

HiPath 3000 HiPath Xpressions Compact

Version 2.0

Installation and Administration Guide

SIEMENS

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1 Preface

This installation and administration manual is intended for system administrators and service technicians who are already familiar with the HiPath Xpressions Compact (IVM) and HiPath 3000 systems.

This serves as a reference work for initial start-up, software upgrades, data backups and system settings. Beyond this, it includes information regarding troubleshooting, system monitoring and degree of utilization, statistics and other service topics.

It does not provide instructions on operating the HiPath Xpressions Compact via the telephone interface (user or super user). Refer to the following documentation for this:

- HiPath Xpressions Compact version 2.0, User Manual
- HiPath Xpressions Compact version 2.0, Quick Reference Guide

Nor does it describe setting up the HiPath 3000 system in detail, but rather addresses special functions only. If required, please refer to the HiPath 3000 service documentation for this.

If you have additional questions which cannot be clarified with the help of this installation and administration guide, please contact your Back Level Support (BLS).

Preface

2 Introduction

2.1 General

The HiPath Xpressions Compact module is designed for full integration into the HiPath 3000. As a result, instructions included in the HiPath 3000 Service Manual generally apply (safety precautions, installation instructions, etc.).

Modules included in the HiPath Xpressions Compact family are only supported as of HiPath 3000 V1.2, featuring the new CBCPR, CBCC, CBCP, and CBRC central controllers. The central control units for HiPath 3800 (CBSAP) are also supported:

IVMP8	S30122-Q7379-X100	HiPath 3350 (POINT)	8 Ports
IVMP8R	S30122-K7379-Z100	HiPath 3300 (19 in. POINT)	8 Ports
IVMS8	S30122-Q7379-X	HiPath 3550 (COM), HiPath 3350 (POINT)	8 Ports
IVMS8R	S30122-K7379-Z	HiPath 3500 (19 in. COM), HiPath 3300 (19 in. POINT)	8 Ports
IVML8	S30122-Q7380-X100	HiPath 3750 (PRO / ELS), HiPath 3700 (19 in. PRO / ELS)	8 Ports
IVML24	S30122-Q7380-X	HiPath 3750 (PRO / ELS), HiPath 3700 (19 in. PRO / ELS)	24 Ports
IVMN8	S30122-Q7688-X100	HiPath 3800	8 Ports
IVMNL	S30122-Q7688-X	HiPath 3800	24 Ports



- Only one IVM module is allowed per system.
- The IVMP8/P8R module only functions in HiPath 33x0 systems.
- To prevent overheating, the IVMS8/P8 may only be operated in the lower slots (5, 7, 9) in HiPath 3550 and HiPath 3350 (wall mounting).
- The IVMLx modules are not certified for operation in HiPath 3550.
- The IVMLx modules may not be used in a PCM Highway together with an SLC module.
- The IVML24 may not be used in a PCM Highway together with an SLMO24. Full accessibility is otherwise no longer possible for master-slave operation with the SLMO24.
- The IVMLx may only be inserted into the slot directly to the left of the PSU in HiPath 37x0 systems due to EMC reasons (this is the case for all system boxes).

Introduction

IVM Control Elements and Interfaces

The HiPath Xpressions Compact is linked to the HiPath 3000 system as an S0 bus user, i.e. dialing and additional information are transmitted via the D channel without utilizing any additional DTMF transmitter and receiver resources within the system. Only navigation within a mailbox or entries made during a live connection are accomplished via DTMF inband signaling.

In order to assure quick and simple setup, the HiPath Xpressions Compact is equipped with a given set of parameters directly from the HiPath 3000 system during power-up (extension numbers for the IVM hunt group and extension numbers for the IVM ports, feature ID numbers, trunk groups and system extensions, IP addresses, date and time). This data is synchronized with the HiPath Xpressions Compact in the event of system changes.

Otherwise, setup data for HiPath Xpressions Compact is stored on the hard disk itself and not linked to the system Customer Data Set (CDS). For example, setup data is not necessarily lost if the system is reloaded, but is not part of the CDS backup either. However, IVM setup data is part of the CDS at the HiPath 3000 Manager E, and is, for example, loaded along with the CDS or saved.

Administration is performed via HiPath 3000 Manager E.

The LAN interface, with its larger throughput capacity, is recommended for transmitting large volumes of data (message backups etc.).

2.2 IVM Control Elements and Interfaces

IVM modules are equipped with 2 LEDs and a switch. The IVMS8/S8R, IVMP8/P8R, and IVMN8/NL are equipped with push-button switches and the IVML8/L24 with a rocker switch.

- Green LED: operating state
- Yellow LED: disable / release from disabled status

The various signals which occur during power-up and operation are described below in Section 3.5, Section 3.6 and Section 6.1.

- Switch: module disabling

If the switch is in its upper position (IVML8/L24), or the depressed position (IVMS8/S8R, IVMP8/P8R, IVMN8/NL), the module is in the operating mode. Activating the switch initiates disabling of the module. That means that existing connections are not interrupted, but no new connections can be established after disabling. The yellow LED lights up after all connections have been terminated. (See also Section 6.1).

A LAN interface is also available. With IVMS8/S8R, IVMP8/P8R, and IVMN8/NL it is realized as an RJ45 plug leading directly from the module. With IVML8/L24, a LAN adapter (SIPAC 1U - RJ45, article number C39228-A7195-A10) leads directly from the backplane.

- RJ45 LAN connection (10/100 Mbps): recommended for backup/restore, upgrade, trace and playback of greetings.



The LAN adapter (SIPAC 1U-RJ45, article number C39228-A7195-A10) is contained in the packaging of the L-modules.

2.3 Limits

Up to 500 mailboxes can be installed.

The following mailbox types are limited:

AutoAttendant mailboxes:	100
Information mailboxes:	100
Group mailbox	100

Up to 6 MOH ports are supported per module.

Number of announcement channels (HiPath 3000 V5.0 and higher):

HiPath	33x0	35x0	37x0	3800
	1	4	16	16

Depending on the module type, 8 to 24 ports are supported.

IVMP8/P8R	8 Ports
IVMS8/S8R:	8 Ports
IVML8:	8 Ports
IVML24:	24 Ports
IVMN8	8 Ports
IVMNL	24 Ports

Introduction

Limits

3 Installation

All of the safety precautions included in the HiPath 3000 service manual must be observed.



HiPath Xpressions Compact modules should be handled like all other HiPath 3000 modules. The IVMS8/S8R and the IVMP8/P8R may not be inserted or removed when power is applied to the systems (not hot-swappable), although this is possible with the IVML8, IVML24, IVMN8, and IVMNL.

3.1 System Requirements

Installation of HiPath Xpressions Compact is only possible if the following requirements have been met:

One free slot:	Only directly to the left of the PSU in HiPath 37x0 systems. Not together with an SLMO24 on the same PCM highway if an IVML24 is used. Not together with an SLC module on the same PCM highway if an IVMLx is used. Only in the lower slots of HiPath 3550/HiPath 3350 wallmount systems, For HiPath 3800 we recommend using IVMN8 or IVMNL in the basic cabinet.
One IVM module:	IVMP8: S30122-Q7379-X100 IVMP8R: S30122-K7379-Z100 IVMS8: S30122-Q7379-X IVMS8R: S30122-K7379-Z IVML8: S30122-Q7380-X100 IVML24: S30122-Q7380-X IVMN8: S30122-Q7688-X100 IVMNL: S30122-Q7688-X
One ferrite:	For HiPath 3750 and HiPath 3700 systems only code number: C39022-Z7000-C7 (the ferrite is contained in the L-module accessory pack)
IVM software:	HE200V.0x.1yy or higher (P50038-P0101-A1-*)
PBX hardware:	HiPath 3000 V1.2, V3.0, V4.0 or V5.0 with controllers CBCPR, CBCC, CBCP, and CBRC. HiPath 3800 V5.0 with CBSAP controller.

Table 3-1 Installation Requirements

Installation

Special Features for HiPath 33x0 and 35x0 with Entry Voicemail (EVM)

System software: (the latest version of the HiPath software must be installed in order to use all features)	Version 1.2: HiPath 33x0: HE550U.57.304 (P30370-P856-A610-*) or higher HiPath 35x0: HE550T.57.304 (P30370-P857-A610-*) or higher HiPath 37x0: HE550S.57.304 (P30370-P855-A610-*) or higher Version 3.0: HiPath 33x0: HE560U.08.3xx (P30370-P1033-A816-*) or higher HiPath 35x0: HE560T.08.3xx (P30370-P1032-A816-*) or higher HiPath 37x0: HE560S.08.3xx (P30370-P1031-A816-*) or higher Version 4.0: HiPath 33x0: HE580U.08.3xx (P50038-P1009-A816-*) or higher HiPath 35x0: HE580T.08.3xx (P50038-P1010-A816-*) or higher HiPath 37x0: HE580S.08.3xx (P50038-P1011-A816-*) or higher HiPath 3800: HiPath 3800 release software or higher
HiPath 3000 Manager E:	HA580B.00.1xx or higher (P50038-P1570-A1-02)
HiPath 5000 DB Feature Server	HV580B.00.1xx or higher only required in a HiPath 5000 combination

Table 3-1 Installation Requirements

* The fourth block of the article number must be taken from the approval documentation.

3.2 Special Features for HiPath 33x0 and 35x0 with Entry Voicemail (EVM)

Advance provisions are made by default for an EVM (Entry Voicemail, plug-in module clipped onto the CB) when using a new redesign controller (version 5.0 or higher). The EVM properties "Preconfigure as Voicemail" and "Mailbox setup by the user" may have a negative effect on any IVM used. The EVM should therefore be reconfigured as follows as it is not enough to simply remove the EVM module:

The type of the two EVM ports/stations must be changed from "PhoneMail" to "Standard".

The "Number of mailboxes for AutoConfiguration" must be set to 0 under Auxiliary equipment/EVM/Additional settings.

You must ensure that neither of the EVM ports/stations are in an IVM hunt group.

3.3 Installing Ferrites (HiPath 3750 and HiPath 3700 Systems Only)

A ferrite (article number C39022-Z7000-C7) must be attached to the cable (SIPAC plug) that leads away from the module installed to the left of the IVML24 or the IVML8. If the slot directly to the left of this module is empty, the ferrite must be attached to the cable of the first module to the left. The cable needs to be led only once through the ferrite (no loop).

3.4 Hard Disk Shipping Brace

The hard disk shipping brace must be removed before the IVM module IVMP8/P8R, IVMS8/S8R or IVML8/L24 can be installed or plugged into the HiPath 3000. In the case of the IVM modules IVMN8 and IVMNL, the hard disk is directly connected to the card which means that no shipping brace is needed for the hard disk.



If the IVM module is to be removed from the system and shipped, the shipping brace must be reinserted for modules fitted with rubber shock absorbers and the module must be shipped in its original packaging (including the ESD bag).

Installation

Power-Up

3.5 Power-Up

Software and languages (voice prompts / system announcements) are pre-installed on the IVM module. After installing the IVM module, the system is started according to the following sequence:

Yellow LED	Green LED	Phase	Significance	Duration	Required Action
Off	Off	1	Boot procedure	up to 60 s (Upgrade)	
On	On	2	LED test, (reload option). Press four times (Off-On-Off-On) to reload the module (see Section 3.6).	10 seconds	
Disabled: On Enabled: Off	Off	3	Disable switch status is indicated with the yellow LED.	5 seconds	Check to see if the module has been deactivated by HiPath 3000 Manager E, or with the disable switch.
Blinking (500ms/500 ms)	Off	4	Hard disk test and initialization of the application	2 to 9 minutes	
Off	On	5a	Standby mode after power-up has been completed		
On	Off	5b	Module is disabled or a module error has occurred.		Check to see if the module has been deactivated by HiPath 3000 Manager E, or with the disable switch. Replace module if defective.

Table 3-2 LED Signaling During Power-Up

3.6 Reload Option



The IVM can be returned to its factory default settings by executing a reload. All customer data saved to the IVM is irretrievably lost in this case (mailboxes, messages, announcements).

This procedure is unnecessary for an IVM that has just been received from the factory and has not yet been used. Reload is only advisable for IVM modules with an unknown status.

Reload is started by activating the disable switch four times (Off-On-Off-On) during the LED test (phase 2 as described in Section 3.5, "Power-Up"). The LED test is aborted in this case, and both LEDs blink for about 5 seconds to acknowledge reloading.

Yellow LED	Green LED	Phase	Significance	Duration	Required Action
On	On	2	LED test, [reload option]	10 seconds	
Blinking	Blinking	2a	Reload acknowledgement	5 seconds	
Blinking (500ms/500 ms)	Off	2b	Hard disk test and initialization of the application	2 to 9 minutes	

Table 3-3 LED Signaling for Reload Procedure

After reloading has been completed, power-up is initialized as described in Section 3.5.

Installation

Reload Option

4 Administration

The time required for configuring the HiPath 3000 system with IVM depends to a great extent upon the size and the complexity of the customer's telephone system, as well as the desired IVM functions. Thus, the following points should be discussed with the customer before installation:

General:

- Required languages (voice prompts)
- User interface *1) (Standard interface or a user interface similar to that of Xpressions V3.0)
- Order of message playback (FIFO or LIFO) and possibly automatic deletion of messages after a set time
- Distribution lists
- Name selection

Fax intercept destination:

- System-wide fax destination
- Mailbox-specific fax destinations

Mailboxes:

- Extension number assignments for mailboxes with names
- Mailbox classes, mailbox privileges (COS), (information, group, AutoAttendant and normal mailboxes)
- Greeting control (manual, day / night operation, type of call, calendar)
- Users of group mailboxes
- AutoAttendant mailboxes:
 - Speed dialing and intercept destinations
 - Type of system-wide switching for AutoAttendant
- MOH: (HiPath 3000 V4.0 SMR 7 or higher)
 - Number of channels and allocation to ITR groups
- Announcements: (HiPath 3000 V5.0 or higher)
 - Number of channels

Administration

Version Query

Multi-customer system:

- Assignment of mailboxes to customers / hunt groups
- Distribution of resources (IVM ports and trunk groups)

*1) All references to the standard user interface are marked by "(STD)" and references to the Xpressions V3.0 interface with "(XP)".

The following parameters are preconfigured by the system, but can be adapted to customer requirements:

- Language 1 = German,
Language 2 = UK English,
Language 3 = French
- Length of mailbox number (default: 3)
- Number of messages which can be saved per mailbox (default: 5 messages)
- Maximum message length (default: 2 minutes)
- Length of mailbox password (default: 4 digits)
- Announcement of the caller's number (default: no announcement)
- Number of notification call attempts (default: 3 attempts)
- Repetition interval for notification call attempts (default: 15 minutes)
- User interface (default: standard)
- Order of message playback (default: FIFO, oldest message first)
- IVM-wide switching procedure (default: blind transfer)

Administration via HiPath 3000 Manager E is described in the following sections. For clarity, administration has been subdivided into the conventional setup (system configuration) and the extended IVM configuration. The chapter "System configuration" in Section 4.3 does not include a complete description; it only addresses special IVM features.

4.1 Version Query

It is advisable to query the IVM software version after power-up:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000.
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the HiPath system and is functional, the "IVM" tab appears in the "Maintenance" dialog box.

- Select the "IVM" tab under "Maintenance" and click the "Read data" button.

