



INSTALLATION & CUSTOMIZATION GUIDE

HCC/VM 1.4.1

HOST
CONTROL
COMPONENT

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INSTALLATION & CUSTOMIZATION GUIDE FOR HCC/VM 1.4.1

IMPRINT

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Installation and Customization	DOC V00 008	DOC V00 005	G
Message Guide ¹	-	-	G

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¹ in preparation

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GENERAL INFORMATION ABOUT THE INSTALLATION OF HCC/VM-VSE

The HCC/VM system is shipped decompressed on a ½ inch cartridge.

Depending on the customer configuration, the following software components are shipped:

- ↳ HCC/VM
- ↳ HCC/VSE
- ↳ Interface components for the tape management system being used
- ↳ HCC/BR

The HCC/VM system consists of several functional components that are implemented in the form of so-called HCC/VM service machines.

The figure below shows the integration of the individual components when using HCC/VM.

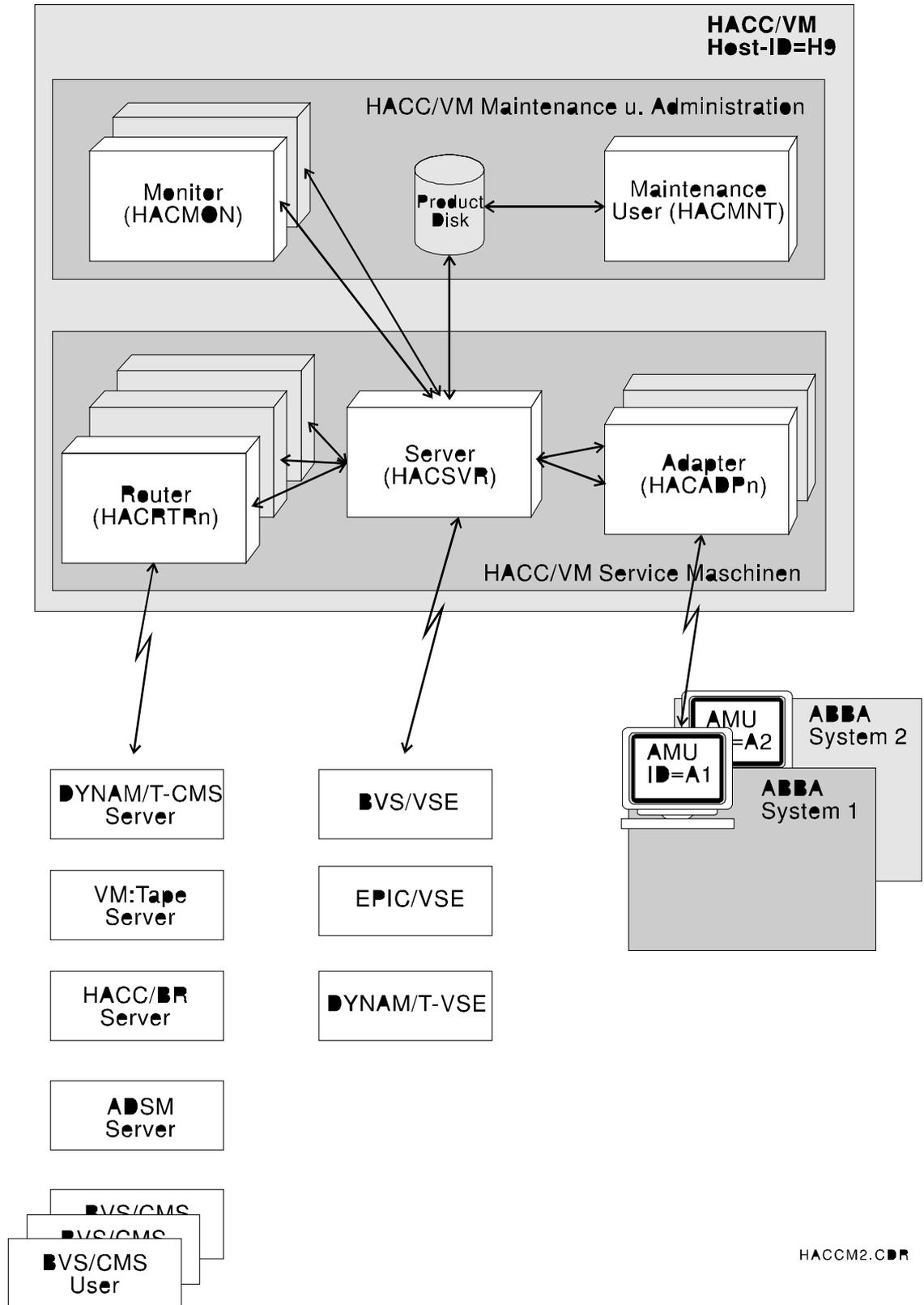


Figure 1: HCC/VM Functional Diagram

Depending on the tape management system used the following components have to be installed or configured in addition to the basic HCC/VM system:

TMS		$\left\{ \begin{array}{l} \$ROBEXIT \\ \$JOBEXn \\ \$HACC/VSE \end{array} \right.$		HCC/VM Router		
no TMS (under VM)	X	-	-	-	-	<i>HCC/VM and HCC/BR</i> (page 4 ff.)
BVS	-	-	-	-	-	<i>HCC/VM and BVS (Infsoft)</i> (page 14 ff.); <i>HCC/VM and BVS/VSE</i> (page 49 ff.)
DYNAM/T-CMS DYNAM/B	-	-	-	X	-	<i>HCC/VM and DYNAM/T-CMS - DYNAM/B (C.A.)</i> (page 1)
DYNAM/T-VSE	-	X	X	-	-	<i>HCC/VM-VSE and DYNAM/T-VSE (C.A.)</i> (page 37)
EPIC/VSE	-	optional	X	-	X	<i>HCC/VM-VSE and EPIC/VSE</i> (page 42)
VM:Tape VM:Backup	-	-	-	X	-	<i>HCC/VM and VM:Tape - VM:Backup</i> (page 2)
ADSM	-	-	-	-	-	<i>ADSM (ADSTAR Distributed Storage Manager)</i> (page 15)

Table 1: Components to be Installed

BASIC HCC/VM INSTALLATION

The following HCC/VM components are set up as separate virtual machines:

■ HCC/VM service machines

- Server centralized management of all requests passed to the AML system.
- Adapter Communication interface between HCC/VM and an AML system (AMU). The set up of a separate adapter machine for each AML system is necessary.
- Router Automatic operation of special applications like DYNAM/B (only if required).

■ HCC/VM maintenance and administration machines

- Monitor Controls and user interface (does not have to exist as a separate machine).
- Maintenance Installation and maintenance machine.

The names for the individual virtual machines are user selectable and defined in the HCC/VM parameter files.

Individual HCC/VM machines communicate using the CP VMCF protocol (via the command CP SMSG). The HCC/VM system is a client/server system. All virtual machines called subsystems (i.e., VSE guest systems, CMS user, etc.) function as **clients** and pass all cartridge mounting/dismounting to the HCC/VM **server** for further processing.

PREPARING THE INSTALLATION

Prior to installing and customizing the HCC/VM systems several defaults (installation parameters) must be defined.

The worksheet of the **installation check list** in the Appendix (*Installation Check Lists*, page 1) can be used for defining these installation parameters. The check list is a prerequisite for completing the installation of the HCC/VM system.

⌋ The following general definitions are necessary:

UserId of the HCC/VM server machine. Every HCC/VM system is centrally controlled by a server machine. The default value for the UserId of this machine should only be changed, if existing naming conventions create a conflict with the default value.

HostId. Changing the HostId default value, H9, is only necessary, if another host system (i.e. HCC/MVS) with the same HostId is connected to a robot system. The value for HostId **must** match the corresponding definition of the HostId in the AMU.

UserId of the HCC/VM maintenance user. Installation and maintenance of the HCC/VM system is performed via this virtual machine.

UserId of a HCC/VM monitor user. It is recommended that at least one virtual machine is set up to operate and monitor the HCC/VM system. The definition of several CMS users (even existing ones) with different authorizations is possible.

⌋ Additionally, all virtual machines and service machines of VM tape management systems that are designed to mount cartridges via the robot system have to be defined as HCC/VM subsystems. The following is a list of different subsystems:

VSE guest systems with DYNAM/T. The UserIds of all VSE guest systems with the tape management system DYNAM/T must be known.

VSE guest systems with EPIC. The UserIds of all VSE guest systems with the tape management system EPIC must be known.

VSE guest systems with BVS. The UserIds of all VSE guest systems with the tape management system BVS must be known.

CMS user. UserIds of all CMS users that will mount cartridges directly (not via VM:Tape or DYNAM/T-CMS) via the robot system. This includes CMS users of the tape management system BVS.

DYNAM/T or DYNAM/B

- ❑ **UserId of the DYNAM/T or DYNAM/B service machine.** When using DYNAM/T-CMS or DYNAM/B, the UserId of the corresponding service machine has to be defined as a HCC/VM subsystem.
- ❑ **UserId of a HCC/VM router machine** for connecting DYNAM/T-CMS or DYNAM/B.

VM:Tape or VM:Backup

- ❑ **UserId of the VM:Tape or VM:Backup service machine.** When using VM:Tape, the UserId of the corresponding service machine has to be defined as HCC/VM subsystem.
- ❑ **UserId of a HCC/VM router machine** for connecting VM:Tape or VM:Backup.

⌋ HCC/VM supports any number of AML robot systems. The following definitions are required for every robot system that is to be connected:

UserId of a HCC/VM adapter machine. Communication to each AML robot system is performed via a separate HCC/VM adapter machine.

AMU Id. Typically, this value (A1) is not changed in a HCC/VM system. However, the corresponding value set on the AMU **must** match the value that is defined in the HCC/VM.

Connection type. Communication between HCC/VM and the AML robot system occur via an LU2 connection or the EXCP protocol. The local connection (EXCP - not via VTAM) is recommended. Depending upon the connection type, corresponding settings for the AMU have to be made. For an LU 2 connection, a special HCC/VM USSTAB must be installed in the VTAM. Further information about connection options of an AML system to a HCC/VM are described in *Step 3: Connection HCC/VM - AML System* page 1 ff.

AMU address. Depending on the connection type, the real device address or the LU name of the AMU must be known.

Drive addresses. For every robot of an AML system, the real host addresses (VM) of the drives that are assigned to the robot must be entered. (A robot can only service drives assigned to it.)

Drive type. The type (3480, 3490, etc.) of each drive in the robot system, that is used by HCC/VM, must be known.

Logical drive designations. The logical drive designations of the AML robot system corresponding to the host addresses (defined in the AMU - D01, D02, etc.) must be known.

Cleaning cartridges. For every robot of an AML system, separate cleaning cartridges must be available and defined in the HCC/VM. The volsers of these cartridges must be known (recommended volser: Clxxxx).

Volser ranges. If several AML systems (HCC/VM supports a maximum of 2) or double robot systems with asymmetrical configuration (not every robot of an AML system can move every cartridge) are connected, volser ranges **MUST** be defined for every robot. For organizational reasons, a volser range should be entered when using an AML system with a single robot.

insertion/ejection areas. For every robot of an AML system the designations for the insertion, ejection and foreign mount areas must be defined in the AMU.

