Basic Usage Rule

If the customer does not have HiPath 4000 Manager, use the Assistant to make configuration changes, not direct AMO commands.

You can find the following Frequently Asked Questions (FAQ) in this section:

- What happens if I use AMO commands to change the switch configuration, bypassing the HiPath 4000 Assistant?
- How long does it take to update the Assistant database when an AMO command is executed?
- What will the user see on the Assistant until the (Informix) database is updated?
- Does the Assistant notify the users after updating its database?
- Does the notification process affect the Assistant performance?
- Does the notification process slow down the execution of direct AMO commands?
- What happens if I execute a lot of AMO commands in a short period of time, e.g., run an AMO batch file?
- I have to execute a large AMO batch file to update a customer configuration. How should I proceed?
- Is there any automatic mechanism to synchronize the Assistant database when it goes out of sync?

What happens if I use AMO commands to change the switch configuration, bypassing the HiPath 4000 Assistant?

The switch notifies the Assistant that an AMO command (exactly which AMO command) was executed. The Assistant retrieves the affected parts from the switch database and updates its database. To retrieve the affected parts, the Assistant executes AMO commands (EXEC-UPLO2, REG-<AMO>, etc., depending on which AMO was executed). This notification process keeps the switch and the Assistant databases in sync with each other. Refer to [Section 10.1, “The Notification Mechanism”](#) for a technical explanation of the notification mechanism.

How long does it take to update the Assistant database when an AMO command is executed?

Anywhere from 30 seconds to 3 minutes. The time to update the database depends on:

1. what was changed on the switch (for example, deleting a station takes longer to finish than adding a firewall entry with AMO BDAT, because of all the possible side-effects of the station in the groups, routing, dial plan, etc.);
2. what the Assistant is doing at the time. If it is processing a request from its users, it will first finish that request, and then it will process the notification;
3. the switch configuration (processor speed, number of processors, amount of RAM, etc.).

What will the user see on the Assistant until the (Informix) database is updated?

The old data (before the AMO command was executed).

Does the Assistant notify the users after updating its database?

No. If, for example, the user is looking at the configuration of station 2300 using the Assistant, and in the meantime someone changes the configuration of that station using AMO commands, the Assistant will update its database, but it will not tell the user that the database has been updated. The user is now looking at old data. If the user decides to make changes to this old data and save the changes, it will overwrite what has just changed on the switch. Note that this is no different from having two Assistant users trying to work on the same station at the same time. This should never happen. An object should be modified from one place at a time only.

Does the notification process affect the Assistant performance?

Yes. The Assistant is able to process one request at a time. While the Assistant is processing an AMO notification, it will not be able to process requests coming from its own user interface. In other words, a request coming from the Assistant user will have to wait until the notification is processed. For the Assistant user, it looks like the Assistant is running slowly, when in fact the Assistant is busy doing something else (the notification processing).

Does the notification process slow down the execution of direct AMO commands?

Yes. The switch can execute only one AMO command at a time. If the Assistant is executing AMO commands to synchronize its database, AMO commands coming from other sources will have to wait their turn.

What happens if I execute a lot of AMO commands in a short period of time, e.g., run an AMO batch file?

There is a limited notification queue between the Assistant and the switch (it can hold up to 25 AMO commands in its default configuration). If that notification queue overflows because the Assistant cannot keep up with the AMO

commands, the Assistant will send a command to the switch to stop the AMO notifications and will put its database in out-of-sync state. Notifications will remain disabled until the next upload is executed from the Assistant (either a manual upload or the nightly upload).

I have to execute a large AMO batch file to update a customer configuration. How should I proceed?

Do not use the Assistant while the AMO batch file is running. If the AMO batch is large enough, it will eventually overflow the notification queue (see [What happens if I execute a lot of AMO commands in a short period of time, e.g., run an AMO batch file?](#)). This will stop the notification mechanism and put the Assistant database in out-of-sync state. If you have to use the Assistant immediately after executing the AMO batch file, run an upload. Otherwise, just wait for the nightly upload to do its job. In the next morning the Assistant database should be synchronized with the switch database.

Is there any automatic mechanism to synchronize the Assistant database when it goes out of sync?

Yes. Every night (at midnight, in the default configuration) the Assistant synchronizes its database with the switch database. On a quiet system (with no activity between midnight and the next morning), the Assistant database should always be in sync with the switch database in the morning.

10.3 Networks with HiPath 4000 Manager

IMPORTANT: Basic Usage Rules

If a customer has a network with HiPath 4000 Manager, then the Manager should be the only tool used to configure the switches. Using direct AMO commands may cause problems of database inconsistency within a network that includes both HiPath 4000 Assistant **and** Manager.

For the administration of HiPath 4000 networks via the HiPath 4000 Manager it is recommended to use at the HiPath 4000 Manager a correction version (CV) equal to or higher than the highest CV used on any of the Assistants at the customer's side.

Otherwise, because of the different database structures used at Manager and Assistant side, problems with the data synchronization might occur. Additionally, the Manager would not be able to administer all Assistant features, since it would not be possible for the data-UPLOAD to incorporate the new imported Assistant data into the Manager database (this data would be ignored).

Please refer also to the information related to this issue in the Assistant/Manager release notes.

Notification Mechanism and Usage Scenarios

Networks with HiPath 4000 Manager

For the Frequently Asked Questions (FAQ) please refer to the Installation and Service manual of HiPath 4000 Manager V5 (<http://apps.g-dms.com:8081/techdoc/en/P31003H3450S101017620/index.htm>).

Restrictions

The new hard disk, compact flash card and magneto-optical-disk layout results in the following restrictions:

- Due to the different area size of area I, `COPY-DDRSM:A1,1,I,6,I`; from MOD/CF to the HD and vice versa is no longer possible for area I. Instead, copy the content of area I using `START-COPY`.
- At least PCHI version 211 is required.
- The procedure for generating a MOD or CF card with a new layout via PCHI has been modified:
 - Initialize the MOD/CF card under **HD init** by selecting the proper layout.
For example:
for HD -> **h4k-v5-hd**
for CF -> **h4k-v5-cf2gb**
for MOD #1 -> **h4k-v5-mo-#1**
for MOD #2 -> **h4k-v5-mo-#2**
 - Copy the software to this MOD with **HD update**.

NOTE: Do not use **HD restore**! With **HD restore**, the initialization factors of the HD are used, which no longer match the CF card/ MOD!

- On MO#2, **only** the area I can be activated (area E,F,G,H not). After activation it is used with logical name :MO2-SCR:
- MO#1 is a system MOD (used for installation and RMX backups). UNIX can not be installed on this MOD.
- MO#2 is an unix installation MOD. After UNIX installation MO#1 remains in the MO drive.
- The following logical names don't exist on MO#2: PDS, DBDA, CGD, DMS
- MO#2 can only be created with PCHI tool.

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