The following system data now appears on the left-hand side of the window:

Hardware version:	Hardware version from flash memory
Software version:	Software version installed on the hardware
Language 1:	Version of the first voice prompt set
Language 2:	Version of the second voice prompt set
Language 3:	Version of the third voice prompt set
MAC ID:	MAC ID for module
Channels rel.:	Number of usable channels
Activated features:	Display of usable features
Mailboxes:	Number of mailboxes in usage and available mailboxes
Hard disk utilization:	Percentage of occupied memory

Table 4-1 IVM System Data

The software of IVM V1.0 must be upgraded to V2.0 before one can access the features and parameters of the new V2.0.

4.2 Language selection

Several languages are installed in IVM. The mailboxes can function with three which are chosen from this pool.

The mailbox languages are changed as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000.
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the Hi-Path system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance" and click the "Read data" button.
- Activate the button "Language selection"
A new dialog appears. The available languages are displayed on the left. Drag and drop the desired languages to the right area.
- Select the languages

Administration

System Configuration

- Activate the button "Set active languages"
A message box will appear confirming data transfer.

4.3 System Configuration

Due to the fact that the IVM takes data from the CDS of the system, the system is set up first and then the IVM. Refer to the HiPath 3000 service manual regarding system configuration, as required. Only subject matter with relevance to the IVM is included below.



The name AMHOST in the dialog box "Transfer" - "Security" - "User administration" may not be deleted.



Important: Using the IVM in HiPath 33x0 and 35x0 with Entry Voicemail (EVM)

When using a new redesign controller (version 5.0 or higher), the EVM installed by default should be removed from the CDB (see Section 3.2 on page 3-2).

4.3.1 USBS Parameters

To assure high speed data exchange with the IVM module and short transmission times, the X and Y parameters should be checked and set to at least the following values: X = 200, Y = 200 (default). These two parameters determine data throughput for USBS flow control. They can be adjusted in the "Line / network" dialog box under "ISDN parameters" in the "USBS group" using the increase and decrease buttons.



The USBS call number parameters (internal call number, DID call number) must be available. Without these numbers, the IVM will not function and will also not power-up after a restart!

4.3.2 Service ID Numbers

If the phone number plan in the dialog box "System parameters" - "Service codes" has been deleted for some reason, substitute reference numbers for "*" and "#" must be entered.



Without substitute ID numbers for "*" and "#" the IVM will not fully function, because no MWI signalizations will be switched on without the reference numbers.

4.3.3 Users

Users should be set up by name and phone number in the dialog box "set up station" - "Users". This applies to virtual users as well (user extension number without telephone). The IVM perceives users with names as existent and displays them in various selection lists. For the first configuration, the IVM can take over user names as mailbox names. However, the mailbox names can be changed at any time independent of user names.

The internal extension number is decisive for the assignment to a mailbox. However, it is advisable to always use identical internal and direct-dial extension numbers.



Mailbox names only contain alpha-numeric characters. MULAP phone numbers may need to be adjusted accordingly.



For optiPoint extension phones the automatic DTMF tone dialing must be activated in the dialog box "System parameters" - "Flags". Otherwise control of the IVM, which requires DTMF tones, will not be possible.

4.3.4 IVM Port

The ports of the IVM module require phone numbers which are usually provided by default. When installing the IVM module into an existing telephone system, these may need to be set up (e.g., if the call number plan has been deleted) in the dialog box "set up station" - "station".

In the sub-dialog "Parameters" under "Flags" activate the attribute "Call waiting rejection on". This causes the IVM to signalize an immediate "knocking" tone when transferring a call to a busy extension, allowing for prioritizing of calls.

IVM ports are recorded by default in the sub-dialog "Parameters" under type "Phone Mail (Call no. 5 digits)". This setting may not be changed.



Check before setting up the IVM ports if ports of the type PhoneMail have already been set up. If so, these must be deleted! Important: Select the sorting order "Logical".

4.3.5 Privileges for IVM Ports

The voice mail ports are s_0 users who accept, initiate and forward calls (via call-back, outgoing external and internal dialing and hang-up), depending on the functionality used. The relevant privileges must therefore be configured correspondingly (dialing privilege, ITR groups, system feature "transit" etc.). This is generally ensured by the default configuration.

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If call transfer to external destinations is prevented, e.g., for the functions "message call," "substitute (referral extension) call," or "AutoAttendant speed dialing destinations," the IVM ports should be assigned to groups with the appropriate dialing privileges and ITR groups; and access to the system speed dialing destinations should be regulated in the menu "Classes of service".



The prevention of undesired calls which generate charges is accomplished with mechanisms of the HiPath 3000 system. These are valid for the whole system and limit the functionality of IVM.

4.3.6 IVM Hunt Group

Assignment of IVM ports/users to a hunt group is absolutely essential because call switching and call forwarding are executed via the hunt group phone number. This is done in the dialog box "Incoming calls" - "incoming calls/Groups/Hunt groups".



The hunt group type must be "cyclic".

All IVM ports / users should always be assigned to a hunt group.



With an IVML24 and HiPath 3000 V4.0 SMR 7 or lower only 20 ports can be assigned to one hunt group. The remaining four must be assigned to another hunt group. These 4 IVM ports are reserved. An overflow or call forwarding from one hunt group to the other is not possible.

As of HiPath 3000 Version 4.0 SMR 7 all 24 ports on an IVM L24 can be assigned to the first hunt group.

However, each IVM port/user may only be assigned to a **single** hunt group, i.e., the assignment of the port's extension number to a hunt group must be unambiguous.

4.3.7 Call Management

A separate call destination list must be set up for the IVM ports in the dialog box "Incoming calls" - "Call destination lists". The hunt group number of the IVM should be the first and only target destination in this list. For the IVM ports with voicemail functionality, this call destination list should be entered in the dialog "Incoming calls" - "Assignment int./ext. calls".



The first destination for call destination lists of the IVM ports must be the hunt group of the IVM. Other destinations are not possible.

Call management must be set up correspondingly for users with a mailbox (call forwarding to the IVM hunt group). This is the call forwarding destination in the event of no answer or busy. In this case, the hunt group of the IVM is usually entered as the second destination in the call destination list.

If need be, the user has to activate call forwarding on his or her telephone.

The "Different day and night phone mail announcement" feature, which can be activated via the HiPath 3000 Manager E with the "Flags" item under "System parameters", also functions for the IVM.

4.3.8 Message Waiting Options

Acoustic signaling and displays on optiPoint telephones can be configured system-wide regarding "Message waiting indication" (MWI).

- Suppress the "Message waiting" display on optiPoint phones in the "System Parameters" dialog box under "Display".
- Group "Switch" - checkbox: "Status display for info message"
Deactivation suppresses this display. Default setting: display not suppressed.

Acoustic settings can be adjusted separately for optiPoint and non-optiPoint equipment:

- Announcement "You have a message" as special dial tone (with HiPath 37x0 systems only)
- Special dial tone
- Normal dial tone
- "System parameters" dialog box under "PlusProduct flags / touch-tone"
- "Acoustic message indication" group
Selection is accomplished with the help of radio buttons. The default setting for optiPoint phones is "Special dial tone". For all other non-optiPoint equipment, the default setting depends on the system, i.e., "Announcement" for a HiPath 37x0 and "Special dial tone" for all other systems.

4.3.9 Centralized Voice Mail / Networked Systems

Centralized voice mail is possible either with closed or open numbering. However, the routing (LCR) must be set up so that the call number plan within the entire network is unambiguous.

With an open call number plan (i.e., unknown node numbers are addressed by the node call numbers, different nodes can contain the same numbers, in each node the corresponding node call number may be dialed) the IVM mailboxes must be set up including the node call numbers.

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For example, the phone number 100 in node 5 is assigned the mailbox number 5100. Activate the checkbox "Voice mail node number" in the dialog box "System Parameters" - "Flags" on the telephone system with the IVM.

The call management of the connected telephone systems (call forwarding of users to voice-mail) must refer to the IVM hunt group in the "main" telephone system. The IVM hunt group must be entered as the external destination in the user call destination lists.



Note: double click to enter external destination numbers.

In order for users in connected telephone systems to be able to query their messages, a virtual user of the type "PhoneMail" must be set up in each of these telephone systems. Call forwarding to the IVM hunt group must be activated (activation by associated dialing).



In the case of a network with central administration (HiPath 5000), the TFTP gateway to the IVM must be made accessible, the IVM must be assigned an IP address and the IVM must be connected to the LAN. See Section 4.4.12.

4.3.10 Multi Customer Systems (Tenant Service)

In multicustomer systems, several customers share a telephone system / IVM, whereas each customer can only access his or her own resources. In the case of the IVM, this means that the IVM Ports are divided among several hunt groups, to which the mailboxes are assigned. Each hunt group represents one customer.

Each IVM port may only be assigned to a maximum of one hunt group.

The configuration of a multicustomer system for the IVM is independent of the set-up of a multicustomer system in the telephone system, which is limited (no independent call number plan, only a central intercept destination, etc.).

The following configuration work is necessary in the system for the IVM ports:

1. The IVM ports are distributed among the customers and entered as a cyclic hunt group for each customer (see Section 4.3.6, "IVM Hunt Group").
2. A call destination list for each customer's IVM port is made, in which the customer's hunt group is in the first position (see Section 4.3.7, "Call Management").
3. One to three call destination lists should be configured for each customer's users for distinction between "day / night / internal" calls. In these lists, the IVM hunt group for the customer is usually entered in the second position (see Section 4.3.7, "Call Management").



Querying of messages after a Message Waiting Indication (MWI) according to customer ports is not supported by the system. When a user queries messages, the first available port of the IVM or the first port of the type "PhoneMail" is accessed.

Optionally, different directional ID numbers, if present in the system, can be set up, and the connection possibilities can be limited according to authorization and ITR groups. Should the feature "message call" and "substitute (referral extension) call" or general switching use external destination numbers, it should be ensured that the functionality is not limited by authorization and ITR groups (see also Section 4.3.5, "Privileges for IVM Ports").

4.3.11 Setting Up IVM-MOH

Assign the IVM-MOH ports to the relevant ITR group under "External equipment" - "External MOH" (see Section 4.6, "Music On Hold").



Note Calls that cannot be assigned to an ITR group (e.g. UCD calls) are always connected to the MOH of the first ITR group.

4.3.12 Setting Up IVM Announcement Ports

The IVM announcement ports must be set up as HiPath 3000 announcements under "External equipment" - "Announcements". The announcement type can be parameterized here as a one-off announcement (Type of ann. = Announcement) or as a permanent announcement (Type of ann. = Music On Hold) (see Section 4.7, "IVM as Announcement Device for HiPath 3000").

4.4 IVM Configuration

Configuration is executed in the same way one would set up a CDS, i.e., after parameters have been entered or changed in the individual dialog boxes under "Settings", they are transmitted to the system along with the CDS.

In the sections that follow, it will be assumed that the procedure for CDS transmission is known and will no longer be mentioned.



If a mailbox currently being used is accessed during IVM configuration, a message is played back to the user, who is then disconnected from his or her mailbox.

4.4.1 General Parameters

"General" parameters are system-wide settings applying to the IVM:

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- **Maximum mailbox phone number length:**
This setting defines the maximum length of mailbox phone numbers.
Setting range: 1 to 8 digits. The default setting is 3 digits.
- **Maximum message length (in seconds):**
The maximum time made available to the caller for recording his or her message.
Setting range: 1 to 1200 seconds. The default setting is 120 seconds.



Selecting a high value results in excessive use of overall recording capacity.

- **Minimum message length (in seconds):**
This is the minimum connection time, after which a message is recorded.
Setting range: 1 to 10 seconds. The default setting is 1 second.
- **Number of messages which can be saved per mailbox:**
This is the number of messages a user can save.
Setting range: 1 to 255 messages. The default value is 5 messages.



Selecting a high value results in excessive use of overall recording capacity.

- **Mailbox password length:**
This parameter specifies how many characters the user must enter as a password.
Setting range: 3 to 8 characters. The default value is 4 characters. This does not apply to the super users whose password comprises 8 digits.
Default mailbox password: 1 2 3 4
- **Time until help announcement (in seconds):**
Specifies the duration until the help announcement is played back, if the user has opened his or her mailbox but has made no further key activations. "Time until help announcement" is also used when logging onto the mailbox, selecting a name and editing messages.
Setting range: 1 to 5 seconds. The default setting is 3 seconds.
- **Time until AutoAttendant announcement**
Time after which the announcement of an AutoAttendant mailbox is repeated.
Setting range: 1 to 5 seconds. The default setting is 3 seconds.
- **Help announce. repeats:**
The help announcement is repeated as often as specified by this setting.
Setting range: 0 to 5 repetitions. The default value is 3 attempts.
- **AutoAttendant announce. repeats**
The greeting in an AutoAttendant mailbox is repeated as often as defined.
Setting range: 0 - 5 repeats. The default value is 3 repeats.

- **Number of message call attempts (user outcall):**
If the user has set up a message call, the IVM attempts to establish a connection to the entered phone number, and repeats this attempt as often as specified by this setting, or until the user has listened to the message.
Setting range: 1 to 255 attempts. The default value is 3 attempts.
- **Repetition interval for message call attempts (in minutes):**
This is the time interval between attempts to place the message call. It is issued until the outcall has been acknowledged. The IVM repeats its attempt to place the notification call until the user answers, or until the maximum number of attempts has been executed.
Setting range: 1 to 60 minutes. The default value is 15 minutes.
- **General fax intercept destination:**
Incoming fax calls (FAX group 3) to a mailbox are forwarded to a system-wide internal fax destination number, unless a mailbox-specific fax destination number has been configured. There is no default value for general fax destinations.
- **Order of messages:**
The order that messages are queried can be selected. Either the oldest message is played first (first in first out - FIFO) so that the newest message is played last, or the other way around, (last in first out - LIFO), the newest message is played first and the oldest played last.
Default: FIFO
- **Automatic deletion of messages after a set time:**
If the LIFO principle has been selected for message order, the old messages can be automatically erased after a set time. Messages which have been saved are never deleted automatically.
Setting range: 1 to 90 days. (Default: 90 days).



The deletion of messages occurs with the date change. A message which is sent at 23:45 in the night is one day old 15 minutes later. This means that deleting messages after one day is not recommended.



If no automatic deletion has been configured, users are responsible for their own mailboxes. This can lead to reaching maximum recording capacity if messages are not regularly deleted.

- **Switching of calls:**
For call switching via IVM, e.g., in AutoAttendant or substitute (referral extension) call, the type of switching can be set system-wide for IVM.
"Blind Transfer" is switching which is not monitored. The call is transferred as quickly as possible (transfer before a user can answer the call). It is not possible to transfer to a busy extension number with signaling of a second incoming call. If a mailbox is available, the call will be transferred directly to that, or the call will return to the mailbox transferring the

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call.

"Wait for Ring" is partially monitored switching. The call is transferred as soon as the target extension number is called (transfer before a user can answer the call). If the extension line is busy and signaling of a second call is not possible, the "wait for ring" can transfer the call again after a set amount of time (30 sec), or, in the case of an AutoAttendant mailbox, select another destination extension number.

"Wait for Answer" is completely monitored switching. The call is only transferred when the user at the extension number accepts the call (transfer after call answering). The options for an unsuccessful call transfer are the same as in "wait for ring". The time the caller waits on hold for call transfer can be configured between 10 and 60 seconds (default: 20 seconds).