INSTALLATION STEPS FOR BASIC HCC/VM INSTALLATION

Follow these steps to perform the installation:

Step	Reference
1.	Definition of individual virtual machines in the CP directory required for the HCC/VM through the VM systems administrator (<i>Step 1: VM Directory Entries</i> , page 1 ff.)
2.	Loading the HCC/VM software from the installation tape supplied (<i>Step 2: Loading the Minidisks</i> , page 1)
3.	For connections of AML systems to the HCC/VM via VTAM, corresponding USSTABs must be created (<i>AMU - VTAM Connection</i> , page 2ff.)
4.	Configuration of the HCC/VM system (<i>Step 4: Configuration of the HCC/VM System</i> , page 1 ff.).
5.	Generating HCC/VM run files with HACGEN (<i>Step 5: HCC/VM Generation</i> , page 1)
6.	Installation of interface applications required for the corresponding tape management system, and configuration customization of the corresponding tape management system (<i>Step 6: Tape Management Systems and HCC/VM</i> page 1 ff.)
7.	Integration in the production environment, automatic startup procedure for VM IPL (see <i>Step 7: Starting HCC/VM</i> page 1 ff.)

Table 2: Installation Steps

STEP 1: VM DIRECTORY ENTRIES

The following virtual machines must be defined by the VM system administrator (typically, MAINT) in the CP directory prior to the actual installation:

Maintenance and administration

- *hacmnt* Installation and maintenance user (recommended)
- *hacmon* HCC/VM monitor machine (optional)

Service machines

- *hacsvr* HCC/VM server machine
- *hacadb* HCC/VM adapter machine
- *hacrtr* HCC/VM router machine (optional)



Sample entries for the individual HCC/VM machines can be found in the file HCCVM DIRECT. This file can be loaded from the installation tape (see Table 3 on page 1).

1. **ATTACH real * 181**
2. **REW 181**
3. **VMFPLC2 LOAD HCCVM DIRECT A (EOT)**

HCC/VM MAINTENANCE USER

This UserId is used for all installation steps and customizations, and for any necessary HCC/VM software maintenance later on.

```
*
* hacmnt: HACC/VM Maintenance_User
*
*       Mdisk 192 contains HACC/VM Run, to be linked by
*       all Hacc_Users
*

USER hacmnt password 3M 6M <AB>G
MACHINE 370
ACCOUNT HACC
IPL CMS PARM AUTOCR
CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK hacrtr 191 291 MR1
MDISK 191 3390 nnnn 1 DASD-volser MR ALL
MDISK 192 3390 nnnn 8 DASD-volser MR ALL
MDISK B92 3390 nnnn 5 DASD-volser MR ALL2
```

¹ The LINK entry for the HCC/VM router machine(s) is only necessary, if the use of a router machine is required.

² The minidisk B92 is only required, if the optional component HCC/BR is installed.

HCC/VM SERVER

The HCC/VM server machine receives and manages all robot specific tasks within a VM system.

```
*
* hacsvr: HACC/VM Server
*
*       Mdisk 191 contains HACC/VM Work, to be linked
*       by (all) Adapter(s)
*
USER hacsvr password 6M 16M ABG
MACHINE 370
ACCOUNT HACC
IPL CMS PARM AUTOOCR
CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK hacmnt 192 192 RR
MDISK 191 3390 nnnn 3 vmpack MR ALL
```

HCC/VM ADAPTER

A separate HCC/VM adapter machine is defined in the HCC/VM complex for each AML system. The adapter machine controls communications with the corresponding control computer (AMU).

Note the type of connection of the AML system to the HCC/VM. For a SNA connection (VM remote link), the command DEDICATE must be replaced by the entry SPECIAL.

```

*
* hacadp: HACC/VM Adapter to AML/x System
*
USER hacadp password 2M 4M G
MACHINE 370
ACCOUNT HACC
IPL CMS PARM AUTOOCR
CONSOLE 009 3215
*
* One of the following statements MUST be coded
* for the AMU device !
*
* DEDICATE 200 rdev                local AMU (not via VTAM)
* or SPECIAL 200 3270              AMU connection LU 2
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK hacsvr 191 291 RR
LINK hacmnt 192 192 RR
MDISK 0191 3390 nxxx 3 vmpack MR ALL

```

HCC/VM ROUTER

The HCC/VM router is used for connecting the tape management systems DYNAM/T-CMS or DYNAM/B by C.A., as well as VM:Tape and VM:Backup by Sterling. If these software packages are not used, the definition of the HCC/VM router machine is **not** necessary.



The UserId of the HCC/VM router must be entered in the CP directory in the statement `CONSOLE` of the corresponding service machine for the subsystem that is to be connected as ***secondary operator***.

```
*
* hacrou: HACC/VM Router
*      (SampleEntry, for DYNAMCMS, VMTAPE only)
*
USER hacrou password 2M 4M BG
MACHINE 370
ACCOUNT HACC
IPL CMS PARM AUTOOCR
CONSOLE 009 3215 T
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK hacmnt 192 192 RR
MDISK 0191 3390 nnnn 5 vmpack MR ALL
```

HCC/VM MONITOR

The HCC/VM - AML complex is monitored and controlled via one or several monitor machines defined in the HCC/VM system.

```
*
* hacmon: HACC/VM Monitor-/Operator (SampleEntry)
*
USER hacmon password 2M 4M <A>G
MACHINE 370
ACCOUNT HACC
IPL CMS PARM AUTOOCR
CONSOLE 009 3215 T
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK hacmnt 192 192 RR
MDISK 0191 3390 nnnn 3 vmpack MR ALL
```



- The HCC/VM monitor function can also be used by existing CMS users. The only prerequisite is access to the HCC/VM product minidisk 192 and corresponding HCC/VM authorization (see *S02\$OUSR (HCC/VM Monitor)* page 7ff.).
- CP access class A is only required when HCC/VM is started by this monitor machine (see HCC/VM monitor command STARTUP in the HCC/VM Operator Guide).

STEP 2: LOADING THE MINIDISKS

The required minidisks are loaded in the UserId of the HCC/VM maintenance machine (HACMNT).

The installation tape supplied is set up in the following way (in VMFPLC2 format):

Tape file	Content	Description
1	INSTALL MAP HACCINST EXEC HACCVVM DIRECT	Control file for HCC software installation Installation procedure Sample directory entries
2	HCC/VM · Product · TMS Interface	Basic software Interface software for supported tape management systems ¹
3	HCC/VSE · Product · TMS Interface	Basic software Interface software for supported tape management systems
4	HCC/BR	Optional data backup component of HCC/VM ²

Table 3: Layout of the Installation Tape

¹ Depending on the tape management system used

² Is shipped according to customer configuration

After formatting minidisk 191, the installation procedure HCCINST is loaded from the installation cartridge:

1. **ATTACH real * 181**
2. **REW 181**
3. **VMFPLC2 LOAD HCCINST EXEC A**

Using the HCC/VM installation procedure, the components on the tape can be loaded onto the corresponding minidisks:

HCC Components	Minidisk Address	Required 4k-blocks
HCC/VM	192	1000
HCC/VSE	192	100 ¹
HCC/BR	B92	500

Table 4: Size of HCC/VM Minidisks

The installation procedure HCCINST EXEC checks the minidisks required for installation and deletes or formats them as necessary.

Then all files required for installation are loaded onto the corresponding minidisks.

¹ Additionally required 4k-blocks on the product minidisk 192

haccinst

```

*****
* HACC/VM installation utility *
*****

loading INSTALL MAP A ...
*****
* The HACC/VM installation tape contains the following products *
*
* HACC/VM : 192 988 4k-blocks *
* HACC/VSE : 192 91 4k-blocks *
* HACC/BR : B92 478 4k-blocks *
*****

Press ENTER to continue installation or enter EXIT to stop processing:
positioning to 2nd tape file ...
Enter YES to install HACC/VM or SKIP to skip this product.
Enter EXIT to stop processing:
yes
accessing HACC/VM product minidisk 192 ...
formatting minidisk 192 ...
minidisk 192 successfully formatted
loading HACC/VM to minidisk 192 ...
HACC/VM successfully loaded to minidisk 192

Press ENTER to continue or enter EXIT to stop processing:
Enter YES to install HACC/VSE or SKIP to skip this product.
Enter EXIT to stop processing:
yes
accessing HACC/VSE product minidisk 192 ...
loading HACC/VSE to minidisk 192 ...
HACC/VSE successfully loaded to minidisk 192

Press ENTER to continue or enter EXIT to stop processing:
-> ENTER
Enter YES to install HACC/BR or SKIP to skip this product.
Enter EXIT to stop processing:
yes
accessing HACC/BR product minidisk B92 ...
formatting minidisk B92 ...
minidisk B92 successfully formatted
loading HACC/BR to minidisk B92 ...
HACC/BR successfully loaded to minidisk B92

HACC successfully loaded from installation tape
Ready; T=2.45/5.17 13:36:27

```

STEP 3: CONNECTION HCC/VM - AML SYSTEM

HCC - AMU COMMUNICATION

Communication between HCC/VM (Host) and the intermediate AMU (Archive PC) to the AML system occurs via a 3270 data stream protocol. For this, the AMU has a 3270 emulation active in an OS/2 session that is connected via Coax or Token-Ring with the host. The HCC/VM communicates with the AML systems via adapter machines (one adapter machine is required for each AML system).

The following connection options are supported:

AMU Connection	LU 2	non VTAM (local control unit)	CP Directory Entry
Coax (3270 Emulation Card)	X		SPECIAL
		X	DEDICATE
Token-Ring Adapter	X		SPECIAL

Table 5: AML Connection Options

AMU - LOCAL CONNECTION (NON VTAM)

If the AMU computer of an AML system is directly connected to the HCC/VM via a real unit address defined in the VM system (not via VTAM), this real address has to be entered using the command DEDICATE 200 *rdev* in the CP directory for the corresponding HCC/VM adapter machine (see *HCC/VM Adapter* on page 4).



To allocate a local monitor to a virtual machine via the CP directory entry DEDICATE or via the CP command ATTACH, the monitor must be deactivated with the CP command DISABLE.

AMU - VTAM CONNECTION

If the AMU computer of an AML system is connected to the HCC/VM system (LU 2 connection) via VTAM (Token-Ring or Coax), a special HCC USSTAB has to be created using the generating procedure USSGEN.

```
USSGEN syn applid adp
```

- syn* Shortcut for the corresponding client (i.e. IBM, AEG, etc.)
- applid* VTAM application ID of the VM system (VSCS application)
- adp* UserId of the corresponding HCC/VM adapter machine

The source file created, USSHCC *syn* A, must then be assembled in the system and catalogued in that VTAM library where the VTAM for the 3270 session of the AMU for communication with the HCC/VM system is defined.

This USSTAB must be supplied to the LU for the HCC/VM connection in the definition of the corresponding VTAM.

```
.
name    LU        LOCADDR=n
```

```
.  
. ,USSTAB=USSHACC  
.
```

When a message defined in this USSTAB is displayed in the AMU - HCC/VM 3270 communication session, the AMU computer recognizes that a remote connection must be established to the HCC/VM system. The AMU computer places the command HACC in this session.

This command is converted by the USSTAB (USSHACC) into the command

```
LOGON APPLID(vmapplid) DATA('DIAL adapterid')
```

If the CP error message HCPDIA... (HCC/VM adapter machine not available) is displayed, the AMU computer disconnects the VTAM connection to the VM system by placing the CP command LOGOFF. When the message UNABLE TO ESTABLISH SESSION (defined in USSHACC) is displayed, a new connection to the HCC/VM is attempted with the HCC command. The attempt to establish a connection is repeated periodically, until the connection with the HCC/VM is successful.

The command SPECIAL GRAF 200 must be defined in the CP directory for the corresponding HCC/VM adapter machine.

STEP 4: CONFIGURATION OF THE HCC/VM SYSTEM

The configuration of the HCC/VM system occurs by defining several parameters in the HCC/VM parameter files (Snn\$xxx PARM). These files can be found on the HCC/VM product minidisk 192.

A prerequisite for the definition of all parameters required for a complete configuration of the HCC/VM system is a completed **installation check list** (*Preparing the Installation*, page 2, and *Installation Check Lists*, page 1 ff.).