The default setting is "blind transfer".



Regardless of this parameter, return calls are always switched according to the "Wait for Answer" method, and fax calls are always switched according to the "Blind Transfer" method.

- **Changing of user interface to the Xpressions V3.0 interface:**

An alternative user interface can be selected (with different DTMF touch tone commands).

The alternative interface is adapted to the Xpressions V3.0 interface.

Default: The default setting is "standard interface".

- **Name selection:**

In AutoAttendant operation, it is possible to switch calls according to name abbreviations instead of numbers. This feature is activated or deactivated system-wide.

Default: activated



Name selection is not active until a mailbox name has been configured via Hi-Path Manager. Furthermore, a user name must be recorded for each mailbox that should be reachable via name selection.

- **Announcement of the caller's phone number:**

When the user listens to his or her mailbox messages, the caller's telephone number is either announced or suppressed.

Default setting: announcement is suppressed.

- **Standard language:**

This parameter affects the selected language when a mailbox is first configured.

Setting range: language 1 ... 3. The default setting is language 1.

The "General" parameters are set in such a way that they usually need not be changed. Proceed as follows, if required:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "General".

- **Call number length delimitation**
If "call number length delimitation" is enabled, the IVM can only dial call numbers up to the length of the mailbox call number for an outgoing call (AutoAttendant speed dialing destination, substitute (referral extension) call, message call). If longer call numbers have been configured, connection setup stops.

The parameter is not activated by default.

4.4.2 Setting Up Mailboxes

For the most part, mailboxes are set up with the help of a table:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"

The parameters for each individual mailbox are administered here. A mailbox is deemed existent as soon as a mailbox extension number has been entered.

There are 17 mailbox classes (COS - class of service) which define the mailbox functions. The available features are assigned to the 17 mailbox classes (in accordance with the COS table) as follows:

Mailbox Classes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Play / delete messages	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Save messages	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Record and send messages	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Message forwarding	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Call back caller	-	-	X	X	X	X	X	X	X	X	-	-	X	X	X	X	-
Number of possible greetings	1	3	3	3	3	4	3	3	3	3	4	4	4	4	4	4	4
Greeting control	-	-	-	-	-	X	-	X	X	X	X	X	X	X	X	X	-
Information mailbox	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private message	-	-	X	X	X	X	-	-	-	X	X	X	X	-	-	-	-
Record user name	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Message call	-	-	X	X	X	X	-	-	X	X	-	-	X	-	X	X	-
Substitute (referral extension) function	-	-	-	X	X	X	-	-	-	X	-	-	X	X	X	-	-
Language selection	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	4
Abbreviated / speed dialing / AutoAttendant	-	-	-	-	X	X	-	-	-	-	-	-	-	X	X	-	-
Group mailbox	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	X	-
Distribution list	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-
Distribution to all mailboxes (Broadcast)	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-
Fax intercept destination	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	-
AA Ext. Short Dial Destination	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
"AA Disable Direct Dialing"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4-2 COS Table



Mailbox class 17 can only be allocated if the port number for the mailbox was pre-assigned as an announcement/MOH device.

4.4.2.1 Initial Configuration

It is possible for initial configuration (i.e., as long as no changes have been made to the table) to allocate a mailbox with default values (extension number and name from the system, default COS is 4) to users of the HiPath system, both active or with an assigned name:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Accept user mailbox data" button.

This button is renamed after this action has been completed, if other changes are made or after a CDS has been loaded containing IVM data.

Whether it makes more sense to transfer CDS data in this way and to delete unwanted entries, or to make all required entries manually, must be decided on a case-by-case basis.

4.4.2.2 Mailbox Parameters

The following parameters are available in the dialog box "Auxiliary equipment" - "Integrated Voice Mail (IVM)":

- **Mailbox extension number:**
The mailbox extension number identifies the mailbox and is determined from "redirecting info" for switched calls and from the "calling party number" for direct calls. Existing or virtual user extension numbers, or user numbers from networked systems, can be used as mailbox extension numbers. The extension number can be taken from the CDS for initial configuration (see Section 4.4.2.1); it will then be independent of the extension number in the CDS. When changing an extension number, this could necessitate adjustments in two places.
- **Name:**
This name can be taken from the CDS for initial configuration; it will then be independent of the name in the CDS. Any other name can be used here as well. Personnel changes could necessitate changing the name in two places.

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Mailbox names may contain the following characters:

'A' to 'Z'

'a' to 'z'

'0' to '9'

as well as comma, period and empty space.

For use of name selection, the first three characters of the mailbox name are used for identification. In this case, only the characters A-Z and a-z are admissible.



A mailbox number can only be comprised of digits, '*' and '#' are not admissible.

- **COS:**
The class of service determines the basic functions available for a mailbox. See also Section 4.4.2, "Setting Up Mailboxes".
Setting range: COS 1 to COS 17. The default value is COS 4.
- **Param:**
After double-clicking this field, additional mailbox-specific parameters appear. For reasons of clarity, this is discussed in sections "Sub-dialog Mailbox Parameters" and "Sub-dialog COS:").
- **Name selection:**
In addition to the system-wide configuration, it is possible here to configure which numbers should be available by name selection. It does not matter if the name selection is deactivated system-wide for this mailbox-specific parameter.
Default: Extension numbers are available via name selection.

Sub-dialog Mailbox Parameters

The following parameters can be configured in the "Mailbox parameters" dialog box, depending on the mailbox's COS designation:

- **Information mailbox:**
Only COS 1 mailboxes can be set up as information mailboxes. Information mailboxes allow the caller to navigate within the mailbox greeting with the touch-tone keys at his or her telephone (5 seconds fast forward, 5 seconds rewind, pause, and repeat greeting).
- **Automatic disconnect after announcement:**
It is possible to set a one-time announcement of the greeting for information mailboxes. The call is disconnected afterwards.

- **Language:**

Either language 1, language 2 or language 3 can be selected for all COS 4 through COS 17 mailboxes. COS 1 through COS 3 mailboxes use the set standard language. The default setting is language 1.

- **Greeting control:**

All mailboxes with more than one greeting allow selection of greeting control. Via the Hi-Path 3000 Manager, the greeting control can be selected for all mailboxes at any time. Selection of greeting control via the user interface of Xpressions Compact is only possible if the corresponding COS-Bit (greeting control) has been configured for this mailbox.

The following greeting control choices are possible for mailboxes with 3 greetings:

- **Manual:**
One of the 3 greetings is selected manually. With the corresponding authorization, the user can change the active greeting via the TUI.
- **Type of call:**
Selection of the greeting depends on the type of call. IVM distinguishes automatically between internal and external calls. The first greeting is played for internal calls, the second greeting is played for external calls. The third greeting is not used.

The following greeting control choices are possible for mailboxes with 4 greetings:

- **Manual:**
One of the 4 greetings is selected manually. With the corresponding authorization, the user can change the active greeting via the TUI.
- **Type of call:**
Selection of the greeting depends on the type of call. IVM distinguishes automatically between internal and external when the line is free or busy.

The following greetings are played:

- Internal call, line is free --> 1st greeting
- Internal call, line is busy --> 2nd greeting
- External call, line is free --> 3rd greeting
- External call, line is busy --> 4th greeting
- **Day / Night:**
The greeting which is played is selected automatically depending on the day / night status of the HiPath 3000. During the day, the first greeting is played. During the night, the second greeting is played. The third and fourth greetings are not used.

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- Calendar selection:
The greeting which is played is selected automatically according to the IVM calendar.

The following greetings are played:

- During work hours --> 1st greeting
 - During the night --> 2nd greeting
 - During lunchtime --> 3rd greeting
 - Special time (e.g. holidays) --> 4th greeting
- **Fax intercept destination:**
A mailbox-specific fax intercept destination can be configured here which will be evaluated before the general fax intercept destination.
There is no default setting.

The rest of the parameters in the sub-dialog "Mailbox parameter" refer to configuration of multi-customer systems (see also Chapter 4.4.11 Multi Customer Systems (Tenant Service)):

- **ID numbers for hunt groups:**
This parameter defines which customer the mailbox belongs to. It controls which ports the IVM uses to make an internal or external call.
The following greetings are played:
There is no default setting.
- **Seizure code:**
The directional ID numbers determine which lines are used for external outgoing calls by the IVM. This is absolutely necessary for the correct billing of the customers.
Only previously configured seizure codes are available here.
There is no default setting.
- **Operator:**
This parameter controls the destination number for callers who dial 0 in a "Non-AutoAttendant" mailbox in which no substitute (referral extension) number has been activated. This is evaluated before the Attendant code - call number internal, which is usually the destination in this case.
There is no default setting.

Special characteristic of the AutoAttendant mailbox:

There is no connection to the operator when a speed dial number 0 or an intercept destination day / night (IVM parameter) is configured. The speed dial number 0 is evaluated before the intercept destination day / night.

Special characteristic of the 'non-AutoAttendant' mailbox:

There is no connection to the operator when the substitute (referral extension) function of the mailbox is activated. In this case, calls are transferred to the substitute (referral extension) number.

Sub-dialog COS:

In the sub-dialog "COS", the features of a COS can be viewed per mailbox and changed. Inconsistent combinations are indicated with error messages.

If there is a combination which does not correspond to one of the COS 1 to 17, this is offered as an additional type of mailbox with an index in the COS selection (Mailbox parameter) and therefore can be easily used for other mailboxes.

254 of these "indexed" COS types are possible, further combinations will be characterized as "user-defined".

4.4.2.3 Setting Up Mailboxes Using Templates

Setting up the IVM can be simplified significantly by copying the configuration of one mailbox to other mailboxes. For this, one mailbox is completely configured as described in Section 4.4.2.2, "Mailbox Parameters".

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Double-click the "Param" field.
 - The "Parameters" dialog box appears.
- Click the "Use template settings" button.
- Return to the "IVM" dialog box by clicking OK.
- Select the mailboxes to which the parameter settings are to be copied.
- Click the "Accept template settings" button.

Settings are copied from "COS" and "Param" to the selected mailboxes. The settings for "Mailbox extension" and "Name" remain unchanged.



It is advisable to create a template for each mailbox class because allowable "Param" settings depend on the COS designation.

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4.4.2.4 Checking Entries

The individual entries are checked for consistency. The primary objective is to discover any possible extension number conflicts.

Checking is performed as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Check" button.

If errors have occurred, a new window appears with notes concerning troubleshooting.

Testing is also conducted automatically when the dialog box is exited by clicking the "OK" button, as well as when the "Accept" button is activated. The dialog box cannot be exited until all inconsistent data has been corrected.

4.4.2.5 Renaming Mailboxes (changing extension numbers)

Mailboxes are renamed by simply overwriting the old mailbox extension number with a new one after selecting "Settings" - "Auxiliary equipment" - "Integrated Voice Mail (IVM)". Existing messages and greetings remain intact, although they can be deleted, if desired, with the "Initialize mailbox" function under "Maintenance".

4.4.2.6 Deleting Mailboxes

Mailboxes are deleted by deleting the corresponding mailbox extension number after selecting "Settings" - "Auxiliary equipment" - "Integrated Voice Mail (IVM)". After acknowledgement (with "OK" or "Accept"), a warning appears indicating that all mailbox settings and messages will be lost.

There is only one warning for all mailboxes if more than one mailbox has been deleted, it is not possible to confirm or cancel for each mailbox.

4.4.3 AutoAttendant Mailboxes

The COS AutoAttendant mailboxes are distinguished by the fact that switching and interlinking to other mailboxes or to users (using direct station selection) is made possible with the speed dialing function (speed dialing numbers 0 through 9). In this way, for example, menu-driven selection of an announcement language can be realized. Additionally, 1 or 2 intercept destinations can be defined.



When the COS bit "AA Disable Direct Dialing" is set, suffix dialing of internal stations is prevented, speeding up call switching to the selected speed dialing destination.

Call switching in AutoAttendant operation can be realized in the following ways:

- Blind Transfer
- Wait for Ring
- Wait for Answer

See Section 4.4.1, "General Parameters".

4.4.3.1 Interlinking Mailboxes

The caller must always first dial into an AutoAttendant mailbox that allows him or her to switch to another mailbox via speed dialing (speed dialing numbers 0 through 9). This mailbox may also be an AutoAttendant mailbox, allowing for the realization of multi-level applications. Destinations other than AutoAttendant mailboxes always represent end-points within the interlinked system.

Configuration is executed as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "Automatic attendant".
All AutoAttendant mailboxes are displayed under "Mailbox extension number / name", all known users appear under "Users" and all known mailboxes are listed under "Installed mailboxes".
- a) Speed dialing destinations can be selected from the "Users" and "Installed mailboxes" lists via drag & drop. The destination type is automatically set to "Call number", "Mailbox", or "CO (ext.)".
or
- b) Speed dialing numbers can be entered directly. In this case, the type of destination should be set to either "Mailbox", "Call number" or "CO (ext.)". "Call number" can be either an internal or external number, "CO (ext.)" will activate an outside line before dialing the entered number.
- Speed dialing destinations can be deleted from an AutoAttendant mailbox by dragging them to the trash can icon and dropping them.



If the extension number of a further AutoAttendant mailbox has been entered as a speed dialing destination, the second mailbox can be accessed directly by double-clicking the appropriate field.

It is not possible to exit the dialog box before all entries have been completed (for example, if an extension number has been entered manually without assigning a type).

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IVM Configuration

4.4.3.2 Automatic Information Services

Automatic information services can be set up by interlinking AutoAttendant mailboxes, with information mailboxes as end-points. Setup is performed as described in Section 4.4.3.1. As a special feature, a speed dialing number from the AutoAttendant mailbox can direct the caller to an information mailbox, which allows for longer announcements, as well as browsing within the announcement.

4.4.3.3 Handling Intercept/System Mailbox

To prevent loss of calls which haven been, for example, intercepted to the IVM for which no mailbox exists, a "system" mailbox can be configured.

To do this, set up a mailbox (preferably AutoAttendant) for the hunt group of the IVM ports / extensions. In the case that a call is transferred to a destination with no mailbox, the IVM will search for this special mailbox and, if found, will process the call there.

If the IVM ports are distributed among several hunt groups, several system mailboxes are possible.

In the case that no action is taken in an AutoAttendant mailbox where no active substitute (referral extension) number, operator number or AutoAttendant intercept destination has been set up, calls are switched to the system mailbox as a last step before being disconnected.

Further functionalities are possible if the system mailbox is set up correspondingly. By deactivating the message recording function, for example, and forwarding the call via speed dialing / intercept destinations (see Section 4.4.3.1), the call can be sent to the central switchboard mailbox. This has the advantage that recording and signaling takes place at the switchboard.

4.4.3.4 AutoAttendant Mailboxes with Separate Speed Dialing Destinations for Each Time/Greeting

As of software version HE200V.0x.123 different speed dialing destinations that are dependent on the IVM calendar can be assigned to an AutoAttendant mailbox depending on the time of day and the greeting.

To do this you must set up an AutoAttendant master mailbox; and the 3 mailboxes immediately after the logical index of the AutoAttendant master mailbox must also be of the type AutoAttendant.

An AutoAttendant mailbox becomes a master mailbox if the COS bit "AA Ext. Short Dial Destination" is also set. This COS bit should not be set for the three following AutoAttendant mailboxes.