Some of the most important settings required during installation are the UserIds of the virtual machines that are placing requests to the AML robot system (usually MOUNT and KEep) as well as all HCC/VM service and administration machines.

In addition, procedures for scratch substitution through HCC/VM (Scratch_List_Facility), for automatic ejection and for processing HCC/VM commands via CMS files (Batch_Command_Facility) may have to be set up. For further information about these procedures see "HCC/VM System Reference Guide".

Also, settings for the architecture (hardware configuration) of the AML robot system (number of systems and robots; designations of E/I/F areas, etc.) must be defined.

During installation of the HCC/VM system, the parameter files are placed as skeleton files (Filetype \$PARM) on the HCC/VM product minidisk 192 of the HCC/VM maintenance machine (HACMNT).

During the initial installation, these sample files are used to create the real HCC/VM parameter files. For this, the following command must be executed in the HCC/VM maintenance machine (*hacmnt*):

COPY * \$PARM D = PARM = (OLDD¹)

These parameter files must be customized according to the following table and in accord with the installation check list (*Installation Check Lists*, page 1, *Preparing the Installation*, page 2 ff.).

¹ If HCC/VM parameter files (Snn\$xxxx PARM) already exist on the HCC/VM product minidisk, an error occurs during the execution of this command. If this is **not** the initial installation, the parameter files may have to be checked for new parameters.



Detailed information regarding the corresponding parameter settings can be found in *HCC/VM Customization (Parameter files)* page 1ff. and as a note in the skeleton files.

The following listing contains an overview of the parameter files used in the HCC/VM (file type PARM) that must be created during the installation procedure from the skeleton files (file type \$PARM):

File name	Description	Mod.
M01\$SETU	Monitor settings	optional
S01\$ROCC	Message control for HCC/VM monitor function (RoutingClass / RoutingCode)	optional
S02\$OUSR	Definition and authorization of HCC/VM monitor machines (incl. HCC/VM router)	required
S03\$AUSR	Definition of HCC/VM adapter machine(s) for HCC-AML communication	required
S04\$SUBS	Definition of all virtual machines with requests (MOunt, KEep, etc.) for the HCC/VM system	required
S05\$VOLS	Definition of all volser ranges for cleaning and data cartridges	required
S06\$UNIT	Definition of all cartridge devices operated by HCC/VM	required
S07\$LDEV	Definition of <i>exchange devices</i> (i.e. foreign mount areas)	optional
S08\$SERV	Global HCC/VM system parameters (i.e. HCC/VM server UserId)	required
S09\$SVRC	Service functions	optional
S10\$ROBC	Syntax descriptions of AML robot commands	optional
S12\$SCRL	Definitions for the HCC/VM scratch list procedure (Scratch_List_Facility)	optional
S13\$SCRA	Scratch pool definitions	optional
S16\$MSGE	Message repository for AML messages	optional
S17\$CAUT	Definitions and authorization classes of all HCC/VM commands	optional

File name	Description	Mod.
S21\$BPRES	Assignment between specific spool file names and special processing routines for the HCC/VM batch processing (Batch_Facility)	optional
S99\$CNST	HCC/VM constants	optional

Table 6: Overview of the HCC/VM Parameter Files

STEP 5: HCC/VM GENERATION

Several run files must be generated during installation by the HCC/VM maintenance user. This includes the following files:

Component	Run File	Description
Server	HACSVRID EXEC	Several interface components that run under HCC/VM control require this file
Router	RTABLE	Routing table (filter) for the HCC/VM router machine is generated
	PROFILE EXEC	PROFILE EXEC for HCC/VM router machine(s) is created
	HACCPARM EXEC	Parameter definitions for the HCC/VM router machine are created
	TMSPARM	Parameter definitions for the HCC/VM router machine are created

Table 7: HCC/VM Run Files created by HACCBLD

Customization of the HCC/VM parameter files (description page 1 ff.) is a prerequisite for pre-generating these run files.

The run files listed above are generated in accordance with the definitions in the HCC/VM parameter files by executing the command:

HACCBLD

STEP 6: TAPE MANAGEMENT SYSTEMS AND HCC/VM

VM TAPE MANAGEMENT SYSTEMS

HCC/VM AND DYNAM/T-CMS - DYNAM/B (C.A.)

When using DYNAM/T-CMS or DYNAM/B in connection with the AML robot system, an HCC/VM router machine serves as the interface between tape management and robot system.

In this case, the name of the respective HCC/VM router machine must be entered as the *secondary operator* in the VM directory of the corresponding DYNAMCMS service machines.

CONSOLE 009 3215 T *hacrr*

The HCC/VM router filters special messages from the DYNAMCMS service machine and initiates necessary functions for mounting/dismounting.

The parameters and run files required for controlling the HCC/VM router machine are usually generated automatically during installation (see *Step 5: HCC/VM Generation*, page 1).

The parameter STOP in the DYNAM/T configuration (DYNAMT macro) must be set to NO to deactivate the AVR set up of the DYNAM/T.

. STOP=NO

A REPLY in DYNAM/T for a cartridge to be mounted by the robot system is answered automatically by HCC/VM.



When using earlier versions of DYNAM/B the parameter MODON may have to be set to 13 in order to avoid the message *intervention required*. This message is displayed when a backup or restore is started.

HCC/VM AND VM:TAPE - VM:BACKUP

An HCC/VM router machine must be set up for connecting VM:Tape and VM:Backup from the Sterling company to the HCC/VM (see *HCC/VM Router* on page 5). This router machine is pre-programmed with the necessary VM:Tape scenarios used in automated (and parallel manual) tape processing with the AML system. In this case, the following strategy is applied:

- ⌋ The VM:Tape AUTOPICK feature and SETUP facility must be activated (VM:Tape configuration).

AUTOPICK For scratch requests, VM:Tape automatically requests a specific scratch volume using AUTOPICK. If that volume is rejected with the VM:Tape command REJECT, a new scratch volume is automatically selected by VM:Tape.

SETUP Before VM:Tape assigns a drive address to specific requested volume (scratch or specific), the corresponding mount request is put in a queue when using the SETUP facility. VM:Tape will restart the processing only, when this mount request is released with the VM:Tape command RELEASE.

Therefore, HCC/VM can determine prior to selecting an available cartridge whether the requested cartridge is in the AML system. If the requested volser in the robot system, HCC/VM mounts it onto an available drive. The VM:Tape command CHANGE informs VM:Tape which drive address to use.

- ⌋ The following definitions must be made in the configuration files of VM:Tape or VM:Backup. In this case, *hacrtr* is the UserId of the respective HCC/VM router machine:

Customizations in VMTAPE CONFIG:

- AUTHORIZ BLPUSE *hacrtr*
- AUTHORIZ MOUNTFOR *hacrtr*
- SETUPOPR *hacrtr*
- TAPEOPER *hacrtr*
- RINGCHK OFF
- DEVICE NAME HCC *rdev1 rdev2 ...*
- DEVICE NAME MAN *rdev1 rdev2 ...*

- AUTOPICK AUDIT 999 OUTCODE GONE ACCEPT ATTEMPTS 2
CANCEL
- SETUP REQUIRED REMINDER 60 AUTO
- MESSAGE MSGNOH

Customizations in VMBACKUP CONFIG:

- SYSOPER *hacctr*
- TAPEOPER *hacctr*
- RESERVE OFF
- TAPEDISP DETACH
- AUTHORIZ OPERATOR *hacctr*

- Ⓟ The following definitions must be made in the HCC/VM parameter files listed:

S04\$SUBS

- *vmtape* VMT STD R N N *. 50 . Y Y 1 _TMSS R(*) ;V(R)

S02\$OUSR

- ROUTER *hacctr* INITSELF:DISABLE A10:A11:A12:A13,
!! B10:B11:B15:C10:C20:C30:D10:E10:E11:F10:H10

The operation of manual drives can be controlled by the following commands from an accordingly authorized machine:

VMTSTART
VMTDRAIN
VMTQUERY

HCC/VM AND HCC/BR

INSTALLATION

HCC/BR is an automation tool by GRAU Storage Systems GmbH used for backing up VM data. HCC/BR is designed for managing media backup when using robot systems.

If the HCC/BR component was loaded from the installation tape (*Step 2: Loading the Minidisks* page 1 ff.), the user may continue with defining the corresponding CP directory entries (described below) and the configuration of HCC/BR. Otherwise, HCC/BR is loaded selectively (the command SKIP skips over already installed components) from the installation tape using the installation procedure HACCINST.

The HCC/BR system consists of several virtual machines that must be set up prior to installation in the VM directory.



The file HCCVM DIRECT contains sample entries of virtual machines needed for HCC/BR. This file was loaded from the installation tape in *Step 1: VM Directory Entries* page 1 ff.

Type	Name	Function
BRM	Backup/Restore Manager	HCC/BR server machine manages all backup/restore tasks of HCC/BR
MAM	Media/Archive Manager	HCC/BR machine for managing all backup data created with HCC/BR
BRPn	Backup/Restore Processor	One or more HCC/BR machine(s) controlled by BRM that perform the backup and restoration of data. Increasing the number of BRP machines increases the number of tasks that can be performed simultaneously by the HCC/BR.

Table 8: Virtual Machines of HCC/BR

CP DIRECTORY ENTRIES OF HCC/BR MACHINES

BRM (BACKUP/RESTORE MANAGER) MACHINE

USER *abrbrm password* 6M 8M ABDEG
ACCOUNT BR
OPTION CONCEAL DEVMAINT
INCLUDE BRROF
IPL CMS
CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
* HACC/VM Product Minidisk
LINK *hacmnt* 192 192 RR
* HACC/BR BRM Minidisk 191
MDISK 191 3390 *nnnn* 002 *volser* MW
* HACC/BR BR Product Minidisk B92
LINK *hacmnt* B92 B92 MR

MAM (MEDIA ARCHIVE MANAGER) MACHINE

USER *abrmam* password 6M 8M G
ACCOUNT BR
OPTION CONCEAL
IPL CMS
CONSOLE 009 3215
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
* HACC/BR MAM Minidisk 191
MDISK 191 3390 *nnnn xxx¹ volser* MW
* HACC/BR Product Minidisk B92
LINK *hacmnt* B92 B92 RR
* HACC/VM Product Minidisk
LINK *hacmnt* 192 192 RR

¹ The size of the MAM minidisk 191 is dependant upon the size of the backup data created and the number of managed media.

BRP1....BRPN (BACKUP RESTORE PROCESSOR) MACHINES

```
USER abrbrpn password 6M 8M DG
ACCOUNT BR
OPTION DEVMAINT AUTOONLY
INCLUDE BRROF
IPL CMS
CONSOLE 009 3215 T abrbrm
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
* HACC/BR BRP Minidisk 191
MDISK 191 3390 nnnn 001 volser MW
* HACC/BR BR Product Minidisk 192
LINK hacmnt B92 B92 RR
```

In the directory PROFILE BRROF, LINKs to all VM disks can be defined as read only fullpacks.

```
PROFILE BRROF
LINK fullpackuserid cuu cuu RR
LINK fullpackuserid cuu cuu RR
. . . . .
```

CONFIGURATION

The following information is needed for the initial configuration of HCC/BR:

- ❑ UserId of HCC/BR backup/restore manager (BRM) machine
- ❑ UserId of HCC/BR media/archive manager (MAM) machine
- ❑ UserId(s) of HCC/BR backup/restore processor (BRP) machine(s)
- ❑ Default OwnerId of the volume to be used by HCC/BR
- ❑ Name of the HCC/BR scratch list that is used by HCC/VM

The following configuration of HCC/BR must be performed in the virtual machine that will be used as the HCC/BR administrator. This UserId must have write access for HCC/BR product minidisk B92 and HCC/VM product minidisk 192. The UserId of the HCC/VM maintenance machine should be used.