In the case of all four mailboxes, the greeting control must be set to "IVM calendar".

Example:

Index 11/Mailbox 200 > AutoAttendant master mailbox with the additional COS bit "AA Ext. Short Dial Destination".

Index 12/Mailbox 211 --> normal AutoAttendant mailbox

Index 13/Mailbox 250 --> normal AutoAttendant mailbox

Index 14/Mailbox 263 --> normal AutoAttendant mailbox

In this example, the calendar dependent speed dialing destinations have been distributed as follows:

Day Index 11/Mailbox 200

Night Index 12/Mailbox 211

LunchtimeIndex 13/Mailbox 250

Special Index 14/Mailbox 263

If an AutoAttendant master mailbox is called, the IVM will play the corresponding master mailbox greeting specified in the calendar. Depending on the calendar control, the speed dialing destinations of the assigned mailbox are used (in our example: Day -> Speed Dialing Destinations of Box 200, Night -> Speed Dialing Destinations of Box 211, etc.). Please refer to Figure 4-1 for the precise assignment.

Message recording, if required for these AutoAttendant mailboxes, is always performed in the master mailbox. Message recording is activated in the master mailbox and applies to all day states. Message recording cannot be configured differently for individual calendar states. The recorded messages are retrieved via the administration menu of the AutoAttendant master mailbox.

The speed dialing and intercept destinations of these mailboxes can be changed via the HiPath Manager or the AutoAttendant mailbox TUI. When modifying these destinations, the AutoAttendant mailbox to which the speed dialing destinations belong must be administered.

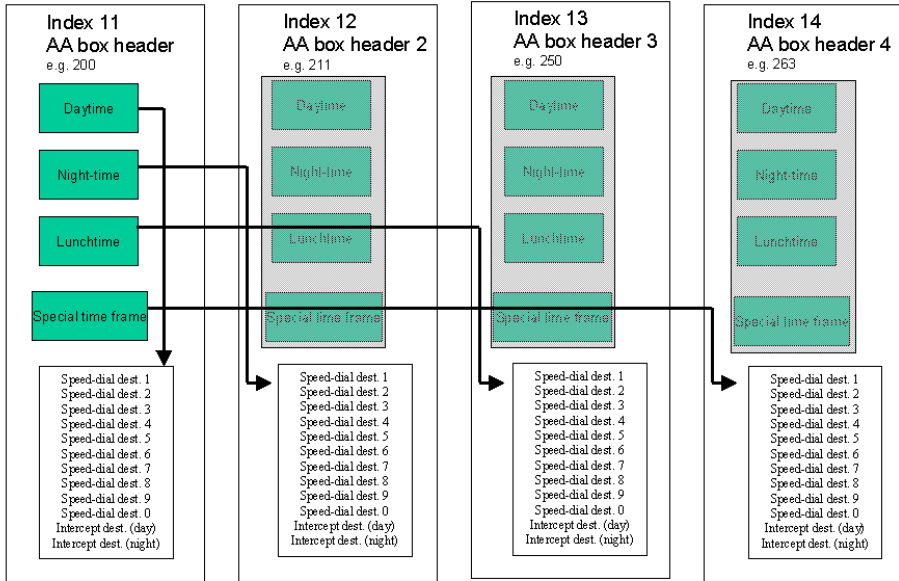



Figure 4-1 Mailboxes with Separate Speed Dialing Destinations

 When a call is diverted to one of the assigned mailboxes (e.g. 211), it behaves just like a normal AutoAttendant mailbox.

4.4.4 Information Mailboxes

The special features of the information mailbox can be used to establish an announcement service. Special features of the information mailbox are:

- Maximum greeting length of 20 minutes
- The caller is able to navigate within the greeting.

Information mailboxes can only be set up via the HiPath 3000 Manager E. They allow the caller to navigate within the mailbox announcement with the help of the touch-tone keys at his or her telephone (5 seconds fast forward, 5 seconds rewind, pause, and repeat greeting).

Generally, any COS 1 mailbox can be configured as an information mailbox. Virtual users are utilized for this.

To set up an information mailbox, the "Information mailbox" checkbox must be activated under "Parameters". It can also be configured whether or not the announcement should be repeated or whether the call should be disconnected afterwards (checkbox: "Automatic hook on after announcement").

After the information mailbox has been set up, the greeting is recorded via the mailbox functions. The recorded mailbox greeting is played back to the caller as an information announcement.

4.4.5 Guest Mailboxes

Guest mailboxes are characterized by the fact that an actual telephone is not assigned to the mailbox, but rather only a virtual user. Thus any mailbox can generally be used as a guest mailbox. Messages can be played back on any telephone, including external phones.

4.4.6 Group Mailboxes

Group mailboxes enable a team to use the same mailbox. A group mailbox consists of a mailbox number which can be assigned to up to 20 further user numbers. The mailbox number can identify a user, a virtual user, or also a group line / hunt group number.

All user numbers and the mailbox number receive an MWI signalization when a new message has arrived.

Members of a group mailbox can also have their own mailbox. The MWI signalization remains active until all messages in the mailbox (the user's own and the group mailbox) have received the status "heard" or have been deleted. To access the group mailbox, the hunt group number is dialed and the password entered. If the group password is identical to the user's own password, the system will ask for entry of the mailbox number, so that the identification is unambiguous.



If the user has access to his or her own individual mailbox as well as a group mailbox, the passwords should be different for each mailbox.

Only one group member at a time can query the group mailbox, other group members attempting to query the mailbox during this time will receive a system message. All users of a group have the same privileges.

Administration

IVM Configuration

Group mailboxes are configured as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "Group mailbox"
All group mailboxes are shown under "Mailbox extension number / name" and all known users are shown under "Users".
- Drag and drop members of the group from the list of "Users" or enter them manually as "new" users if, for example, the call numbers are in another system. In the last case, the new member is entered by clicking on the button "new".



Only users may be set up as group members. "Hunt groups cannot be set up as group members because there is no MWI for hunt groups.

4.4.7 Distribution Lists

With distribution lists, it is easy to send the same message to more than one person / mailbox. There are 20 distribution lists system-wide, each with a maximum of 20 mailboxes. When sending an internal message, one can, for example, enter a distribution list rather than a mailbox. However, the internal message is only sent to mailboxes in which the message receiving function has been activated.

Distribution lists are configured as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "Central distribution list"
The 20 lists are found under "Lists", the present mailboxes are found in "Destinations", and the mailboxes in the selected list are found under "Destinations in list".
- Select the desired list and add mailboxes by double clicking on "Destinations". "Mailboxes in "Destinations in list" are deleted by moving them to the trash can.
"Destinations in list" shows the current contents of the selected distribution lists.

4.4.8 System-Wide Calendar

Authorized mailboxes can have the system-wide calendar control the selection of greetings. The calendar offers a weekly and a yearly plan:

In the weekly plan, each day is divided into four sections:

- Working time

- Night-time
- Lunchtime
- Special time frame

The beginning and ending times of the work and lunch times can be defined for each weekday. Times beyond these are automatically nighttimes.

If times overlap, the following priority rule regulates the selection of the greeting:

1. Special time frame
2. Lunchtime
3. Working time
4. Night-time

In the yearly plan, up to 50 days can be configured which are independent of the weekly plan. The priorities of the times are analogous to the weekly plan.

The assignment of greetings (weekly and yearly plan) is as follows:

- First greeting for working time
- Second greeting for nighttime
- Third greeting for lunchtime
- Fourth greeting for special time frames

The yearly plan is set up as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "Calendar"
The weekly plan and the yearly plan can be viewed
- Using the monthly calendar, you can move a date to the yearly plan by double clicking it. Existing entries can be selected and deleted with the delete key or right mouse button.

The time to begin and end an area are tested by Manager E for consistency, however, there is no testing of the coordination of time frames amongst themselves. For example, it would be possible for lunchtime to be outside of working hours.

4.4.9 Name Selection

Name selection enables callers to enter up to 3 letters of the name of a user as a DTMF signalization. The IVM searches for the corresponding name-beginning and informs the caller of the results, or transfers directly if there is only one result from the search.

Administration

IVM Configuration

Several conditions must be met in order to use this feature:

1. Name selection must be activated generally, default setting (see Section 4.4.1, "General Parameters").
2. The desired users / mailboxes must have a mailbox name and be enabled for name selection. The last setting is the default one (see Section 4.4.2.2, "Mailbox Parameters").
3. A user name must have been recorded for the mailbox of the user.

4.4.10 Centralized Voice Mail with Networked Systems

A centralized voice mail is defined as a voice mail in a networked system. The IVM is located in one of these systems and can only be administrated there. This system does not know the extension numbers of the other networked systems. The numbers can, therefore, not be taken from the CDS for configuration purposes. This means that, when configuring IVM, the HiPath 3000 Manager E can only offer entry support (copying of extension numbers) for the specific system where the IVM is physically inserted. All mailboxes of connected systems must be set up individually (affected dialogs: mailboxes AutoAttendant, central distribution lists, and group mailbox).



If the IVM is implemented in a HiPath 5000 RSM (AllServe) environment, the function of the super-user is not available. Furthermore, the functions greeting control, user language, and speed dialing destinations cannot be changed.

4.4.11 Multi Customer Systems (Tenant Service)

The IVM handles the distribution of resources among customers:

- **IVM ports (availability)**
Incoming calls are distributed to the IVM ports according to the assignment of the hunt groups. For outgoing calls from the "mailbox" (Message Waiting Indication, notification call, substitute (referral extension) call) ports are used according to this assignment.
- **Trunk group (cost allocation)**
Customer-specific trunk groups are used for notification calls to external destination numbers.
- **Operator**
A mailbox-specific destination number can be configured for when a caller selects the option to be transferred to the "operator".

The set up occurs in the dialog box "Mailbox Parameters" (see Section 4.4.2.2, "Mailbox Parameters").



During name selection, only the list of mailbox users belonging to the customer (hunt group) that corresponds to the searching AutoAttendant are evaluated. If the hunt group of the AutoAttendant is not customer-specific, then all mailbox user names are searched.



If a seizure code for a mailbox has been set up, the call number is monitored before an outgoing call (notification call, substitute (referral extension) call, AutoAttendant speed dialing number). For external calls only the configured seizure code is admissible. If this is not the case, the call will not be established / disconnected.

4.4.12 LAN Access

Generally, all maintenance functionalities are possible via LAN connection. The configuration of the network parameters is necessary:

- **IP address:**
Setting range: 0.0.0.0 to 255.255.255.255. The default value is 192.168.1.2.
- **Subnet mask:**
Setting range: 0.0.0.0 to 255.255.255.255. The default value is 255.255.0.0.
- **Gateway IP address:**
Setting range: 0.0.0.0 to 255.255.255.255. The default value is 192.168.1.1.
- **Permissible LAN access:**
For security reasons, selection can be made allowing for direct FTP access and/or TFTP access via LAN. Both types of access are disabled in the default configuration. It is not necessary for the Manager E / C to release the TFTP access.



It is necessary to enable the TFTP access if the IVM should be administered within a HiPath 5000 RSM (AllServe) environment or if the Manager E should run directly via the IVM LAN interface (see Section 4.5, "TUI Parameters").

Setup is accomplished as follows:

- Dialog box: "Settings" - "Auxiliary equipment" - "IVM"
- Click the "Additional settings" button.
- Select "network parameter".

The LAN access to IVM is attained in the dialog box "Transfer" as the connection "IP-IVM". Only maintenance is possible when this connection has been selected, whereas one has direct access to the "IVM" dialog box. Accessing the system is not possible via this connection.

Administration

TUI Parameters

For several maintenance actions it is possible in the separate dialogs to switch later to the "IP-IVM" connection in order to take advantage of quicker data transfer, even if the connection has been established in the usual way (via the system).

Generally, no new login procedure is necessary for the LAN access of the Manager via FTP. The system password enables access to the IVM as well.



If the customer administrates the system and has a separate password under "Transfer" - "security" in the user group "Administration", the IVM LAN access requires this password, or a password from the user group "Administration" for reasons of data protection.

4.5 TUI Parameters

With IVM V2.0 it is now possible with the Manager E / C to select and, in part, change, mailbox parameters that can normally only be accessed via the Telephone-User-Interface (TUI).

4.5.1 Reading Out and Writing Mailbox Parameters

The following parameters of a mailbox are shown, whereas only those parameters can be changed which are not available in the administration (via CDS):

Parameter	Changeable
Mailbox password	-
Mailbox call no.	-
Name	-
COS	-
Language	-
Fax intercept destination	-
Greeting control	-
Information mailbox (yes / no)	-
Automatic disconnect for info-mailbox	-
Directory entry for name selection (on / off)	-
Hunt group ID number	-
Seizure code	-
Operator	-
Private message (existent or non-existent)	-

Table 4-3 Mailbox TUI Parameters (Maintenance)

Parameter	Changeable
Mailbox enabled (on / off)	x (only to turn on)
State of message recording (on / off)	x
Selected greeting (index)	x
Greeting [1-4] (user-defined or standard)	- see Section 4.5.2
User name (existent or non-existent)	-
Status of substitute (referral extension) selection (on / off)	x
Selected substitute (referral extension) number (index)	x
Substitute (referral extension) numbers [1-5]	x
Status of notification call (on / off)	x
Selected notification call number (index)	x
Notification call numbers [1-5]	x
DTMF-dialing for SMS / Pager [1-5]	x
Attribute whether or not the notification call is used for urgent messages	x
Weekly program for user-defined notification call	x

Table 4-3 Mailbox TUI Parameters (Maintenance)



The configuration of the parameters for DTMF-dialing for notification call to SMS / Pager, the attribute of whether or not the notification call is only used for urgent messages, and the use of the weekly program for user-defined notification calls are only possible via this mechanism and not via TUI.

The selection / changing of the mailbox parameters occurs via HiPath 3000 Manager E:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".

Administration

TUI Parameters

- Click on the button "Read data"
The IVM data will be loaded. If the button "Mailbox configuration" does not appear after the data has been read, then it is the case of an IVM Version 1.0, which does not support this function.
- Activate the button "Mailbox configuration".
A new dialog box "Mailbox configuration" will appear.
- Select a mailbox and click on the "read" button
It does not matter which sub-dialog is open, all data are always read.
- Make changes in the sub-dialogs for general mailbox data, substitute (referral extension) call, message call and personal calendar.
- Click on the "write" button
It does not matter which sub-dialog is open, all data are always written.

4.5.1.1 Message Call

In addition to Message Waiting Indication, a notification call can be used to signalize an incoming message in the mailbox.

In the standard case, the IVM calls a phone number and requests the caller to enter his or her mailbox password. Then the message can be heard and the notification call is considered finished. If a connection is not successful or if the password is not entered, the notification call will be repeated after a certain set time as often as is configured in the general IVM parameters (see Section 4.4.1, "General Parameters").

Up to 5 notification call numbers can be entered per mailbox, and one of these numbers can be activated. The notification call function can be activated per mailbox.

Starting IVM Version 2.0, the notification call can be sent to a DTMF-SMS / Pager service instead of to a telephone. A sequence of up to 64 DTMF-signals or pause-signals ("P" = 0.5 sec) for the necessary suffix can be entered.



The set up of the suffix must be carefully monitored and should have enough pause signals.

For analog outside lines, there are no criteria for accepting the call; here the call is connected after 5 seconds. This can perhaps be compensated with leading pause signals.

A notification call can be signalized for all messages or only for urgent calls.

Notification calls can also be controlled by the weekly program. This program determines the time that notification calls will be activated for each day. If a message is left in the mailbox beyond this time, the notification call will not take place until the next "active" time.

4.5.1.2 Substitute (Referral Extension) Call

Calls can be forwarded to a substitute (referral extension) if the message recording function has been deactivated, if "silence" is registered or the message is too short, or if the caller dials a substitute (referral extension) number with DTMF signals.

Up to 5 substitute (referral extension) numbers can be entered per mailbox; one number can be activated at a time. The substitute (referral extension) function can be activated per mailbox.

4.5.1.3 Personal Calendar

Each AutoAttendant mailbox has a personal weekly schedule. The structure of this weekly schedule corresponds to the system-wide weekly schedule (day, night, lunch and special time). Once the personal mailbox weekly schedule has been activated, the system-wide weekly calendar is no longer used. It is also possible to define whether or not the yearly plan of the system-wide calendar (special days) should be activated in your personal mailbox.

4.5.2 Professional Greetings

Externally recorded greetings can be saved in the mailboxes. This is valid for all mailbox types.



To be compatible with the mailboxes, the greetings must be saved as wave-files in PCM 16 bit or ITU G.711 aLaw, each with only one "format" and one "data" chunk. The best results are attained with files which have been recorded in 8 KHZ mono.

The HiPath Manager E / C converts the format to the one used by IVM. Recordings which are not loud enough are rejected.

The conversion can take a while, depending on size and type of the wave-file.

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000.
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the button "Execute file operations"
A new dialog box will open.
- Activate the radio button "greetings" in the field "greetings"
After a moment, the IVM will show which mailboxes have been set up.
- Selection of a mailbox and implicit initiation of the data transfer
A backup is made of the selected mailbox, without the messages. Right after that, four greetings are shown, regardless of the number of greeting actually available in the mailbox. Long greeting names (date, time) identify an individual greeting, short names identify standard IVM greetings.
- One WAV file can be saved for each of the four greetings via the button "...". The button "Clear" deletes the entry.
- The button "PC-> IVM Delta" transfers the changed greetings back to the IVM.



Resetting the standard greeting is only possible in the IVM Version 2.0. In Version 1.0, greetings can only be overwritten.

4.6 Music On Hold

HiPath Xpressions Compact can be used as a HiPath 3000 music-on-hold device in HiPath 3000 Version 4.0 SMR 7 or later.



Music on hold can only be used locally.

Irrespective of this, the remaining IVM port can be used for worldwide voicemail.

Up to six ports in the IVM can be permanently configured as MOH channels (music-on-hold). The greetings for the mailboxes of the corresponding announcement ports are played back as announcements when the ports are seized.

If a greeting is not recorded, i.e. if only default greetings are available, default music-on-hold is played.

If only the first greeting is available, this will be repeated ad infinitum. If there are several greetings (two/three), they will be played in sequence. Once the third greeting has been played, the cycle begins again. An existing fourth greeting can be used as an information announcement and is always saved between the first three announcements. If only the fourth greeting is available, it is saved after the default music-on-hold.

Greetings can be recorded via the TUI or can be played back as professionally recorded greetings (see Section 4.5.2, "Professional Greetings").

The greetings are administered via HiPath 3000 Manager E.

The MOH is set up in the familiar manner under "Auxiliary equipment - External equipment", i.e. a separate MOH source can be specified for each ITR group. At this point, it is possible to input an IVM call number as an MOH source.



If a call from an internal IP phone is put on hold, only the MOH of ITR 1 is played.

The MOH mailboxes must also be set up on the IVM. The mailbox call number corresponds to the call number of the IVM port specified as the MOH source. The COS of this type of MOH mailbox must be set to COS class 17 and cannot be modified. You do not need to enter any other parameters.

The call number of an IVM port that is used as MOH cannot be used again in a hunt group for voicemail.

Although it is possible to access an MOH mailbox via the TUI (only by switching mailboxes "** # Mailbox Number", the only option available is the recording of "greetings").



Super users cannot set up or administer MOH mailboxes.

4.6.1 MOH Playback Sequence

The sequence for playing back MOH will depend on the greeting announcements already available in the MOH mailbox.

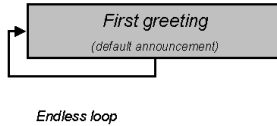


Figure 4-2 MOH playback sequence - 1st greeting available

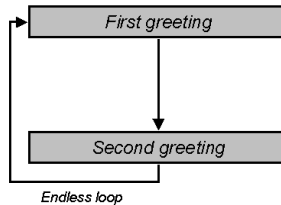


Figure 4-3 MOH playback sequence- 1st and 2nd greetings available

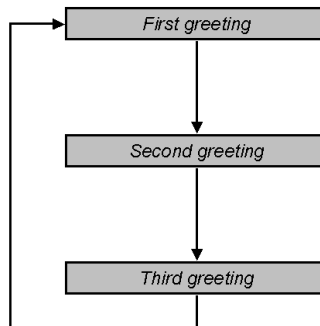


Figure 4-4 MOH playback sequence - 1st, 2nd and 3rd greetings available

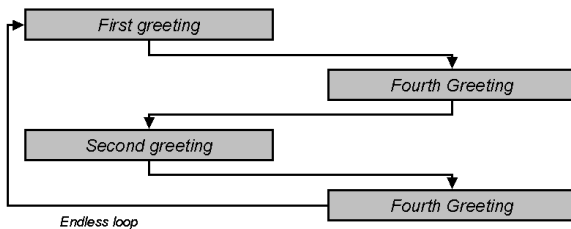


Figure 4-5 MOH playback sequence - 1st, 2nd and 4th greetings available

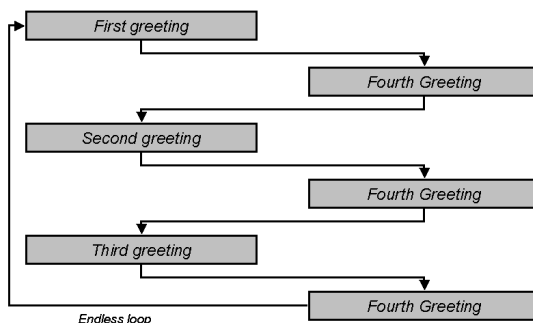


Figure 4-6 MOH playback sequence - 4 greetings available

4.7 IVM as Announcement Device for HiPath 3000

In HiPath 3000 Version 5.0 or later, the IVM can be used as an announcement device.



Announcements can only be used for local applications (that is, UCD must be configured in the HiPath 3000 in which the IVM is used).

Irrespective of this, the remaining IVM port can be used for netwide voicemail.

Up to 16 ports on the Xpressions Compact (depending on the announcement devices available on the HiPath 3800, 3700, and 35x0/33x0) can be used on a permanent basis as an announcement channel.

The first greeting for the mailboxes of the corresponding announcement ports (announcement mailbox) is played back as an announcement when the port is seized.

There are two types of announcement:

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IVM as Announcement Device for HiPath 3000

- a) the announcement is played once and the connection is cleared down.
- b) the announcement is repeated ad infinitum and the system establishes the connection.

Announcements can be saved in the same way as normal greetings via the HiPath 3000 Manager E/C (see Section 4.5.2, "Professional Greetings").



Announcements are licensed as a HiPath 3000 feature. In HiPath 3000 Manager E, the feature is enabled for each announcement port. Please refer to the HiPath 3000 Service Manual for further information on licensing.

The feature is licensed and enabled for each announcement port.

Administration is performed via HiPath Manager E.

The announcement device is set up in the familiar manner under "Auxiliary equipment - Announcements". Here you have the option of entering the IVM port access as an announcement source. The only announcement types that can be used are "Announcement" (one-off announcement) or "Music On Hold" (cyclic announcement).

The announcement mailboxes must be set up on the IVM. The mailbox call number corresponds to the call number of the IVM port specified under "Auxiliary equipment - Announcements". The COS of this type of MOH mailbox must be set to COS class 17 and cannot be modified. The type must be configured as the parameter for this mailbox (ad finitum or disconnect at the end of the announcement).

The call number of an IVM port, which is used as an announcement, cannot be used again in a hunt group for voicemail. If necessary, the station type of an IVM announcement port must be changed from "PhoneMail" to "Standard".

Although it is possible to access an announcement mailbox via the TUI (only by switching mailboxes"* # Mailbox Number"), the only option available is the recording of announcements.



Super users cannot set up or administer announcement mailboxes.

5 Final Testing

After completing the administration procedures, the IVM should be configured in such a way that it correctly presents each user with additional setup options for configuring his or her own mailbox from his or her telephone. The system is ready to receive calls when the yellow LED is off and the green LED is on.

Final testing of the fully configured IVM module is performed by placing test calls and querying the mailboxes.

The default mailbox password for newly configured mailboxes is 1 2 3 4.

5.1 Normal Mailbox

1. Activate the mailbox with the mailbox controls. Call the IVM hunt group and enter the password and the mailbox extension number, if required. Message recording is then enabled.
2. Set up call switching and call forwarding to the IVM hunt group.
3. Call the extension number for the activated mailbox from an internal as well as an external phone, and check to see whether or not the call is switched to the right mailbox (the greeting text for the corresponding mailbox can be heard).
4. Record a message after the greeting has been played back. Check to see whether or not message waiting indication is activated.
5. Call the IVM hunt group and enter the password and the mailbox extension number, if required. Check date and time for the recorded message and then delete the message. After the last message has been played back, the MWI function at the corresponding telephone should automatically be deactivated.

5.2 Message Call

The notification call should be tested for at least one mailbox. The following steps must be executed for this:

1. Call the IVM hunt group number.
2. Enter the password and the mailbox extension number, if required.
3. Select the "Notification call number" function by repeatedly pressing the < 3> key (STD); <2> (XP). If a notification call number is being set up for the first time, the "No notification call number has been entered" message is played back.
4. Press the <0> (STD); <1> (XP) key and enter the number for the notification call after the prompt. Press the <#> (STD); <*> (XP) key after entering the number.

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5. In order to change to the function for activation of the notification call, press the <1> (STD); <72> (XP) key. The "Notification call is deactivated" message is played back first.
6. The notification call function is activated by pressing the <0> (STD); <1> (XP) key, which is acknowledged with an appropriate announcement.
7. All mailbox functions are exited by hanging up.
8. After leaving a message at the mailbox, a notification call is made to the previously entered number.
9. After answering the notification call and entering the mailbox password, delete the recorded message and deactivate the notification call function (delete the notification call number if necessary).

5.3 AutoAttendant

5.3.1 Speed Dialing Destinations

1. Call the IVM hunt group number.
2. Enter the password and the AutoAttendant mailbox extension number, if required.
3. Select the "Speed dial <1> ..." function by repeatedly pressing the <3> (STD); <2> (XP) key. If a speed dialing number is being set up for the first time, the "No speed dialing destination" message is played back.
4. Press the <0> (STD); <1> (XP) key.
 - a) If no speed dialing destination exists: After being requested to do so, enter the speed dialing destination phone number. Press the <#> (STD); <*> (XP) key after entering the number.
 - b) If a speed dialing destination already exists: Press the <*> (STD); <1> (XP) key (change number) and enter the new speed dialing destination phone number after the prompt. Press the <#> (STD); <*> (XP) key after entering the number.

Mailbox as speed dialing destination:

If a mailbox is to be entered as a speed dialing destination, enter <#> (STD);<#> (XP) followed by the mailbox extension number.

5. All mailbox functions are exited by hanging up.
6. Call the AutoAttendant mailbox and enter the speed dial number <1> during the greeting. Check whether your call is switched to the destination which you have just set up.

Mailbox as speed dialing destination:

Call the AutoAttendant mailbox. The caller hears the current mailbox announcement after pressing the corresponding speed dial number <1> during the greeting.

7. Delete the speed dialing destination number, if necessary, after completing this test.

5.3.2 Call Forwarding to an Extension Number

Call the AutoAttendant mailbox and enter the desired extension number during the greeting. Check if the AutoAttendant mailbox switches the call to the entered extension number.

5.3.3 Call Switching to a Mailbox

Call the AutoAttendant mailbox and during the greeting press <*> (STD); <*> (XP), and then enter the extension number of the desired mailbox.

Check if the AutoAttendant mailbox switches the call to the corresponding mailbox and the current announcement is played back to the caller.

5.4 Group Mailbox

1. Group mailboxes can be configured for a minimum of two group members with HiPath Manager. In order not to interfere with the mailbox-users' work, it is best to do the test with extension phones which are currently not being used.
2. Activate message recording by entering the administration of the group mailboxes.
3. Call the group mailbox and leave a message.
4. Check to see that all extension phones which are included in the group receive an MWI signal.
5. Listen to the message from one of the extension phones by calling the hunt group and entering the mailbox password. Then delete the message.
6. Make sure all MWI lights have disappeared from the extension phones of all group members.

5.5 Finishing Up

After final testing of the IVM has been successfully completed, an IVM system administrator should be trained, if necessary. Beyond this, instruction for administration with the super user function should be provided as well (see user manual).

Final Testing
Finishing Up

6 Troubleshooting and Maintenance

6.1 LED Indicators During Operation

Yellow LED	Green LED	Description	Required Action
Off	On	Idle (no calls)	
Off	Blinking (500 ms / 500 ms)	At least one active port (call)	
Blinking (500 ms / 500 ms)	Blinking (500 ms / 500 ms)	Disable switch activated during a call	
On	Off	Module disabled or module error has occurred	<ul style="list-style-type: none"> - Check to see if the module has been deactivated by HiPath 3000 Manager E, or via the disable switch. - Replace module if defective.

Table 6-1 LED Indicators During Operation

6.2 Frequently Asked Questions

Symptom	Cause	Remedy
No connection to the IVM can be established.	The module is defective.	Replace the module.
	All available IVM channels are busy.	Review statistics to see if the channels are busy. If an IVML8 module is used, it should be replaced by an IVML24 module.
	The module is disabled.	Set the disable switch back to the enable positions and / or cancel disabling via the Hi-Path 3000 Manager E.
	The module has not powered-up. Error message 30 / 95 in the error memory	Test the USBS call numbers, they must be configured.

Table 6-2 Frequently Asked Questions

Troubleshooting and Maintenance

Frequently Asked Questions

Symptom	Cause	Remedy
Queries over the optiPoint menu or MWI key do not reach the IVM	The preconfigured Entry Voicemail (EVM) was not properly removed from the CDB. Important: For HiPath 33x0 and 35x0 only!	Remove the EVM from the CDB (see Section 3.2 on page 3-2).
Transfer with Manager E / C to IVM is too slow (connection via the system)	The X / Y values are too low and the flow control of the D-channels is active	Raise the X and Y values to at least 200.
Mailbox does not respond.	Mailbox has not been set up.	Set up a mailbox for the corresponding extension number via the HiPath 3000 Manager E.
	Call switching or forwarding to the IVM hunt group has not been set up for a given extension number.	Set up call switching or forwarding for the corresponding extension number. (Call destination lists: 2nd destination = IVM hunt group number).
Message recording is not possible. The caller hears the mailbox greeting, after which the call is released.	The mailbox was not activated after it was set up. Note: Message recording is always deactivated after initial installation.	Call the mailbox and enter the mailbox password to gain access to mailbox control.
	Message recording is deactivated for the mailbox.	Call the mailbox and enter the mailbox password to gain access to mailbox control, and then activate message recording.
Message recording is not possible. The caller hears a system message informing him or her that it is not possible to leave a message.	No more recording capacity (total 100 hours)	Delete old messages.