The command BRINST starts the HCC/BR configuration application. All information required for configuration is entered in dialogue:

brinst

```
+-----+
!           HCC/BR installation utility           !
+-----+
```

This configuration procedure must be run in the HCC/BR administration virtual machine. If you want OBISHSVR to be setup as a HCC/BR administration user press ENTER otherwise enter EXIT and rerun this procedure in the appropriate virtual machine.

-> ENTER

MAM configuration file created from default file MAM \$CONFIG B1
 BRM configuration file created from default file ABR \$PARAM B1
 Enter the userid of the HCC/BR backup restore manager (BRM) virtual machine.
 Press ENTER to use the default HACBRM or enter EXIT to stop processing

obisabrm

Enter the userid of the HCC/BR media archive manager (MAM) virtual machine.
 Press ENTER to use the default HACMAM or enter EXIT to stop processing

obisamam

One or more backup/restore processor (BRP) virtual machines must be defined
 Enter any number of userids separated by blanks or one after another.
 Simply press ENTER when you are finished, or enter EXIT to stop processing:

obisaio1 obisaio2

-> ENTER

Enter the default owner id of HCC/BR cartridges, press ENTER to use the default ownerid BR or enter EXIT to stop processing:

ob

Enter the name of the HCC/BR scratch list generated for HCC/VM, press ENTER to use the default BRSCR or enter EXIT to stop processing:

obisabr

MAM tag file created from default file MAM \$TAGTAB B1
UserId of Backup/Restore Manager (BRM): OBISABRM
UserId of Media/Archive Manager (MAM): OBISAMAM
UserId(s) of Backup/Restore Processor(s) (BRP): OBISAIO1
OBISAIO2
UserId of HCC/VM Server machine (TOP): HACSVR
Name of HCC/BR scratch list : OBISABR
Default ownerid of HCC/BR volumes : OB

Press ENTER to accept these setting, enter NO to change them or enter EXIT to stop processing

-> ENTER

HCC/VM sample parameter file S02\$OUSR BRPARM A successfully created.
HCC/VM sample parameter file S04\$SUBS BRPARM A successfully created.
HCC/VM sample parameter file S08\$SERV BRPARM A successfully created.
HCC/VM sample parameter file S12\$SCRL BRPARM A successfully created.
Starting HCC/BR ...
Now waiting 30 seconds for HCC/BR to come up ...
HCC/BR successfully installed and configured
You can now use the HCC/BR commands for further customization
Ready; T=0.28/0.41 15:33:43

The command BRINST updates or newly creates the following HCC/BR configuration files on the HCC/BR product minidisk B92:

- ABR PARM
- MAM CONFIG
- MAM TAGTAB

HCC/VM DEFINITIONS

When using HCC/BR, several HCC/VM definitions must be made in the respective HCC/VM parameter files (Snn\$xxxx PARM) on the HCC/VM product minidisk 192.

The configuration procedure BRINST has created the following sample files that can be used for customizing the corresponding HCC/VM parameter files:

Created Sample Parameter File	HCC/VM Parameter File	Customization
S02\$OUSR BRPARM	S02\$OUSR PARM	The UserId of the backup/restore manager (BRM) machine must be defined as HCC/VM operator.
S04\$SUBS BRPARM	S04\$SUBS PARM	The UserIds of the backup/restore processor (BRP) machines must be defined as HCC/VM subsystems. Also, the name of the HCC/BR scratch list is assigned.
S08\$SERV BRPARM	S08\$SERV PARM	The UserId of the HCC/BR media/archive manager (MAM) machine must be defined as HCC/VM administrator, in order to submit HCC/BR scratch lists to the HCC/VM server machine.
S12\$SCRL BRPARM	S12\$SCRL PARM	The name of the HCC/BR scratch list and the method by which HCC/VM requests new scratch lists must be defined.

Table 9: BRINST Sample Parameter Files

After customizing the respective HCC/VM parameter files, rebooting of HCC/VM may be necessary.

BACKUP/RESTORE MANAGER (BRM)

The following settings can be made in the configuration file ABR PARM:

Directory= <i>filename</i>	CMS file name of the CP directory. The CP directory is prepared with the application ABRDIR ¹ and submitted to the BRM machine of the HCC/BR.
DirMaint= <i>userid</i>	UserId of the virtual machine that is authorized to send the CP directory prepared by the HCC/BR application ABRDIR to the HCC/BR backup/restore manager (BRM) machine.
Logging={ON OFF}	When the setting is ON, the HCC/BR backup/restore manager (BRM) machine writes a protocol file (file type LOG).
Verbose={ON OFF}	When the setting is ON, all activities of the HCC/BR backup/restore manager (BRM) machine are recorded in the console protocol.
DiskArray= <i>cuu1 ... cuun</i>	List of all minidisks required for the operation of the HCC/BR backup/restore manager (BRM) machine. Normally, the defaults should not be changed.
RetrySameUnit={NO YES}	The HCC/BR command RETRY attempts the repetition of tasks that were interrupted because of an error. When NO is specified, a new drive address is requested.
DataBase= <i>db_name</i>	Name of the BRM database file used. Normally, the value should not be changed.
Owner= <i>owner</i>	Default OwnerId. This OwnerId is used by HCC/BR for mount requests, when the corresponding aggregate is not defined in HCC/BR. If this value is changed, the entry OWN defined in the MAM configuration file may have to be changed.
RamDisk= <i>cuu1... cuun</i>	Real addresses of all RAM disks that are saved by HCC/BR
MAM= <i>userid</i>	UserId of the HCC/BR media/archive manager (MAM) machine

¹ The prepared directory for HCC/BR no longer contains any passwords. The transfer of a prepared CP directory to HCC/BR is only necessary for certain functions.

MEDIA ARCHIVE MANAGER (MAM)

The following settings can be made in the HCC/BR configuration file MAM CONFIG:

ScrFn	<i>scrname</i>	CMS file name of the scratch list used by HCC/BR. The name defined in the HCC/VM parameter files S04\$SUBS (for the HCC/BR backup/restore processor (BRP) machines) and S12\$SCRL must match the name defined here.
ABRsvr	<i>userid</i>	UserId of the HCC/BR backup/restore manager (BRM) machine
DBfn	<i>db_name</i>	Name of the MAM database file used. Normally, this value should not be changed.
DBLrecl	<i>lrecl</i>	The logical sentence length of the MAM database file. Normally, this value should not be changed.
HACsvr	<i>userid</i>	UserId of the HCC/VM server machine

INITIALIZING THE HCC/BR ENVIRONMENT

After configuration is complete, the BR should be active. Using the command

BR Q U

HCC/BR will display the definitions of all HCC/BR UserIds defined by BRINST.

The command

BR START

starts HCC/BR again.

The command

BR SHUT

shuts HCC/BR down.

After starting HCC/BR correctly, the volumes used by HCC/BR must be defined and initialized:

The command

BR ADDVOL *volser* N *number*

defines volumes that are enumerated with *number* starting at the first volser designated with *volser* in the BR catalogue.

The command

BR INITV *volser* N *number*

initializes volumes that are enumerated with *number* starting at the first volser designated with *volser* through HCC/BR.

HCC/VM AND BVS (INFOSOFT)

When using a BVS tape management system under VM and/or VSE, no specific HCC/VM interface applications are required, since the BVS software is configured for communications with the robot controlling host software (robot interface).

All virtual machines sending requests to the AML system must be defined as sub-systems in the HCC/VM parameter file S04\$SUBS. These are all VSE and CMS machines that are processing via BVS cartridges controlled by the HCC/VM system.

Within the BVS tape management catalogue, all BVS volsers are assigned storage names (VAULT). By defining a special storage name for a cartridge in the robot system, the BVS tape management system determines whether the corresponding volume is within a robot system and initiates cartridge mounting (and later dismounting) through the robot.

The HCC/VM exits INSEXIT and EJCTEXIT are used for managing storage names during insertion/ejection (see *HCC/VM System Reference Guide*).



When connecting a BVS, the assignment of units (ATTACH) must **not** be controlled through the HCC/VM (see *S06\$UNIT (Devices)* page 22 ff.).

ADSM (ADSTAR DISTRIBUTED STORAGE MANAGER)

When using ADSM, the DSMEXIT machines must be defined as subsystems of the HCC/VM (see *S04\$SUBS (Subsystems)* page 12ff.).

In addition, the virtual machines must have access to the applications DSMMOUNT and HACSVRID that are generated or shipped with HCC/VM (LINK on HCC/VM product minidisk 192).

VSE TAPE MANAGEMENT SYSTEMS

CONNECTING TO HCC/VSE

For the DYNAM/T-VSE and EPIC/VSE tape management systems, the component HCC/VSE (together with exit programs that may be necessary for the corresponding tape management system) must be installed. For EPIC/VSE, using HCC/VSE may not be necessary if HCC IMOD CLEANCUU is to be used instead (see *HCC/VM-VSE and EPIC/VSE* on page 42).

HCC/VSE software can be executed in VSE/ESA guest systems under VM. The different HCC/VSE applications are available as object code files and must be catalogued and *linked* in the VSE guest system that is to be connected.

The following describes the functionality, installation and configuration of HCC/VSE.

The following diagram illustrates the functionality of the HCC/VSE component in conjunction with DYNAM/T-VSE:

Figure 2: Functionality Diagram of HCC/VSE

INSTALLATION OF REQUIRED VSE INTERFACE ROUTINES

The following HCC/VSE interface routines must be installed in a VSE library (sublibrary) designated for this purpose:

- \$ROBEXIT
- \$JOBEXIT or \$JOBEXnn (VSE/ESA 1.3 or later)
- HCCPVSE

For this, the following steps are necessary:

1	Definition of a new sublibrary, if required (sample job on page 21)
2	Generation of HCC/VSE installation jobs and installation of HCC/VSE interface routines (page 21)
3	Configuration of HCC/VSE (modifying and assembling HCCPVSE ASSEMBLE in CMS)
4	Integration of HCC/VSE \$JOBEXIT or \$JOBEXnn
5	Configuration of the tape management system <ul style="list-style-type: none"> · BVS <i>HCC/VM and BVS/VSE</i> page 49 ff. · DYNAM/T <i>HCC/VM-VSE and DYNAM/T-VSE (C.A.)</i> page 37 ff. · EPIC <i>HCC/VM-VSE and EPIC/VSE</i> page 42 ff.
6	Starting HCC/VSE
7	Verification

Table 10: Installation Steps for HCC/VSE

STEP 1: DEFINITION OF HCC/VSE SUBLIBRARY

HCC/VSE can be installed in an existing sublibrary or in a new sublibrary especially defined for this purpose. The sublibrary can **not** be in the permanent search sequence of the VSE system.

The following sample job can be used when defining a sublibrary in an existing VSE library.

↳ Sample job for defining a sublibrary within an existing VSE library

```
* $$ JOB JNM=DEFSLIB,CLASS=0,DISP=D,USER=userid
* $$ LST CLASS=R,DISP=D,DEST=(,userid),JSEP=0
// JOB DEFSLIB
// EXEC LIBR,PARM='MSHP'
  DEFINE S=lib.sublib REUSE=A
/*
/&
* $$ EOJ
```

STEP 2: GENERATING INSTALLATION JOBS

An installation job for cataloguing and linking can be created with the procedure HACCVSE in the HCC/VM maintenance user:

HACCVSE <Enter>

HACC/VSE installation:

GRAU.PRODUCT is the preconfigured HACC/VSE installation sublibrary.
Enter a new library name if you want to change this, press **ENTER**
to accept GRAU.PRODUCT as the installation library (EXIT to stop):

lib.sublib <Enter>

lib.sublib HCC/VSE is installed in this VSE library. If the request is answered with ENTER without entering a new library, the name of the installation library becomes GRAU.PRODUCT. The library **must** already be defined in VSE and should not

be contained in the permanent search sequence of the VSE system.