Table 6-2 Frequently Asked Questions

Symptom	Cause	Remedy
Mailboxes cannot be set up by the super user. The system administrator hears a system message indicating that no more mailboxes can be set up.	The maximum number of mailboxes has already been set up.	Delete unnecessary mailboxes.
A mailbox does not include all desired features.	The wrong COS setting has been configured.	Change the COS setting for the affected mailbox.
The mailbox cannot be controlled with certain telephones.	Touch-tone signals are not recognized.	Activate the touch-tone function in the HiPath system.
Message waiting indication remains active at telephone.	New messages have arrived, or previous messages have not yet been played back.	MWI remains active until all new messages have been played back.
Message waiting indication does not occur.	The substitution ID numbers for '*' and '#' have been deleted.	Configure the substitution ID numbers.
Long messages are truncated.	Maximum message recording duration has been exceeded during recording.	Increase maximum message recording duration via the HiPath 3000 Manager E.
AutoAttendant mailboxes cannot be set up by the super user. The system administrator hears the following message: "No more mailboxes can be set up with this class of service".	The maximum number of mailboxes has already been set up.	Delete unnecessary AutoAttendant mailboxes.
A notification call, a substitute call or a call switching does not occur.	Seizure code of the caller number and admissible seizure code of the mailbox do not correspond.	Correct the call number in the notification call, substitute call or AutoAttendant speed dialing destination number.
A user is not found by name selection	No user name has been recorded	The user must speak his or her name into the recording
The following error message appears after attempting to log in via FTP: "Could not open host; username and/or password was not accepted for login."	FTP password or FTP user name was entered incorrectly, or the user group is incorrect.	Enter the correct FTP password and/or FTP user name.

Table 6-2 Frequently Asked Questions

Troubleshooting and Maintenance

Troubleshooting

Symptom	Cause	Remedy
The following error message appears after attempting to log in via FTP: "Remote host has closed the connection".	FTP access is not activated in the HiPath 3000 Manager E.	Activate FTP access in HiPath 3000 Manager E.

Table 6-2 Frequently Asked Questions

6.3 Troubleshooting

Error situation 1: IVM runs without error after a (brief) failure.

In this case, please complete all steps in the Catalog of Measures 1 and 2 (see below).

Error situation 2: The service interface is not working.

1. Complete all steps in the Catalog of Measures 1.
2. Check the network connection.

Include the FTP protocol of the Manager E (<Installation contents Manager E>FTP>Log/log_ftotrans.txt) in the error description.

Include all files in the multiple-item operation sequence "<Installation contents Manager E>XML" in the error description.

In the case that there is an error message from the Manager E, include this in the error description.

If you suspect an unstable LAN connection, test the connection as follows:

Attention: follow the instructions for Ethernet configuration!

Windows prompt:

```
Ping -n 20 <IP address of the IVM>
```

No timeouts and no lost packages should be protocolled. If they are, there is a network problem and the network administrator should be contacted to find and remove the error. Afterwards, the network connection can be retested.

Does an FTP login (user name and password) function with the FTP program from the prompt?

If yes, use the "DIR" command and make a screen shot of the entire FTP directory contents.

3. Analyze the error as described in "**Error situation 3: The IVM has failed**".

Error situation 3: The IVM has failed.

1. Complete all steps in the Catalog of Measures 1.
2. If you are at the same location as the IVM:
 What is the status of the yellow and green LEDs on the IVM?
 Does the IVM react to pressing the disable switch?
 (The switch should be pressed after the test (IVMS) or in its upper position (IVML)).
3. Activate the call monitoring and call tests.
 Activate Call Monitoring in the Maintenance of the HiPath Manager (entering the first port is enough to monitor all IVM ports).

 Call the IVM directly (not via the hunt group) and wait until the prompt is heard to enter the PIN / password.

 Enter the PIN/password (e.g. "1234") slowly (1.5 to 2 seconds between entries). Was the PIN entry recognized? If so, you will have accessed a mailbox or you will hear a voice prompt asking you to enter the mailbox number. If the entry was not recognized, test whether or not "DTMF Automatic" is activated in the dialog "System parameters" - "Flags", and if necessary repeat the direct call.

 Call an extension that is forwarded to the IVM. Save the Call Monitoring again in a second file. Include both files in the error message.
4. If in both cases the IVM was not reached and the IVM data cannot be read with HiPath Manager, then please proceed as follows:

 Reset the IVM module via the HiPath Manager Maintenance - perform a restart/reload.

 If the IVM is still not operable after nine minutes, then reset the telephone system via Hi-Path Manager.

 If the IVM still not operable after this measure, please switch the telephone system completely off (without electricity) in order to rule out an IVM hardware error.

 If the IVM still fails, then there is a hardware error or a general communication problem between the telephone system and the IVM. Record the hardware version number of the CPU board of the telephone system and the error search can be ended here.
5. If the IVM has begun operation at some point during these steps, please complete all steps under **Catalog of Measures 2**.

Troubleshooting and Maintenance

The Log File

Catalog of Measures 1	Catalog of Measures 2
<p>Please answer the following questions:</p> <ol style="list-style-type: none">1. When was the failure determined (Date, time or time-frame)?2. How and how long did the failure occur?3. Was a measure applied (e.g. module reset)?4. How was failure determined (description of the error)?5. Can the error be reproduced (if yes, what are the steps to do so)?6. Could announcements be heard during the failure? <p>Read the HiPath 3000 Error History with developer password in order to view the C class errors.</p>	<ol style="list-style-type: none">1. Read the CDS of the telephone system.2. Read the IVM trace and the IVM Statistics (from the day or time-frame of the error).3. Have changes recently been made to the user administration?

Table 6-3 Catalog of Measures

6.4 The Log File

6.4.1 General

Administrative events are recorded in chronological order at the IVM in the log file. These events can be generated by mailbox users, the super user, the HiPath 3000 Manager, the TFTP and FTP-LAN administration. The log file maintains up to 4000 past events in a compressed data format. The events are overwritten (cyclic) after the capacity limit has been reached.

Each event begins with a date and time entry and contains the following information:

1. Date and time of the event (yyyy-mm-ddThh:mm:ss)
2. Initiator of the event (Manager C / E, mailbox, FTP, TFTP, super user)
3. Type of change (system, mailbox number)
4. Changed parameter
5. Additional information for parameter, e.g., day of week (optional)
6. Old parameter value

Troubleshooting and Maintenance

The Trace File

6.4.2 Reading Out the Log File

The log file is read out via the HiPath 3000 Manager E.

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Execute file operations" button.
- Select "LOG" in the "Read file" field.
Specify the name of the file to which the log file should be saved at the PC.
- Press the "Read: IVM --> PC" button
The log file is read out and is then available at the PC in compressed data format (.csvl.gz).

6.5 The Trace File

Activities occurring within each mailbox are recorded to the trace file (save or delete messages, notification, signalling etc.). Information such as mailbox extension numbers, date and time, touch-tone sequences etc. are recorded in compressed data format.

The trace file is read out via the HiPath 3000 Manager E.

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Execute file operations" button.
- Select "TRACE" in the "Read file" field.
The IVM now informs the HiPath 3000 Manager E of the possible time span for which a trace file can be generated.
- Specify the name of the file on the PC to which the trace file should be saved.
- Select the desired time span.

- Press the "Read: IVM --> PC" button
The IVM now indicates the size of the TRACE file. In this way, the user is able to determine the approximate time required for data transfer. At this point, data transmission can be aborted, or transfer can be started.

The TRACE file is read out and is then available on the PC in archive format (*.tar). Compressed TRACE files for each day are stored to this archive (*.xml.gz).

The TRACE file can also contain CORE files, which log the last software status in the case of an error (post mortem dump). CORE files help Research & Development analyze the error.

6.6 Initializing Mailboxes

If an existing mailbox is assigned to a new user, it is advisable to delete any existing messages, greetings, user names and speed dialing destinations, and to reset the password to its default setting. This is accomplished through mailbox initialization.

After initialization, mailbox recording is activated, and the substitute function and the notification call are deactivated.

Mailbox name and COS remain unchanged, although they can be changed with the administration function, if required.

Mailboxes are initialized as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance" and click the "Read data" button.
The required list of existing mailboxes is transmitted along with the version data (the list is not displayed at present).
- Click the "Initialize mailboxes" button.
A new dialog box appears at which all existing mailboxes are displayed in the left-hand field. Mailboxes can be dragged and dropped or double-clicked into the right-hand field, which displays all mailboxes to be initialized.
- Select the mailboxes.
- Activate the "Initialize mailboxes" button.
A message appears confirming data transfer.

Troubleshooting and Maintenance

Resetting Mailbox Passwords

6.7 Resetting Mailbox Passwords

If a user forgets his or her mailbox password, it can be reset to its default setting.

Mailbox passwords are reset as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance" and click the "Read data" button.
The required list of existing mailboxes is transmitted along with the version data (the list is not displayed at present).
- Click the "Reset passwords" button.
A new dialog box appears at which all existing mailboxes are displayed in the left-hand field. Mailboxes can be dragged and dropped or double-clicked into the right-hand field, which displays all mailboxes whose passwords will be reset to the default setting.
- Select the mailboxes.
- Activate the "Reset passwords" button.
A message appears confirming data transfer.

6.8 Super User

6.8.1 Changing the Super User Password

IVM administration via the user interface (super user) is protected by an 8 digit password. This password can be changed as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Change super user password" button.
A dialog box appears at which the new password can be entered, followed by reentry for confirmation.
- Enter the password and acknowledge with the "OK" button.
A message appears confirming data transfer.

6.8.2 Changing the Super User Language

The pre-set language of the super user is language 1. This can only be changed in the super user menu (super user TUI), see the Xpressions Compact User Manual.

6.9 Disabling the IVM

Before removing the module or during restricted operation (backup and restore), it may be advisable to disable the module for new calls.

The disable switch function is described in Section 2.2, and Section 3.5. In addition to the disable switch, the IVM can also be disabled using the software. These two functions are independent of each other, i.e., even after the IVM has been enabled with the switch, it may still be disabled by the software. The yellow LED indicates the status of both disable functions.

Querying the disable status:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000

Troubleshooting and Maintenance

Disabling the IVM

- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed to the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance" and click the "Read data" button.
The disable status is indicated in the "Lock" field. The "Software lock on/off" button cannot be activated until after the disable status has been queried.

Changing the disable status:

- Depending on the current status, the IVM can either be disabled or enabled by clicking the "Software lock on/off" button.
The disable status display is refreshed automatically approximately 10 seconds after the disable / enable command has been transmitted, i.e., the status is queried once again.

7 Software and Voice Prompt Upgrades

7.1 General

The IVM is completely inoperable (off-line: green and yellow LED off) during software and/or voice prompt upgrades.

Software and / or voice prompt data transfers do not effect the functions of the IVM and can thus take place during normal operating hours. The time at which upgrades become effective (changeover time) should be outside of normal business hours, and should be coordinated with the system administrator.

System software and voice prompt data files can be installed simultaneously. The IVM need not be disabled for this.

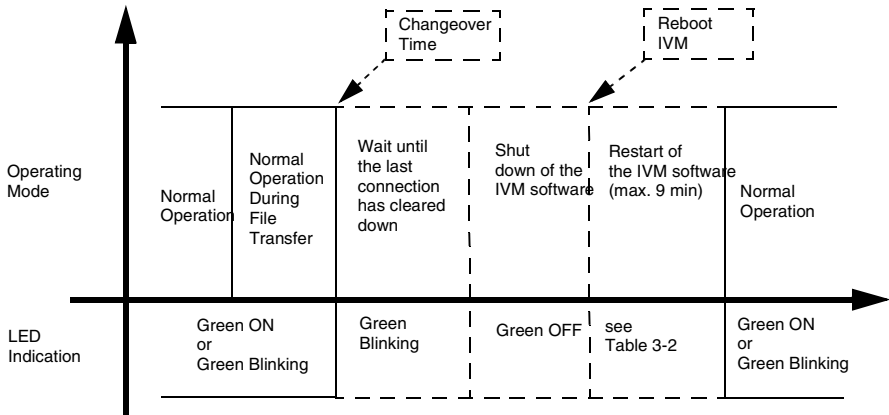


Figure 7-1

Restricted Operation During Upgrades

Software and Voice Prompt Upgrades

APS and Voice Prompt Upgrades

So-called TAR files are transmitted to the IVM during APS upgrades, as well as voice prompt upgrades. Files are named according to the following convention:

IVMxxyyy.tar	IVM: Identifies IVM software xx: Identifies the release line/compatibility yyy: Version number .tar: Archive file
zzzxyyy.tar	zzz: Identifies the language of the voice prompt set xx: Identifies the release line/compatibility yyy: Version number .tar: Archive file

Examples:

IVM02102.tar	IVM software, release line 2.0, version 102
GER02004.tar	German language set, release line 2.0, version 004
ENG02002.tar	English language set, release line 2.0, version 002
ARG03006.tar	Argentinian language set, release line 3.0, version 006

The release line entry "xx" is used for compatibility testing. An APS with release line 2.0 (xx = 02) can only be updated with voice prompt files with the same release line. Version numbers of APS and voice prompt files may, on the other hand, be different.

7.2 APS and Voice Prompt Upgrades

Installation of a new APS version (IVM software) may necessitate the installation of a new voice prompt version and vice versa.

For this reason, current IVM version data must be determined and checked against the new file versions for compatibility before starting the upgrade. Current versions can be queried as described in Section 4.1.

A compatibility test is executed before the files are transferred by HiPath 3000 Manager E, which may result in an error message. During this process, the IVM also takes files (with the corresponding format) into consideration, which have already been transferred to the IVM, for example, via LAN.

Due to the fact that the changeover time is in the future, the compatibility test is executed once again before changeover takes place. If incompatibility becomes apparent at this time, an entry is made to the system error memory (error class / error number: 32 / 16).

In order to install APS and / or voice prompt files via the Manager, the following steps need to be executed:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the Hi-Path system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Read data" button.
Current IVM configuration data are displayed.
- Activate the "Execute file operations" button.
- Select "Upgrade" in the "Write file" field.
- Specify the APS file at the PC which contains the new IVM software.
- If necessary, specify one or two voice prompt files which have been saved to the PC.
- Select a changeover time.
- Click the "Write: PC --> IVM" button.
The IVM checks to make sure that the specified IVM software is compatible with the selected IVM voice prompt files, or the voice prompt files stored at the IVM, and indicates an error if this is not the case. If no error message appears, HiPath 3000 Manager E calculates the total size of the files to be transferred. In this way, the user is able to determine the approximate time required for data transfer. At this point, data transmission can be aborted, or transfer can be started.

After data transmission has been completed, the IVM activates the new software and any new voice prompts at the specified changeover time. The old software is no longer available after changeover at the IVM.

Mailboxes, greeting texts, messages and system configurations used in the old software are saved.

Software and Voice Prompt Upgrades

Upgrading from Release Line 1.0 to Release Line 2.0

7.3 Upgrading from Release Line 1.0 to Release Line 2.0

In order to successfully upgrade from release line 1.0 (HE100V.01.yyy) to release line 2.0 (HE200V.0x.1yy), the IVMs require, in addition to the APS (IVM021xx.tar), at least one voice prompt language set from release line 2.0 that must be upgraded in conjunction with the APS.

All configured mailbox data, greetings, and messages from release line 1.0 remain intact through the upgrading to release line 2.0. However, it is highly recommendable to save the IVM data before each upgrading (see Section 8.1).

If the IVM should not run as expected after upgrading to release line 2.0, the original state of the IVM can be restored with a downgrade and restore (see Section 8.2).



Please note the service information INF-03-000921 for software versions older than HE100V.01.116.

7.4 Downgrading from Release Line 2.0 to Release Line 1.0

An IVM with release line (HE200V.0x.1yy) can only be downgraded to the special release line 1.0 (HE100V.01.130).



Downgrading to other release line 1.0 versions is not possible.

7.5 Upgrading from Release Line HE200V.02.119 (or Higher) to HE200V.03.xyz

7.5.1 Requirements

- A service laptop with CD-ROM boot option
- MORPHIX CD-ROM with IVM upgrade
- Ethernet CAT-5 crossover cable
- IVM release line HE200V.02.119 or higher

7.5.2 Execution

If the IVM has already been upgraded to release line HE200V.02.119 then the default procedure should be applied. The upgrade from release line HE200V.02.119 to HE200V.03.xyz is automatically performed in two stages. First of all, a special upgrade package is transferred to the

IVM. Then, the IVM is restarted and finally a connection is set up to the service laptop. The actual upgrade process is then started. No further user input is required after the upgrade process starts.



At no point in the upgrade process may the connection to the IVM or the power supply on the service laptop and HiPath system be interrupted.

7.5.2.1 Configuring IVM

1. Perform a backup to save existing customer data. In the case of large data volumes, this should be done with FTP.
2. Disconnect the LAN cable on the customer network and change the IP setting on the IVM as follows:
 - IP address=192.168.0.2
 - Subnet mask=255.255.255.0
 - Gateway IP address=192.168.0.1
3. Enable TFTP access to IVM (FTP not required).

7.5.2.2 Operating the Service Laptop

1. Connect the service laptop (always default Ethernet interface: eth0) to the IVM with a CAT-5 crossover cable.
2. Insert the MORPHIX CD-ROM in the CD-ROM drive on the service laptop and perform a restart.
3. Wait until the *System Info* display appears on the laptop.
4. Press *ENTER*; the *Select action* display then appears and you can select the actions required.
5. Select *Initiate Upgrade* and wait until the special upgrade package has been successfully transferred.
6. Press *ENTER* to return to the *System Info* display. Wait until the IVM upgrade procedure is complete (approx. 25 minutes). Only then can the service laptop be powered down.
7. After transferring the upgrade data, the IVM performs a reboot and starts the upgrade process.

Software and Voice Prompt Upgrades

Upgrading from Release Line HE200V.02.119 (or Higher) to HE200V.03.xyz

8. The green LED lights up again on the IVM following a successful upgrade.



The upgrade process can take up to 20 minutes. No other actions may be started at the service laptop during this time.

7.5.2.3 Completing the Process

1. Perform a restart with "Shut Down" in the *Select action* display.
2. The CD-ROM can then be removed while the service laptop is restarting (the CD-ROM is disabled when MORPHIX is active).
3. Use Restore to reload the customer data saved.

7.5.2.4 Responses and LED Displays

Green LED	Yellow LED	Description
ON	OFF	IVM ready
OFF	OFF	Restart to load the special upgrade package
ON	ON	LED test <i>reload option</i>
OFF	BLINKING 500ms/500ms	IVM loads the upgrade package
OFF	OFF	IVM reboot
OFF	BLINKING 100ms/100ms	IVM reconfiguration for HE200V.03.xyz
OFF	OFF	IVM reboot

Table 7-1 LED Signaling (as for regular IVM power-up).

7.5.3 Error Handling

7.5.3.1 Service Laptop Failure to Boot from the MORPHIX CD

1. Is the CD drive entered as the first boot device in the laptop's BIOS?
2. Depending on the security settings, some service laptops only boot from CD if the "Supervisor" password is entered instead of the normal BIOS password.

7.5.3.2 Service Laptop Incompatibility

Every attempt was made when creating the MORPHIX distribution to ensure optimum support for the widest range of laptop/PC hardware configurations possible. Unfortunately, this cannot be guaranteed 100%.

7.5.3.3 No Upgrade Image in the System Info Display

The MORPHIX CD may be faulty and should be replaced.

7.5.3.4 Ethernet Connection

If the IVM in the *System Info* display appears as *IVM (192.168.0.2) : NOT FOUND*, then you must verify the following points:

- Problems with the service laptop's eth0 (use alternative Ethernet card)
- LAN cable (switch)
- IVM settings (perform)
- IVM LEDs: GREEN on, YELLOW off (check and, where applicable, wait)

Repeat the *System Info* command in the *Select action* display.

7.5.3.5 Upgrade Process

1. A TFTP connection cannot be set up with the IVM
 1. Check IVM settings with regard to TFTP
 2. Check the Ethernet connection once again
2. An upgrade process is not performed after the successful transfer of the upgrade package.
 - > IVM version is already HE200V.03.xyz

Software and Voice Prompt Upgrades

Upgrading from Release Line HE200V.02.119 (or Higher) to HE200V.03.xyz

8 Backup / Restore

8.1 Backup

The backup function is used to save mailbox data, greetings and any messages left by callers. IVM operating functions are restricted during the backup process.

It is only possible to listen to greetings in this mode of operation. No messages can be left in mailboxes and no mailbox administration is possible. For this reason, IVM users should be informed that administration functions and message recording will be temporarily interrupted before starting the backup.

Saved data includes mailbox configurations and greetings, as well as saved messages if desired.

The backup file may thus range in size from several kilobytes up to 3 gigabytes, if recording capacity is fully utilized.

The time required for transmission of the backup archive depends upon the transmission speed of the selected transfer path and the size of the archive. In order to reduce the amount of data, the Manager offers the following options:

- Backup all or only selected mailboxes (including greetings)
- Backup the messages stored in the selected mailboxes

Because mailboxes are backed up one after the other, restricted operation is only effective for each individual mailbox for a short period of time. After each individual mailbox has been saved to the backup archive, it is once again fully operable.

The amount of backup data and file generation time depends to a great extent on the number of mailboxes and their respective messages.

In order to create a backup archive, proceed as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Execute file operations" button.
- Select "BACKUP" in the "Read file" field.
The IVM now informs the Manager which mailboxes have been set up.

Backup / Restore

Restore

- Select the file to which the data should be saved on the PC.
- Specify which data should be saved from which mailboxes.
- Click the "Read: IVM --> PC" button.
The IVM now displays the size of the backup file. In this way, the user is able to determine the approximate time required for data transfer. At this point, data transmission can be aborted, or transfer can be started. The user can also request the data to be transferred to the IVM for later FTP transfer.

8.2 Restore

The restore function is used to restore mailbox data, greetings and any messages left by callers. IVM operating functions are restricted during the restore process (see also Section 8.1).

The restore archive is generated from an already existing backup archive. The time required for transmission of the restore archive depends on the transmission speed of the selected transfer path and the size of the archive. In order to reduce the amount of data, the Manager offers the following options:

- Restore all or only selected mailboxes (including greetings)
- Restore the messages stored in the selected mailboxes

If mailboxes with identical mailbox numbers exist at the IVM, mailbox data is overwritten, although messages that already exist at the IVM are added to the restored mailbox, assuring that no messages are lost. If the mailboxes to be restored do not exist at the IVM, they are generated during the restore process.



If the "Overwrite" mode is selected for the restore function, all existing mailboxes and their messages are deleted and the system is restored from the archive. Great care must be used with this mode of operation!

In order to execute the restore function, proceed as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Execute file operations" button.
- Select "RESTORE" in the "Write file" field.

- Specify the name of a previously generated backup file from which data will be restored from the PC to the IVM.
The Manager analyzes the content of the BACKUP file and requests the user to select the desired data.
- Select the data from the backup file that will be restored to the IVM.
- Select "Overwrite", if appropriate.
- Click the "Write PC --> IVM" button.
The HiPath 3000 Manager E generates a file with the name "ivm_res.tar" in the XML directory and displays the size of this file. In this way, the user is able to determine the approximate time required for data transfer. At this point, data transmission can be aborted, or transfer can be started. The user can also request the data to be transferred to the IVM for later FTP transfer.



A restore of a backup done with software 1.0 is not possible with software 2.0!

Backup / Restore

Restore

9 Statistics

9.1 IVM Statistics

9.1.1 General

The IVM statistics function provides information concerning system utilization, mailbox utilization and busy times for the channels. System utilization information includes general data regarding capacity utilization, greetings and messages. Three additional tables contain mailbox utilization data sorted according to various criteria. The table for channel busy times shows the times during which all available IVM channels were busy, i.e., periods during which traffic levels no longer allowed for free access to the voice mail system.

The HiPath Manager displays the following tab for this purpose:

- System utilization in the "General" tab
- Mailbox utilization data in the following three tabs with max. 25 entries:
"Sorted according to number of messages"
"Sorted according to recording time"
"Sorted according to message age"
- Channels busy table

The "General" tab contains the following data:

- Utilized overall recording time in minutes, and as a percentage of maximum available capacity
- Total number of greetings
- Total duration of greetings in minutes
- Average greeting duration in minutes
- Total number of messages
- Total duration of messages in minutes
- Average message duration in minutes

Each of the three tabs for mailbox utilization data contain a table with identical entries, although the tables are sorted according to different criteria, namely:

- "Sorted according to number of messages"
- "Sorted according to recording time"
- "Sorted according to message age"

Statistics

IVM Statistics

Mailbox call no.	Number of messages	Of this, new messages	Total Recording Time [h:min]	Last TUI access on	Most recent message from	Oldest message from
100	6	2	05:23	25.09.2001	27.09.2001	22.09.2001
123	4	0	09:12	27.09.2001	27.09.2001	13.09.2001
125	3	1	04:43	26.09.2001	27.09.2001	19.09.2001
...

Table 9-1 Mailbox Utilization Table (with contents sorted according to number of messages)

The "Channels busy" tab contains a table which subdivides the day into 24 segments of one hour. One section contains time shown in minutes, during which all available IVM channels were busy for all segments, i.e., periods during which traffic levels no longer allowed for free access to the voice mail system. The table contains entries for the past 30 days.

Date	0:00-0:59	1:00-1:59	2:00-2:59	...	8:00-8:59	9:00-9:59	10:00-10:59	...	22:00-22:59	23:00-23:59
26.01.2001	0	0	0	...	1	0	1	...	0	0
25.01.2001	0	0	0	...	0	2	2	...	0	0
24.09.2001	0	0	0	...	1	10	1	...	0	0
...

Table 9-2 Channels Busy Table (with sample contents)

This information is required to estimate IVM availability and to add additional channels, if required (replace IVML8 with IVML24), to increase availability of the voice mail system for callers!

9.1.2 Reading Out the IVM Statistics Data

To read out IVM statistics, proceed as follows:

- Dialog box: "File" - "Transmit"
- Select connection to HiPath 3000
- Select and activate "Maintenance"
A connection is established to the HiPath system. If an IVM has been installed on the HiPath system, the "IVM" tab appears in the "Maintenance" dialog box.
- Select the "IVM" tab under "Maintenance".
- Activate the "Execute file operations" button.

- Select "STATISTIC" in the "Read file" field.
- Specify a file to which IVM statistics data should be saved on the PC.
- Press the "Read: IVM --> PC" button
After the IVM statistics file has been transferred, the Manager presents the statistics data to the user.

Alternatively, a previously saved IVM statistics file can be displayed once again. In this case click the "Load: File --> PC" button instead of "Read: IVM --> PC" and specify the file to be displayed in the dialog box which then appears.

9.2 AutoAttendant Statistics

Version 2.0 Binder HE200V.0x.123 of the IVM software and later offers IVM AutoAttendant statistics.

AutoAttendant statistics are recorded for all AutoAttendant mailboxes and are saved in an AA statistics file on the IVM hard disk once a day at midnight for the day that has just elapsed. The statistics data is stored in CSV format. An external spreadsheet program must be used to analyze the statistics data.

The following AutoAttendant events are recorded:

1. Number of incoming calls (direct and forwarded calls, e.g. when interlinking mailboxes)
2. Number of calls where "1" was pressed for the first speed dialing destination
3. Number of calls where "2" was pressed for the second speed dialing destination
4. Number of calls where "3" was pressed for the third speed dialing destination
5. Number of calls where "4" was pressed for the fourth speed dialing destination
6. Number of calls where "5" was pressed for the fifth speed dialing destination
7. Number of calls where "6" was pressed for the sixth speed dialing destination
8. Number of calls where "7" was pressed for the seventh speed dialing destination
9. Number of calls where "8" was pressed for the eighth speed dialing destination
10. Number of calls where "9" was pressed for the ninth speed dialing destination
11. Number of calls where "0" was pressed for the tenth speed dialing destination
12. Number of calls where an internal extension number was called
13. Number of calls that were disconnected while the greeting was being played

Statistics

AutoAttendant Statistics

9.2.1 Structure of the AutoAttendant Statistics File

Data recording starts every day at midnight and ends at midnight again 24 hours later. A separate AA statistics file is created for each day. The statistics files can be assigned to the recording days on the basis of the assigned file name (YYYY-MM-DD.CSV e.g. 2004-05-18.CSV).

The AutoAttendant statistics file contains one line for each AutoAttendant mailbox configured. The detailed structure of the statistics line for each mailbox is shown in Figure 9-1.

Each of the last 62 AutoAttendant statistics files are saved in the subfolder "ivm_sta".

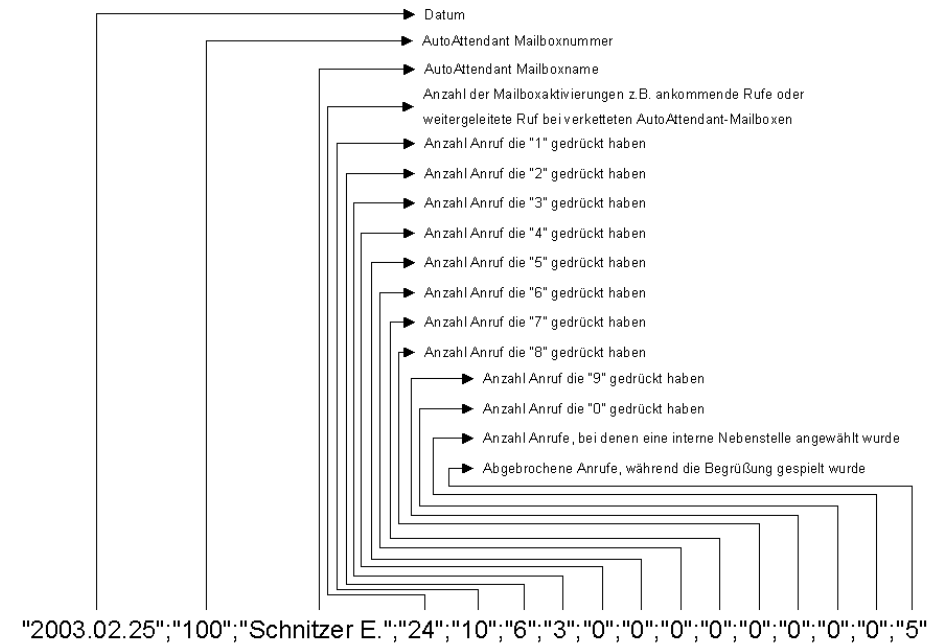


Figure 9-1

Line Structure of the AutoAttendant Statistics Information

9.2.2 Transferring AutoAttendant Statistics Information

AutoAttendant statistics information can be transferred using any FTP client software.