0 is the default job class to run the HCC/VSE installation jobs.
Enter a new job class or press ENTER to accept 0:

jobclass <Enter>

jobclass class with which the installation job shall be started in VSE.

R is the default list class for the HCC/VSE installation jobs.
Enter a new list class or press ENTER to accept R:

listclass <Enter>

listclass class with which the output of the installation job shall be created.

Do you have a \$JOBEXIT.PHASE other than the original dummy IBM JCL exit installed? Enter YES to prepare for multiple jobexits. Press ENTER to use HCC/VSE JCL exit instead of IBMs dummy exit. (EXIT to stop)

YES/NO <Enter>

YES If JCL exit is already used, HCC/VSE is configured by specifying YES in such a way that HCC/VSE JCL exit is generated as \$JOBEX01.PHASE. The HCC/VSE JCL exit must be integrated by generating a JCL exit list and renaming the already existing \$JOBEXIT.PHASE (i.e. \$JOBEX02.PHASE).

NO If no other JCL exit is used (other than the IBM dummy JCL exit \$JOBEXIT.PHASE on IJSYSRS.SYSLIB), the HCC/VSE JCL exit with the name \$JOBEXIT.PHASE can be generated.

Enter the tape management system you are using under VSE
Supported TMS are: EPIC and DYNAMIT . (EXIT to stop)

or

EPIC is the default VSE tape management system. Enter DYNAMIT to
change the TMS. Press ENTER to use EPIC (EXIT to stop):

- TMS** <Enter>
- EPIC* In addition to the HCC/VSE installation jobs, an installation
job for the IMODs required for the use of EPIC/VSE is crea-
ted by specifying EPIC.
- DYNAMIT* When using DYNAMIT as the tape management system, in
addition to the HCC/VSE interface routines certain DYNAMIT
interface routines are also installed.

The following EPIC/VSE tape pool id is used for the tapes in the
robot system: R.

Press ENTER to accept this pool id or enter new pool ids in the
form p1 p2 p3 ... or NO if no manual cartridge units are
used and EPIC/VSE tape pools are not needed:

- poolids** <Enter>
- poolids* [p1 [p2 [p3 [...]]]]
- The tape pool IDs specified here must be defined in
EPIC/VSE (TSIDPOL). If this request is answered with
ENTER without an entry, the tape pool R is used for car-
tridges in the AML system. Only scratch mount requests for
the tape pool defined here will be submitted to the HCC/VM
system.
- NO** When entering NO, **all** scratch mount requests are submitted
to the HCC/VM system.

HACC/VSE installation sublibrary: **GRAU.PRODUCT**
Installation job class : **0**
Installation job list class : **R**
Use multiple JCL exit list : **NO**
Tape management system is : **EPIC**
The EPIC/VSE tape pools are : **R**

Press ENTER to accept these settings, NO to change them. (EXIT to stop)
HACC/VSE installation jobstream **HACCVSE JCLINST A** successfully created.
HACC/VSE load jobstream **HACCLOAD JCL A** successfully created.
IMOD installation jobstream **EPICIMOD JCLINST A** successfully generated.
Ready; T=0.38/0.50 15:05:33

The installation procedure **HACCVSE** creates the HCC/VSE installation job **HACCVSE JCLINST** and the HCC/VSE start job **HACCLOAD JCL**. When using **EPIC/VSE**, the IMOD installation job **EPICIMOD JCLINST** is also generated. After verifying the installation jobs that are generated, they can be used for the installation of the HCC/VSE component in the respective VSE library.

(([*pool1*]),(*pool2*),.....])

pool1, *pool2*, etc. are tape pools defined in the following form:

([*prefix*],[*start*],[*end*])

where: *prefix* volser prefix

start start of a volser range

end end of a volser range

Beispiel

TAPPOOL=(5X,0,500)

each volser within the range 5X0000-5X0500 is considered a cartridge of the robot system for specific MOUNT requests.

USERX=*jobexit*

if it exists, the name of the customer specific \$JOBEXIT phase to be renamed is entered here. Starting with VSE/ESA 1.3, HCC/VSE \$JOBEXIT is entered under a name \$JOBEXnn (nn - 01-09) in the \$JOBEXIT list \$JOBEXIT.PHASE..

OWNCHK=ANY | (*own_list*)

when **ANY** is specified, the OwnerId is not checked during MOUNT requests.

(own_list) is a list of the form:

(*id1*[,*id2*,.....,*idn*])

where *id1* - *idn* are one- to two-digit OwnerIds. These OwnerIds are used by HCC/VSE as organizational features for DYNAM/T mount messages to determine whether or not the cartridge is supported by the AML system.

MODES=(*mode_list*)

in the parameter MODE, all modes (i.e. densities CART, 08, etc.) must be defined that are a selection criterion whether a mount request is to be processed by the AML system.

DETACH=NO | YES

indicates whether cartridge devices will be released (DETACHed) automatically by the VSE guest system after the cartridge processing is completed.

DETNO=NO | (*seconds*)

when DETACH=YES the user can determine whether cartridge devices of the AML system available on the respective VSE guest system, but not used by any partition shall be DETACHED. **NO** does not detach stations that are not used by a partition.

(seconds) determines the amount of time lapsed before such a device is detached. This enables DYNAM/T to allocate this device during an AVR scan.

MAXWAIT=(*n1,n2*)

defines the interval in which pending mount requests and used robot drives are controlled.

The DYNAM/T Mount_Request_Queue and drives that are ATTACHED to the VSE machine are checked every *n1* seconds. Mount requests waiting in excess of *n2* seconds are automatically repeated once.

MSG=0 | 1 | 2 | 3 | 4

defines the type of HCC/VSE messages that will be displayed on the VSE console. When MSG=0, no messages are displayed. The different message types are allocated as follows:

Type	Suffix	MSG=n
Error	E	1
Warning	W	2
Information	I	3
Debug	D	4

Table 11: HCC/VSE Message Level

A list of the messages that are output by the HCC/VSE can be found in the HCC/VM System Reference Guide.

Configuration of the HACCPVSE Installation Job

HACCASM

<Enter>

```
*****  
HACC/VSE HACC/VSE program assembly:  
*****
```

```
HACC/VSE installation sublibrary: GRAU.PRODUCT  
Installation job class      : 0  
Installation job list class : R
```

```
Press ENTER to accept these settings, NO to change them.  
HACCPVSE ASSEMBLE B1 is used for assembly.  
HACCPVSE installation job stream HACCPVSE JCLINST A successfully created.  
Ready; T=0.24/0.30 15:50:15
```

When executing the procedure HACCASM without specifying parameters, the installation job, HACCPVSE JCLINST, is generated. After verifying the jobs generated, the HCC/VSE parameter phase (HACCPVSE.PHASE) can be catalogued in the corresponding VSE library.

STEP 4: INTEGRATION OF HCC/VSE \$JOBEXIT

One of the HCC/VSE components is a JCL exit program (\$JOBEXIT) that must be integrated in the VSE system environment.



Integration of the HCC/VSE \$JOBEXIT is a critical phase during installation of the HCC/VSE components.

Before activating the HCC/VSE \$JOBEXIT, it must be determined whether a customer specific \$JOBEXIT is already in use.

Additionally, it must be determined whether the installed \$JOBEXIT is used by any third party software applications.

When loading phases with names beginning with a dollar sign (“system” phases) the VSE system resident IJSYSRS.SYSLIB is always searched prior to other libraries. The corresponding steps must be taken in order to load the HCC/VSE JCL exit \$JOBEXIT.PHASE from the HCC/VSE installation sublibrary into the SVA.

1. If no special \$JOBEXIT is used, the HCC/VSE JCL exit can be catalogued as \$JOBEXIT.PHASE in the HCC/VSE installation sub library and can be loaded for activation into the SVA. In this case, the HCC/VSE \$JOBEXIT replaces the dummy IBM JCL exit.

The simplest approach is to copy the HCC/VSE JCL exit \$JOBEXIT.PHASE to the VSE system resident IJSYSRS.SYSLIB:

- a. Sample job for copying the HCC/VSE JCL exit to IJSYSRS.SYSLIB

```
* $$ JOB JNM=HACJCOPY,DISP=D,CLASS=0,USER=userid
* $$ LST CLASS=R,DISP=D,DEST=(,userid),JSEP=0
// JOB HACJCOPY
// EXEC LIBR
ACC S=IJSYSRS.SYSLIB
RENAME $JOBEXIT.PHASE *.ORIG
CONNECT S=lib.sublib:IJSYSRS.SYSLIB
COPY $JOBEXIT.PHASE
/*
/&
* $$ EOJ
```

2. Another option is to temporarily rename the dummy IBM JCL exit in the VSE system resident IJSYSRS.SYSLIB when loading the HCC/VSE JCL exit. The following sample job can be used for this:

↳ Sample job for loading the HCC/VSE JCL exit from the HCC/VSE installation sublibrary:

```
* $$ JOB JNM=HACJLOAD,DISP=D,CLASS=0,USER=userid
* $$ LST CLASS=R,DISP=D,DEST=(userid),JSEP=0
// JOB HACJLOAD
// EXEC LIBR
ACC S=IJSYSRS.SYSLIB
RENAME $JOBEXIT.PHASE *.ORIG
/*
// LIBDEF PHASE,SEARCH=(lib.sublib)
SET SDL
$JOBEXIT,SVA
/*
// EXEC LIBR
ACC S=IJSYSRS.SYSLIB
RENAME $JOBEXIT.ORIG *.PHASE
/*
/&
* $$ EOJ
```

2. If a JCL exit is already in use (aside from IBM's dummy JCL exit), special steps are necessary for using the HCC/VSE JCL exit.

- Starting with VSE/ESA, several \$JOBEXITs can be managed by the VSE. For this, a \$JOBEXIT list (\$JOBEXIT.PHASE) must be created which contains all \$JOBEXITs (incl. HCC/VSE \$JOBEXnn). The \$JOBEXITs in this list must be named according to the following conventions:

\$JOBEXnn.PHASE (where nn must be a number between 01 and 09). The \$JOBEXITs in the list (\$JOBEXIT.PHASE) will be retrieved by the VSE according to their enumeration. If the HCC/VSE \$JOBEXIT is the first to be retrieved by the VSE, it must be catalogued with the name \$JOBEX01.PHASE. Customer specific \$JOBEXITs must be designated with the numbers 02-09.

The status of the \$JOBEXITs in the list can be queried with the VSE command JCLEXIT and modified (disable/enable).

Beispiel

```
START 0
DC CL8'JCLLUSEX' header
```

```
DC CL8'$JOBEX01' phase name HACC/VSE $JOBEX01
DC CL8'HACC/VSE' comment
DC CL8'$JOBEX02' phase name user $JOBEXIT
DC CL8'USER' comment
DC X'FFFFFFFF' trailer
END
```

- If a \$JOBEXIT list is not used, the HCC/VSE \$JOBEXIT can be catalogued as \$JOBEXIT.PHASE. The customer specific program can be renamed and defined in the parameter phase HACCPVSE. In this case, the customer specific \$JOBEXIT will always be retrieved by the HCC/VSE \$JOBEXIT.

STEP 5: CONFIGURATION OF THE TAPE MANAGEMENT SYSTEM

Customization of the tape management system is described in the corresponding section in *Step 6: Tape Management Systems and HCC/VM* on page 1 ff.

STEP 6: STARTING HCC/VSE

The following steps are required to activate the HCC/VSE:

1. Load the HCC/VSE parameter phase HCCPVSE in the SVA
2. Load the HCC/VSE phase \$ROBEXIT in the SVA
3. Load the HCC/VSE phase \$JOBEXnn in the SVA

When using a \$JOBEXIT list (\$JOBEXIT.PHASE) in VSE/ESA, the HCC/VSE \$JOBEXIT must be loaded into the SVA prior to activating the other \$JOBEXITs from this list.

After loading the different SVA applications at the IPL instant in the ASI procedure however, the HCC/VSE \$JOBEXIT can be deactivated with the VSE command JCLEXIT DISABLE,\$JOBEXnn. JCLEXIT ENABLE,\$JOBEXnn activates HCC/VSE \$JOBEXIT for a subsequent start.

The job HCCLOAD JCL that is created during the generation of the HCC/VSE installation jobs can be used to activate the HCC/VSE. In addition to activating the HCC/VSE, the respective interface to the tape management system being used should also be activated.

STEP 7: VERIFICATION

A meaningful verification of the functionality of the installed HCC/VM VSE system is possible without the physical existence of an AML robot system. However, a AMU PC must be available and connected to the VM system. This AMU can be switched to a simulation mode so that MOUNT and DEMOUNT requests can be processed as if a robot is actually performing these actions. The AMU PC responds to the HCC/VM system with a positive confirmation to the respective request every time.

A HCC/VM monitor screen can be displayed on a HCC/VM monitor machine that is identified in the parameter file S02\$OUSR (chapter *S02\$OUSR (HCC/VM Monitor)*, page 7) by retrieving the monitor function (HACMON). The HCC/VM monitor command STARTUP SVR starts the HCC/VM system. All HCC/VM adapter machines are activated and started automatically, and communications with the corresponding AMU PC will be invoked. These activities are indicated by corresponding messages on the monitor screen.

After completing the HCC/VSE installation procedure, a test phase is run automatically. If problems occur, console messages that will assist in determining the cause of the problem are displayed (see MSG parameter in *Step 3: Configuration (HACCPVSE)* on page 8-26 **Fehler! Textmarke nicht definiert.**).

ENDING HCC/VSE

The following steps are required for terminating the HCC/VSE:

1. Deactivating \$JOBEXnn
2. Possibly deactivating the tape management interface to HCC/VSE

If the HCC/VSE \$JOBEXnn is added to an existing JOBEXIT list, it can be deactivated with the following job:

```
p HACJLDCT JCL
  * $$ JOB JNM=HACJLDCT,DISP=D,CLASS=0,USER=userid
  * $$ LST CLASS=R,DISP=D,DEST=(,userid),JSEP=0
  // JCLEXIT DISABLE,$JOBEXnn
  /*
  /&
  * $$ EOJ
```

If the HCC/VSE \$JOBEXnn with the name \$JOBEXIT is the only \$JOBEXIT that is loaded into the SVA, the original \$JOBEXIT can be loaded from the VSE system library IJSYSRS.SYSLIB and the HCC/VSE \$JOBEXnn deactivated with the following job:

```
p HACJDACT JCL
  * $$ JOB JNM=HACJDACT,DISP=D,CLASS=0,USER=userid
  * $$ LST CLASS=R,DISP=D,DEST=(,userid),JSEP=0
  // EXEC LIBR
  ACC S=IJSYSRS.SYSLIB
  RENAME $JOBEXIT.ORIG *.PHASE           ignore RC <> 0
  /*
  // LIBDEF PHASE,SEARCH=(IJSYSRS.SYSLIB)
  SET SDL
  $JOBEXIT,SVA
  /*
  /&
  * $$ EOJ
```

HCC/VM-VSE AND DYNAM/T-VSE (C.A.)

The HCC/VSE component is required for connecting the DYNAM/T-VSE. In addition, some special DYNAM/T exit programs must be installed.

Installation requirements:

- A VSE sublibrary in which different phases must be created (sample jobs for cataloguing and linking are contained after successful installation on the HCC/VM minidisk 192).
- A sufficiently large SVA for 4-6 additional HCC/VSE phases (about 40-50 KBytes)

The installation includes the following steps:

1	Installation and configuration of the HCC/VSE (see <i>Step 3: Configuration (HACCPVSE)</i> on page 25)
2	Activation of the DYNAM/T interface (information about exit names, stop parameters, etc.) and activation of the HCC/VSE interface
3	Verification

Table 12: Installation Steps for DYNAM/T-VSE

STEP 1: INSTALLATION AND CONFIGURATION OF THE HCC/VSE

The HCC/VSE component is required, when a VSE guest machine is connected with the DYNAM/T tape management system. For further information about the installation and configuration of the HCC/VSE see *Connecting to HCC/VSE* page 16 ff.

STEP 2: ACTIVATING THE DYNAM/T INTERFACE

The DYNAM/T-VSE interface for the HCC/VM is activated by customizing the DYNAM/T parameters (phase CATAGENA¹). The following parameters of the DYNAM/T macros must be customized:

The tape management system must know the DYNAM/T interface applications DYNEXIT (in the HCC/VSE installation library):

- OPNHOOK=DYNEXIT
- CLSHOOK=DYNEXIT
- MSGHOOK=DYNEXIT

Furthermore, the STOP parameter must be customized in such a way that for mount requests, even during peak times, the AML system has sufficient time for mounting a requested cartridge without DYNAM/T expecting a response to a *reply*. In this case, a *REPLY* in DYNAM/T is **not** answered by the HCC/VM or the HCC/VSE. This implies that a scratch cartridge mounted by HCC/VM is not exchanged automatically, if DYNAM/T does not accept this cartridge after completing its AVR cycles (see parameter STOP in the DYNAM/T macro) and expects a REPLY. A reliable parameter value is f.e.:

- STOP=(10,180) this means that DYNAM/T performs an AVR scan every 10 seconds. If HCC/VM is not able to mount the requested cartridge after 180 times 10 seconds (30 minutes), DYNAM/T displays a mount message that requires operator intervention.

When using HCC/VSE, the AVR interface between DYNAM/T-VSE and the DYNAM/T-CMS server machine must be deactivated. The cartridge stations are assigned to the VSE machines by HCC/VM. This is necessary because DYNAM/T exits of the DYNAM/T-CMS server machines are not initiated for VSE tape processing.

¹ Starting with release 6.0, the DYNAM/T parameters are managed in the *CAICUI database*.

To accurately monitor the entire tape processing procedure related to the AML system with DYNAM/T as tape management system, is only possible if the HCC/VM controls the assignment of the cartridge devices that are serviced by the AML system.

- CMSUSER=, this definition deactivates the AVR interface between DYNAM/T-VSE and DYNAM/T-CMS.

After customizing the above parameters, certain steps are necessary (conversion, cataloguing) to activate or restart DYNAM/T with these new parameter values.

STEP 3: VERIFICATION

The clearest indication that a correct DYNAM/T connection has been activated (and simultaneously active HCC/VM) are the modified DYNAM/T mount messages on the VSE console.

Instead of:	this message is displayed:
· CADT008A MOUNT SCRATCH....	CADT008A *HCC/SCRATCH*
· CADT004A MOUNT VOLUME....	CADT004A *HCC/MOUNT*

These CA-DYNAM messages are only displayed in this modified form when the HCC/VSE successfully submitted a request for an AML robot system drive to the HCC/VM server machine. The messages continue to be displayed in unmodified form in the following instances:

- the requested volser for a specific mount is not defined in the HCC/VSE (see TAPPOOL parameter in *Step 3: Configuration (HACCPVSE)* on page 8-25 **Fehler! Textmarke nicht definiert.**)
- when requesting a mount to a specific device address, the address is not defined in the HCC/VSE (see DEVPOOL parameter in *Step 3: Configuration (HACCPVSE)* on page 8-24 **Fehler! Textmarke nicht definiert.**)
- the OwnerId in the mount message is unknown in the HCC/VSE (see OWNCHK parameter in *Step 3: Configuration (HACCPVSE)* on page 8-25 **Fehler! Textmarke nicht definiert.**)
- the specification MODE= in the DYNAM message does not correspond to a mode defined in the parameter phase HCCPVSE (see MODE parameter in *Step 3: Configuration (HACCPVSE)* on page **Fehler! Textmarke nicht definiert.**)

HCC/VM-VSE AND EPIC/VSE

EPIC/VSE is connected to the HCC/VM system via the software system FAQs/ASO from the Legent company. In this case, REXX IMODs (intelligent modules) are used in response to specific system messages (EPIC and VSE) for initiating the actions to automatically mount or dismount cartridges by the HCC/VM. HCC/VM comes with the following IMODs:

- HACEP001 Mount requests
- HACEP088 Keep requests
- HACEP047 for example, for LIBR backup jobs
- HACEP164 for automatic cartridge initialization
- HACM065 for processing special HCC/VM messages
- CLEANCUU alternative to HCC/VSE

In addition to these IMODs, the HCC/VSE component can be used to automatically return drives to the HCC/VM that are not correctly unloaded and/or released by applications.

The following steps are required for connecting EPIC/VSE to the HCC/VM system:

1	Installation of the HCC IMODs
2	Installation and configuration of HCC/VSE, if necessary
3	Customization of specific EPIC/VSE parameters
4	Generation of an EPIC/VSE tape pool (TSIDPOL) for the AML system, if necessary (for parallel use of robot and manually operated drives - i.e. for migration).
5	Activation of the installed IMODs with FAQs/ASO

Table 13: Installation Steps for EPIC/VSE

INSTALLATION OF THE HCC IMODS

For the installation of the IMODs that come with HCC/VM, an installation job must be created using the procedure IMODINST EXEC.

If manually operated drives are used in conjunction with the AML system drives, the following factors are important:

- as a differentiating criterion for scratch mount requests, one or more tape pools must be defined in EPIC/VSE for the cartridges in the AML system. A scratch mount request is only submitted to the HCC/VM, if one of these tape pool names is found in this mount message.
- for a specific mount request, one or several volser ranges defined in the HCC/VM (see *S05\$VOLS (Volser)* page 20 ff.) determine whether the cartridge must be mounted manually or can be mounted by the AML system.

Configuration of the Installation Job

IMODINST <Enter>

Enter the EPIC/VSE tape poolids to be used for tapes in the robot system.
Multiple pools in the form: p1 p2 p3 ... or NO if no manual units exist.
Press ENTER to use the default poolid R:

poolids <Enter>

poolids [p1 [p2 [p3 [...]]]]

The tape pool names entered here must be defined in EPIC/VSE (TSIDPOL). If ENTER is pressed without entering any poolids, the default pool type R is assumed for the cartridges in the AML system. Only scratch mount requests for the tape pools defined here are submitted to the HCC/VM system.

NO When entering NO, **all** scratch mount request are submitted to the HCC/VM system.

Enter the job class in which the installation job will run
or press ENTER to use the default class 0:

jobclass <Enter>

jobclass The class in which the installation job will be started in the VSE. If this query is answered with ENTER and no entry, the default class 0 (BG) is assumed.

Enter the list class for installation job output or press ENTER
to use the default list class R:

listclass <Enter>

listclass The class in which the installation job output is placed in the VSE list queue. If this query is answered with ENTER and no entry, the default, class R, is assumed.

IMOD installation jobstream EPICIMOD JCLINST A successfully generated.

Verification of the Installation job

At this point, the job EPICIMOD JCLINST A that is created during the installation can be checked manually:

XEDIT EPICIMOD JCLINST A

Setting up this job in the respective VSE system installs the HCC IMODs that are necessary for connecting EPIC/VSE. The requirements are:

- the installation of FAQs/ASO
- the existence of PDS library MON
- the application GSPDSU is contained in a VSE library of the permanent search chain

INSTALLATION OF HCC/VSE

After successful installation of the HCC IMODS, installation of the HCC/VSE can be continued. Installation of the HCC/VSE can be skipped, if the HCC IMOD CLEANCUU is to be used instead.