The IVM must be incorporated into the customer's LAN and the FTP client must be able to access the IVM via LAN.

The actions to be performed will vary depending on the FTP client software used.

However, the general FTP transfer procedure is always the same:

1. Establish the FTP connection with the IVM (enter the IVM IP address)
2. Login --> enter user name and password (default technician identification)
3. Change to the AA statistics folder "ivm-sta" (cd ivm-sta)
4. Transfer the relevant statistics files (get "file name")
5. Quit the FTP connection (quit)

9.2.3 Analyzing AutoAttendant Statistics Data

A spreadsheet program must be used to analyze the AutoAttendant statistics data.

Normally, every spreadsheet program can read in CSV files and convert them directly into a table. The data can then be administered in the program and further processed for statistical purposes.

Statistics

AutoAttendant Statistics

10 Reaction Time of the IVM and Transfer Time

Depending on the size of the data to be transferred or requested, the reaction time of the IVM or the transfer time to the remote-accessible interface (in general via S_0) can be very long.

The reaction time is the time that the IVM requires to determine the size of the requested data or to complete certain actions by writing.

The transfer time depends on the bandwidth of the available connection (system or IVM LAN connection). For the bandwidth one can expect approx. 1.5 Kbps for the system interface and approx. 2 Mbps for the IVM LAN interface.

The following table shows typical and maximum expected reaction time for the IVM and the typical transfer times:

Procedure	Typical reaction time for 100 Mailboxes	Typical transfer time via system for 100 Mailboxes	Typical LAN transfer time for 100 Mailboxes	Maximum reaction time for 500 Mailboxes
Read CDS	25 s	40 s	approx. 10 s	approx. 2 min
Write CDS	130 s	30 s	approx. 10 s	approx. 12 min
Backup without messages (4 greetings / Mbx)	130 s	approx. 117 min with 9.6 MB archive	approx. 5 s with 9.6 MB archive	approx. 10 min
Backup with messages (4 greetings and 2 messages / Mbx)	130 s	approx. 176 min with 14.8 MB archive	approx. 8 s with 14.8 MB archive	approx. 11 min
Restore with messages (4 greetings and 2 messages / Mbx)	approx. 3 min (transfer of data to the IVM)	approx. 176 min with 14.8 MB archive	approx. 6 min with 14.8 MB archive	approx. 15 min
IVM statistics	70 s	20 s	1 s	approx. 15 min

Table 10-1 Reaction and Transfer Time

Reaction Time of the IVM and Transfer Time

11 Appendix A: Data Transmission via LAN

Due to the minimal transmission bandwidth available via the Manager, it is advisable to transmit large amounts of data, for example upgrades, backups and restore files, via the LAN interface.

11.1 Hardware Requirements

To transmit large amounts of data, the IVM module must be connected to the customer LAN, or a PC or laptop must be connected to the IVM LAN interface. A standard CAT5 cable, or in the case of direct connection to a PC, a CAT5 crossover cable is used.

The LAN interface at the IVMS8/S8R and the IVMP8/P8R is located at the module's front panel (RJ 45 socket connector). With the IVML8/L24, the LAN interface can be accessed via the LAN adapter which is provided as standard equipment (SIPAC 1U - RJ45, article number C39228-A7195-A10).

After connecting to the LAN interface, all hardware requirements for data transmission have been met.

11.2 Eliminating LAN Access Errors

Symptom	Cause	Remedy
The following error message appears after attempting to log in via FTP: "Could not open host; username and/or password was not accepted for login."	Password or user name has been entered incorrectly.	Enter password and user name correctly!
The following error message appears after attempting to log in via FTP: "Remote host has closed the connection".	FTP access has not been activated at the Manager.	Activate FTP access at the Manager.

Table 11-1 Problems with LAN Access

Appendix A: Data Transmission via LAN
Eliminating LAN Access Errors

12 Appendix B: Log File

12.1 Parameter List

12.1.1 General Parameters

StandardIVMLanguage - Change the standard system language.

MaxLengthOfMailboxCallNumber - Max. number of digits for a mailbox number has been changed.

StandardFAXInterceptDestination - A system-wide fax intercept destination has been changed.

MaxMessageLength - Max. length of a recorded message (in seconds) has been changed.

MinMessageLength - Min. length of a recorded message (in seconds) has been changed.

NumberOfSavedMessagesPerMailbox - Max. number of saved messages per mailbox has been changed.

MailboxPasswordLength - Length for new mailbox passwords has been changed.

TimeUntilAidingAnnouncement - Time until a help message is played in the TUI (seconds) has been changed.

NumberOfRepeatsOfAidingAnnouncement - Repetitions of help message in the TUI has been changed.

LANFTPService - Set up FTP access (on / off).

LANTFTPService - Set up TFTP access (on / off).

AutomaticDeletionAfterTimeout - The age of messages (in days) after which they should be deleted, has been changed.

AnnouncementOfCallersNumber - Whether or not the phone number of the caller is announced during the message has been changed.

AlternationBetweenUserInterfaces - Switching of the TUI key commands (STD / X45).

SortingOfVoiceMessages - Sorting order of messages in a mailbox (FIFO / LIFO) has been changed.

WaitForAnswerMonitoringTimer - Waiting time for call acceptance has been changed.

NameDialingSwitch - Availability of the system-wide name selection has been changed (on / off).

SwitchingBehaviour - Software / hardware module disable switch (on / off).

Appendix B: Log File

Parameter List

12.1.2 Distribution list

DistributionListDestinationMailbox - Mailbox numbers of a distribution list have been changed.

12.1.3 Message call

RepeatsOfOutcallSchedule - Number of repetitions of notification call has been changed.

RepetitionTimeOfOutcallSchedule - Time in minutes until next notification call has been changed.

OutcallDestination - Notification call number has been changed.

PagerString - Change to an SMS / pager message (notification call).

ActiveOutcallDestination - Selected notification call numbers (index).

OutcallActivation - Status of the notification call number (on / off).

OutcallWeekdayStart - Beginning time for the first notification call for each weekday.

OutcallWeekdayEnd - Time of the last notification call per weekday.

OutcallUrgentMessagesOnly - Notification call only for urgent messages.

12.1.4 Mailbox Parameters

MailboxCallNumber - Mailbox number has been changed.

MailboxName - Name of the mailbox/mailbox owner has been changed.

MailboxLanguage - Language (index) of the active mailbox language has been changed.

MailboxCOS - COS-number of the mailbox has been changed.

MessageRecordingOnOff - Status of message recording has been changed.

InformationMailbox - Status of the information mailbox has been changed (on / off).

ActivationOfPersonalDeputy - Status of the substitute function has been changed (on / off).

CallNumberOfPersonalDeputy - Call number of the substitute has been changed.

ActiveDeputyCallNumber - Index of the selected substitute number has been changed.

GreetingMessage - Greeting has been recorded or deleted.

ActiveGreetingMessage - Index of the selected greeting.

GreetingMessageControl - Type of greeting control has been changed.

AutomaticOnhookForAnnouncementMailbox - Status of the greeting repetition has been changed (on / off).

PrivateMessage - Private greeting has been recorded or deleted.

PasswordForPrivateMessage - Note about change of the private password.

UserName - User name has been recorded or deleted.

MailboxPassword - Note about the change of a mailbox password.

MailboxFAXInterceptDestination - Mailbox-specific fax intercept destination has been changed.

MailboxTrunkGroupCode - Value of the trunk group ID number has been changed.

MailboxHuntingGroupCode - Value of the hunt group ID number has been changed.

MailboxACCode - Value of the switchboard ID number has been changed.

MailboxDirectoryEntry - Status of the visibility of the mailbox for name selection has been changed.

12.1.5 Group Mailbox

CallnumberGroupmember - Mailbox number of a group member has been changed.

12.1.6 AutoAttendant

SpeedDialingDestination - Speed dial destination of an AutoAttendant mailbox has been changed.

TypeOfSpeedDialingDestination - Type of speed dialing destination has been changed.

12.1.7 Calendar

WeekdayWorkingTime - Working time on weekdays has been changed.

WeekdayPauses - Time for breaks on weekdays has been changed.

CalendarDays - Calendar entry has been entered or deleted.

CalendarDaysWorkingTime - Working time of a calendar entry has been changed.

CalendarDaysPauses - Time for breaks in a calendar entry has been changed.

CalendarDaysSpecialTimes - Special times of a calendar entry has been changed.

Appendix B: Log File

Example of a Log File

12.1.8 Maintenance

SuperuserPassword - Note about change of the super user password.

IVMLanguageAssignment - Change of one of the three system languages.

HardwareLock - Status of the hardware disable switch.

SoftwareLock - Status of the software disable switch.

InitialiseMailbox - Initialization of a mailbox has been completed.

SoftwareUpgradeSwitchoverTimeAsComment - Time for switch to a software upgrade.

VoicePromptUpgradeSwitchoverTimeAsComment - Time for switch to a language upgrade.

FileTransferFromOrToTheIVM - Data transfer of a file to / from the IVM.

Backup - Running a backup.

Restore - Running a restore.

12.1.9 Miscellaneous

ReloadOfIVM - Reset the IVM to factory settings.

MailboxDeletion - Deletion of a mailbox.

MailboxCreation - Creation of a mailbox.

NumberOfLicensedMOHPorts - Change in the number of licensed Music on Hold channels.

NumberOfLicensedAnnouncementPorts - Change in the number of licensed RCDA channels.

12.2 Example of a Log File

2003-01-22T04:43:54;Manager C/E;System;AlternationBetweenUserInterfaces;;1;2;

2003-01-19T04:04:40;Manager C/E;System;AnnouncementOfCallersNumber;;OFF;ON;

2003-01-22T04:43:54;Manager C/E;System;AutomaticDeletionAfterTimeout;;0;1;

2003-01-22T04:47:10;Manager C/E;100;AutomaticOnhookForAnnouncementMailbox;;OFF;ON;

2002-12-26T19:12:51;Manager C/E;System;Backup;;;with messages

2003-01-19T02:01:09;Manager C/E;101;CallnumberGroupmember;[0];102;100;

1970-01-01T01:00:32;Manager C/E;System;FileTransferFromOrToTheIVM;;;ivm_sysd.xml;

2003-01-17T01:12:45;Manager C/E;101;GreetingMessageControl;;TimeCtrlOff;TimeCtrlPbx;
2002-12-26T14:00:25;Manager C/E;System;LANFTPSERVICE;;ON;OFF;
2002-12-26T14:00:25;Manager C/E;System;LANFTPSERVICE;;ON;OFF;
2003-01-22T04:47:10;Manager C/E;100;MailboxACCCode;;;1;
2002-12-26T15:08:05;Manager C/E;253;MailboxCreation;;;created;
2002-12-30T00:58:45;Manager C/E;100;MailboxDeletion;;;deleted;
2003-01-22T04:47:10;Manager C/E;100;MailboxFAXInterceptDestination;;;123456789;
2003-01-22T04:47:10;Manager C/E;100;MailboxHuntingGroupCode;;;1;
2002-12-26T15:05:47;Manager C/E;101;MailboxLanguage;;[2][en_GB];[1][de_DE];
2002-12-29T05:14:30;Mailbox;100;MailboxPassword;Changed;;
2003-01-22T04:43:54;Manager C/E;System;MailboxPasswordLength;;4;5
2003-01-22T04:47:10;Manager C/E;100;MailboxTrunkGroupCode;;;1
2003-01-22T04:43:54;Manager C/E;System;MaxLengthOfMailboxCallNumber;;3;5
2003-01-22T04:43:54;Manager C/E;System;MaxMessageLength;;120;110
2003-01-19T02:01:01;Manager C/E;102;MessageRecordingOnOff;;ON;OFF
2003-01-22T04:43:54;Manager C/E;System;MinMessageLength;;1;2
2003-01-22T04:47:10;Manager C/E;100;NameDialingSwitch;;OFF;ON
2003-01-22T04:43:54;Manager C/E;System;NumberOfRepeatsOfAidingAnnouncement;;3;4
2003-01-22T04:43:54;Manager C/E;System;NumberOfSavedMessagesPerMailbox;;5;9
2003-01-22T04:47:11;Manager C/E;100;OutcallActivation;;OFF;ON
2003-01-22T04:47:11;Manager C/E;100;OutcallUrgentMessagesOnly;;OFF;ON
2002-12-30T00:58:43;Manager C/E;System;Restore;;;
2003-01-19T14:16:48;Manager C/E;System;SoftwareLock;;OFF;ON
2003-01-22T04:43:54;Manager C/E;System;SortingOfVoiceMessages;;FiFo;LiFo
2003-01-05T04:02:14;Manager C/E;100;SpeedDialingDestination;[2];120
2003-01-22T04:43:54;Manager C/E;System;Standard IVM Language;;[1][de_DE];[2][en_GB]
2003-01-22T04:43:54;Manager C/E;System;StandardFAXInterceptDestination;;;12345678
2003-01-22T04:43:54;Manager C/E;System;TimeUntilAidingAnnouncement;;3;5

Appendix B: Log File

Example of a Log File

2003-01-05T04:02:14;Manager C/E;100;TypeOfSpeedDialingDestination;[2];off;intern

2003-01-17T01:12:45;Manager C/E;101;UserName;;;MB1

2003-01-04T06:00:37;Manager C/E;System;WeekdayPauses;[Thu][0];00:00:37;00:00:00

2003-01-04T06:00:36;Manager C/E;System;WeekdayWorking-
Time;[Tue][0];00:00:00;03:00:00

13 Appendix C: UDP/TCP Port Numbers Used:

The following *well-known* ports are available on Xpressions Compact:

- tp-data 20/tcp
- ftp 21/tcp
- ssh 22/tcp
- ssh 22/udp
- tftp 69/udp
- www 80/tcp
- www 80/udp

Appendix C: UDP/TCP Port Numbers Used:

List of Abbreviations

This table shows some important abbreviations.

Abbreviation	Definition
AA	AutoAttendant
ACK	Acknowledge
COS	Class Of Service
DTMF	Dual Tone Multi-Frequency
FIFO	First In First Out
FTP	File Transfer Protocol
HD	Hard Disk
HW	Hardware
IP	Internet Protocol
IVM	Integrated Voice Mail
CDS	Customer Data Set
LAN	Local Area Network
LED	Light Emitting Diode
LIFO	Last In First Out
MAC	Media Access Control
MWI	Message Waiting Indication
PBX	Private Branch Exchange
SW	Software
TFTP	Trivial File Transfer Protocol
TUI	Telephone User Interface
USBS	User Signaling Bearer Service

List of Abbreviations

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