IMOD CLEANCUU has the following disadvantages in comparison to HCC/VSE:

- CLEANCUU uses the EPIC/VSE command EP STATUS and processes the console messages that are created. If this is done at each job end, multiple messages are displayed on the VSE console which could confuse the operator. Even though the messages could be suppressed with FAQs, they will also not be displayed, even if desired, after entry of the EP STATUS command by the operator.
- For slow VSE systems, messages created by the EP STATUS command may get lost. CLEANCUU is waiting only for a particular period for the response of the command.

If HCC/VSE instead of IMODs CLEANCUU shall be used, the next step is the installation and configuration of HCC/VSE (see *Installation of Required VSE Interface Routines* page 20 ff.).

In order to use IMOD CLEANCUU, corresponding definitions must be made in FAQs/ASO. For example, the execution of CLEANCUU can be timed or initiated by specific VSE (i.e. EOJ) or EPIC/VSE messages.

EPIC/VSE PARAMETER CUSTOMIZATIONS

The following EPIC/VSE parameters must be set:

MSG088=YES	The EP088 DISMOUNT message is required in order to release drives that are no longer in use.
JCLOPT=YES	creates the message EP047 CATALOG COMPLETE for jobs that do not close a data set correctly. This facilitates correct processing of the LIBR BACKUP jobs, for example.
VM=YES	only drives that are ATTACHED to the VSE machine are assigned to the AVR function.
AUTOSTP=NO	deactivates the EPIC/VSE AutoStop setting that controls the AVR function. HCC/VM starts partitions that are waiting for the cartridge mounts.
AUTOATT=NO	The Autoattach setting of EPIC/VSE must be deactivated since drives are assigned by the HCC/VM.

DEFINITION OF HCC/VSE IMODs IN FAQS/ASO

The following definitions are required for EPIC/VSE messages in FAQS/ASO:

EPIC/VSE Message	HCC/VSE IMOD
EP001 EP002	HACEP001
EP047	HACEP047
EP088	HACEP088
EP164 EP165	HACEP164

Table 14: EPIC Messages and HCC/VSE IMODs

Definitions of messages and action routines in FAQS/ASO can be found in the FAQS/ASO User's Guide.

DIRECT CONNECTION WITHOUT HCC/VSE

HCC/VM AND BVS/VSE

The tape management software BVS/VSE from the Infsoft company is connected in the same way in which BVS/VM is connected to a HCC/VM - AML robot system (see *HCC/VM and BVS (Infsoft)* on page 14).

STEP 7: STARTING HCC/VM

The HCC/VM system can be started automatically at the IPL of the VM operating system (via AUTOLOG machine) or manually.

• **Automatic Start Procedure (AUTOLOG)**

The following alternatives for an automatic start via an AUTOLOG machine are possible:

- Procedure 1:

LINK access to the HCC/VM product minidisk 192

ACCESS 192 *fm*

EXEC HCCSTRT

- Procedure 2:

Copies of the procedures HCCSTRT and HACSVRID must be available on the AUTOLOG machine.

EXEC HCCSTRT

- Procedure 3:

To start the HCC/VM server machine, the following command, in REXX format, can be included in the PROFILE EXEC of the AUTOLOG machine:

```
'CP XAUTOLOG hacsvr '15'x 'HACLOAD CMS AUTO'
```

where *hacsvr* is the UserId of the HCC/VM server machine.

• **Manual Start Procedure**

HCC/VM can be started manually from a HCC/VM monitor machine via the monitor command STARTUP SVR¹. This command calls internally the start procedure HCCSTRT that can also be used directly without a monitor interface.



The procedure HCCSTRT EXEC starts the HCC/VM server machine that, in turn, activates all required adapter machines (see *S03\$AUSR (HCC/VM Adapter)* page 9 ff.) and possibly installed HCC/VM router machines (see *S08\$SERV (HCC/VM Server)* page 26 ff.).

¹ The CP authorization classes for the CP commands FORCE and XAUTOLOG are required for the STARTUP SVR monitor command.

The procedure HACSVRID EXEC is created during installation (see *Step 5: HCC/VM Generation*, page 1).



If the AML robot system is connected via a dedicated local 3270 address to the HCC/VM, this real address must be DISABLED before the HCC/VM server or adapter machine is started.

The following sequence is recommended in the AUTOLOG machine (where *rcuu* is the real address of the 3270 session of the AMU):

1. ENABLE *rcuu*
2. ENABLE ALL If this command is used in the AUTOLOG machine, the CP command ENABLE must first be executed for the AMU address.
3. DISABLE *rcuu*
4. HCCSTRT

HCC/VM CUSTOMIZATION (PARAMETER FILES)



Every modification of the HCC/VM parameter files generally requires a new generation of the HCC/VM run files. See *Step 5: HCC/VM Generation* on page 1 ff..

The following table lists the relevant information relationships between the HCC/VM parameter files:

Key Term	Parameter File	Configuration Component	Parameter
USERIDs	S02\$OUSR	HCC/VM monitor HCC/VM router	Position parameter
	S03\$AUSR	HCC/VM adapter	<i>ADP=userid</i>
	S04\$SUBS	Subsystems (Clients)	Position parameter
	S08\$SERV	HCC/VM server Administrator(s) Alarm machine HCC/VM router TMS server	SERVER_NAME SERVER_ADMU SERVER_AUSR SERVER_ROUS SERVER_TMSS
UNITs	S04\$SUBS	Subsystem unit pool	Position parameter
	S06\$UNIT	HCC/VM unit pool	<i>UNIT=(rdev...)</i>
Host AML Communication	S08\$SERV	HCC/VM Host ID	SERVER_HOME
	S03\$AUSR	AMU ID	<i>AMU=id</i>
VOLSERs	S05\$VOLS	Cleaning cartridges	Position parameter
		Data cartridges (for SERVER_ARCH=POOL)	Position parameter
Coordinates	S05\$VOLS	Currently without use	-
	S07\$LDEV	Foreign mount area	LDEV=

Key Term	Parameter File	Configuration Component	Parameter
SCRATCH	S04\$SUBS	Scratch substitution Scratch pool selection	Pos. parameter 6a Pos. parameter 6b
	S12\$SCRL	Scratch list update	Position parameter
	S13\$SCRA	Scratch pool definition	Position parameter
BATCH	S04\$SUBS	Subsystem authorization	Position parameter
	S08\$SERV	Administrator	SERVER_ADMU
	S21BPRE	List pre-processing	Position parameter
MONITOR	S01\$ROCC	Message routing	<i>RoutingClass</i>
	S17\$CAUT	Command authorization	Command classes
	S02\$OUSR	Assignment of Routing-Class and command classes	Position parameter
	M01\$SETU	special layout properties of monitor machines.	

Table 15: Information Relationships between HCC/VM Parameter Files



Special care must be taken when defining individual UserIds, since certain restrictions exist for multiple definitions. The HCC/VM adapter (chapter *S03\$AUSR (HCC/VM Adapter)*, page 9), HCC/VM operator/monitor (chapter *S02\$OUSR (HCC/VM Monitor)*, page 7) machines **cannot** be defined simultaneously as subsystems (chapter *S04\$SUBS (Subsystems)*, page 12). Also, a HCC/VM adapter machine must **not** be defined simultaneously as a HCC/VM operator/monitor.

Furthermore, the names of all virtual machines in the parameter files must be capitalized.

The most important HCC/VM parameter settings are described on the following pages.

M01\$SETU (MONITOR PARAMETER)

The parameter file M01\$SETU PARM on the HCC/VM product minidisk is used by all HCC/VM monitor machines, if no user specific parameter file is contained on an earlier minidisk in the access sequence.

For example, the number of drive addresses displayed on the HCC/VM monitor screen can be specified (PROTOCOL.P\$REQ_20).

The following sample parameter file contains descriptions of the individual parameters:

```

/*****
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/*****
/*
/* File: M01$SETU PARM!userid */
/*
/* Refer to: 'Monitor' */
/*
/* Purpose: Setup for monitor console. */
/*
/*****
/*
/* Description: */
/*
/* COLOUR. = define colour(s) */
/*
/* COLOUR.C.n = occurrence!color_name */
/* Note that 'blue' is a pre-defined colour */
/* for heading/footing-line of HCC/VM panels. */
/*
/* COLOUR.C.0 = 7 */
/* COLOUR.C.1 = 'Blue' */
/* COLOUR.C.2 = 'Red' */
/* COLOUR.C.3 = 'Pink' */
/* COLOUR.C.4 = 'Green' */
/* COLOUR.C.5 = 'Turquoise' */
/* COLOUR.C.6 = 'Yellow' */
/* COLOUR.C.7 = 'White' */
/*
/* COLOUR.SUBSTIT = state:source:target */
/* state= 'ON' substitution active */
/* = 'OFF' substitution not active */
/* source= SubSource */
/* target= SubTarget */
/* COLOUR.SUBSOURCE = 'severe codes .. ' */
/* COLOUR.SUBTARGET = 'colour indicies .. ' */
/*
/*
/* SCREEN. = define screen_environment & screen_data */
/*
/* S$MHDR = 'SUPR' suppress Message-Header */
/* 'ASIS' */
/* 'MDFY' */
/* S$PAGEOVF = 'AUTO' scrolling wraps automatically */

```

S01\$ROCC (ROUTING CLASS, COMMAND AUTHORIZATION)

In the default setting, each HCC/VM monitor machine that is defined receives all HCC/VM system messages. Additional RoutingClasses can be optionally defined in this parameter file in order to select certain messages for special HCC/VM monitor machines. The RoutingClass VM1POPER is already pre-defined. Furthermore, the RoutingClass ROUTER is pre-defined for use in the HCC/VM router machines.

The following sample parameter file illustrates the meaning of the individual parameters:

```
/* ***** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* ***** */
/* */
/* File: S01$ROCC PARM */
/* */
/* Refer to: 'Server' as systab.1 */
/* */
/* Purpose: Define RoutingClass(es) & RoutingCodes. */
/* */
/* o RouteClass is a free chosen abstract (by name). */
/* */
/* o RouteCode is a (generic) numeric value that */
/* refers to a message class described below. */
/* A RouteCode is active while it is coded; this */
/* means: The appropriate message will be displayed.*/
/* */
/* The aim of using RouteClass is, to summarize a */
/* specific message-flow by a unique RouteClass- */
/* abstract. */
/* */
/* Note: RouteClass is a pre-requisite to build */
/* File 'S02$OUSR PARM'. */
/* ***** */
/* */
/* Description: */
/* */
/* (0) Routing_Class(1-8) */
/* This abstract may be like a Message_Destination e.g.) */
/* (must be unique) */
/* */
/* The following shows how do you build a Routing_Class e.g. */
/* in a multiple system (called complex) environment: */
/* */
/* %%%+???? <-- routclass-abstract */
/* */
/* Where %% is used as a synonym of major/minor-systems */
/* such as: */
/* => 'VM1x' major VM1 / minor x */
/* => 'VM1y' major VM1 / y */
/* => 'MVS' major MVS/ no minor */
/* */
```

```

/*      + stand for any attribute to split up between %% into      */
/*      the following:                                             */
/*      => 'P'      Primary                                         */
/*      => 'S'      Secondary                                       */
/*                                                                 */
/*      "?????" any idea e.g. user-group (systemprogrammer, operator) */
/*                                                                 */
/*      *      Routing_Code(s)                                       */
/*                                                                 */
/* (0*) - Indirect Message Distribution                             */
/* (01) - Administration                                           */
/* (02) - Master-Operator (Console)                               */
/* (03) - Alert                                                    */
/* (04) - Hardcopy (Logging)                                       */
/* (05) - *MSG CP_Service                                          */
/*                                                                 */
/* (1*) - Message Traffic                                         */
/* (10)  Message Traffic (Common)                                  */
/* (11)  incomming from subsys                                    */
/* (12)  outgoing to subsys                                       */
/* (13)  incomming from adapter                                   */
/* (14)  outgoing to adapter                                       */
/* (15)  incomming from monitor                                   */
/* (16)  outgoing to monitor                                       */
/* (17)  administration (adapter)                                 */
/* (18)  communication check                                       */
/*                                                                 */
/* (2*) - Time slicing                                           */
/*                                                                 */
/* (3*) - Mlog Dispatch                                           */
/* (30)  Mlog Dispatch (common)                                   */
/* (31)  New Task                                                 */
/* (32)  Del Task                                                 */
/*                                                                 */
/* (4*) - Tlog Dispatch                                           */
/* (40)  Tlog Dispatch (common)                                   */
/* (41)  New Task                                                 */
/* (42)  Del Task                                                 */
/*                                                                 */
/* (5*) - Spooling                                               */
/* (51)  - Rdr-Processing                                         */
/*                                                                 */
/* (6*) - Initialization(Startup),Recovery,Shutdown             */
/*                                                                 */
/* (7*) - Archive                                                */
/* (70)  - Archive (common)                                       */
/* (71)  - Archive Init,Shutdown                                  */
/* (72)  - Archive Update                                         */
/* (73)  - Archive Query                                          */
/*                                                                 */
/*                                                                 */
/*-Routing -----*/
/*-Class  Codes -----*/
VM1POPER 01 02 03 04 05 11-14 17 18 2* 3*      5* 6* 7*
VM2POPER 01 03-09 10 12-14 17-19 2* 3* 4* 5* 6* 7*
ROUTER

```

S02\$OUSR (HCC/VM MONITOR)

The UserIds of all virtual machines that shall use the HCC/VM monitor function must be entered here. The assignments are as follows:

RoutingClasses Chapter *S01\$ROCC (Routing Class, Command Authorization)*, page 5

Command authorizations Chapter *S17\$CAUT (Command Authorization)*, page 38

Sample parameter file S02\$OUSR PARM:

```
/* **** */
/* HCC/VM - System-Parameter-File for Setup/Initialization. */
/* V141L00 */
/* **** */
/*
/* File: S02$OUSR PARM */
/*
/* Refer to: 'Server' as systab.2 */
/*
/* Purpose: Foundation of Requestor_Type=MONITOR. */
/*
/* Define the UserId(s) which need the ability to */
/* get control about the HCC/VM environment using */
/* the Monitorfunction including Consoloperation. */
/*
/* In context with each UserId, there are important */
/* attributes which must also define to the user: */
/*
/* (a) Routing_Class -pre-defined as well-, */
/* for more details refer to File S01$ROCC. */
/*
/* (b) Virtual-Machine-State */
/* describes the occupation by HCC/VM */
/*
/* (c) Command_Authorization_Code(s); */
/* the Command_Authorization_Codes are taken from */
/* File S17$CAUT. Any combination may be used */
/* under the responsibility of systemadministrat. */
/* **** */
/*
/* Description: */
/*
/* (1) Routing_Class (choose a value that fit to the user) */
/*
/* (2) UserId (operator) which will get the monitor authorization */
/* (must be unique) */
/*
/* (3) Virtual-Machine-State (occupied by HCC/VM). */
/* This is a two-word field delimited by a colon (:) and will */
/* be handeled as shwon below: */
/*
/* o 1th word: Desired(initial) state */
/*
```

```

/*      'INITPOLL' means: HCC/VM try to connect this user and made */
/*                               them either ENABLE or DISABLE for Send/ */
/*                               Receive dependent on the 0-SMSG returncode.*/
/*                               A dispatching mechanismn ensures that a */
/*                               permanent polling is to be done. */
/*                               Caution: If a user is mainly inactive with */
/*                               the Monitoring (seldom-used), take another */
/*                               approach to avoid HCC/VM overhead. */
/*      'QUIESCE' means: HCC/VM don't try to connect this user */
/*                               and never dispatch them until the state */
/*                               is changed to 'INITPOLL' or 'INITSELF'. */
/*      'INITSELF' means: The Monitor driven Machine is responsible */
/*                               for being ENABLE by using its own protocol.*/
/*                               Note: This reflect to File M01$SETU. */
/*
/*      o 2nd word: Actual(current) state detected by HCC/VM, */
/*                               the default is always DISABLE. */
/*      'ENABLE' results if HCC/VM get a 0-returncode from SMSG. */
/*      'DISABLE' results if HCC/VM get a non 0-rcode from SMSG. */
/*
/* (4) Command_Authorization_Code(s) each delimited by a colon (:) */
/*-----*/
/*---(1) (2)----- (3) (4)-----*/
VM1POPER HACOPR INITSELF:DISABLE A10:A11:A12:A13:,
!! B10:B11:B15:C10:C20:C30:D10:E10:E11:F10:H10
/*ROUTER HACRTR INITSELF:DISABLE A10:A11:A12:A13:,*/
/*                               !! B10:B11:B15:C10:C20:C30:D10:E10:E11:F10*/

```

S03\$AUSR (HCC/VM ADAPTER)

Every AML system that is connected requires a HCC/VM adapter machine. The following definitions must be made for each adapter machine:

$$ADP = userid, ADPS = \left(\begin{array}{ccc} \text{SVR} & \text{COLD} & \text{DEBUG} \\ \text{MAN} & \text{WARM} & \text{NODEBUG} \end{array} \right), AMU = id, SYS = s, ROB = r$$

- userid* UserId of the HCC/VM adapter machine to be defined

- SVR* when starting the HCC/VM server machine, the adapter machine is started automatically
- MAN* the adapter machine must be started manually by an HCC/VM monitor machine (see HCC/VM command START in the HCC/VM Operator Guide).

- COLD* cold start of the adapter machine is performed
- WARM* warm start of the adapter machine is performed

- DEBUG* adapter can be started in the DEBUG mode for problem analyses
- NODEBUG* normally, the adapter is not started in the DEBUG mode

- id* id of the AMU with which the adapter machine communicates (A1)

- s* system id of the AML system (1)
- r* robot id of the robot to be controlled (1)

Sample parameter file S03\$AUSR PARM:

```

/*****

```

* Default value for this parameter is defined in the HCC/VM parameter file S08\$SERV.

```

/* HCC/VM - System-Parameter-File for Setup/Initialization.          */
/* V141L00                                                            */
/*****                                                                */
/*                                                                    */
/* File:          S03$AUSR PARM                                       */
/*                                                                    */
/* Referred:     as SYSTAB03 VARFILE (PIPE ... VARLOADED)           */
/*              by 'Server' and 'Adapter'                             */
/*                                                                    */
/* Purpose:      Foundation of Requestor_Type=ADAPTER.               */
/*                                                                    */
/*****                                                                */
/*                                                                    */
/* Description of Keywords and Parms:                                  */
/*                                                                    */
/* ADP  Adapter, communicating with the AML/x_System                  */
/*      (1) AdpaterName (VM_Userid)                                   */
/*      (2) Password      (may be omitted, when using XAUTOLOG)     */
/*                                                                    */
/* AMU  AMU, communicating with Adapter (defaults to 'AMU=A1')      */
/*      (1) AMU_id          (defaults to 'A1')                       */
/*                                                                    */
/* SYS  System_Id of AML/x          (defaults to 'SYS=1')           */
/*      (1) s = 1..9          (defaults to '1')                     */
/*                                                                    */
/* ROB  Robot_Id of AML/x          (defaults to 'ROB=1')           */
/*      (1) r = {1|1,2}      (defaults to '1')                     */
/*                                                                    */
/* ADPS AdapterStartUp          (defaults to ADPS of S08$SERV PARM) */
/*      (1) Started_By        (defaults to 'SVR')                   */
/*      SVR  Adapter is automatically started by HCC_Server        */
/*      MAN  Adapter has to be started manually                    */
/*      (2) StartOpt          (defaults to 'WARM')                  */
/*      WARM                                                                    */
/*      COLD                                                                    */
/*      (3) DebugOpt          (defaults to 'NODEBUG')               */
/*      NODEBUG                                                         */
/*      DEBUG                                                            */
/*                                                                    */
/* ADPT DispatchTime Adapter(defaults to ADPT of S08$SERV PARM)    */
/*      (all parms are taken as Seconds)                               */
/*      (1) Common TimeSlice                                           */
/*      (2) Medium TimeSlice (used for fastpath)                       */
/*      (3) Maximum TimeSlice                                           */
/*                                                                    */
/* AMXT AMU_Max_Task_Ind. (defaults to AMXT(2) of S08$SERV PARM)  */
/*      (1) max active for adp flow control                             */
/*                                                                    */
/* ATIO Adapter_Timeout_Thresholds (def. to ATIO of S08$SERV PARM) */
/*      (1) Heartbeat to Server (seconds)                               */
/*      (2) Acknowledgement (seconds)                                  */
/*      (3) AMU_deadlock-Detection (seconds)                           */
/*                                                                    */
/* CLEP Clean_Processing (defaults to CLEP of S08$SERV PARM)       */
/*      (1) Responsibility of HCC_Server for Cleaning                  */
/*      SVR - Server is resonsible for Cleaning                       */
/*      OFF - Server is not responsible                                */
/*      (2) ONL - Cleaning at HCC 'ONLINE rdev' (optional)           */
/*      OFFL - Cleaning at HCC 'OFFLINE rdev' (optional)             */
/*      ONOFFL - ONL + OFFL (optional)                                 */
/*                                                                    */
/* RDSS Robot_Default_Start/Stop (defaults to RDSS of S08$SERV PARM) */
/*      (1) Responsibility of Robot_Start/Stop                         */

```

```
/*          ADP - Adapter is responsible          */
/*          SVR - Server is responsible          */
/*          (2) Autom. ROSA (Robot_Start)        */
/*          ON - enabled                          */
/*          OFF - disabled                        */
/*          (2) Autom. ROSO (Robot_Stop)        */
/*          ON - enabled                          */
/*          OFF - disabled                        */
/*          */
/*          */
/*-----*/
ADP=HACADP,ADPS=(SVR,COLD,NODEBUG),,
  AMU=A1,
  SYS=1,
  ROB=1
```

S04\$SUBS (SUBSYSTEMS)

All virtual machines with direct requests (MOUNT, KEEP, etc.) to the HCC/VM system must be defined in this parameter file. These virtual machines are also called subsystems. However, the virtual machines defined here as subsystems must not be entered as HCC/VM operator machines in the parameter file S02\$OUSR (see *S02\$OUSR (HCC/VM Monitor)* on page 7).

The position parameters to be defined have the following meaning:

- (1) UserId of the subsystem to be defined

- (2) Subsystem synonym
 - DYT for DYNAM/T service machines
 - DYB for DYNAM/B service machines
 - VMT for VM:Tape service machines
HCC/VM does not check the cartridge to be mounted (label, write protection).
 - VSE for VSE guest systems
When using the BVS/VSE tape management system, the position parameter 8b must be set to DED.
 - CMS for normal CMS users (i.e., without tape management)
Robot system drives that are not reserved (via HCC/VM command RESERVE) are automatically DETACHED for KEEP requests from a CMS user through HCC/VM.



Response files from HCC/VM batch processes that were initiated by CMS subsystems are put directly in the virtual reader of this subsystem machine. Normally, these response files are transferred to the server administrations user defined in the parameter file S08\$SERV (see parameter *SERVER_ADMU* on page 26 in *S08\$SERV (HCC/VM Server)*).

MVS for MVS guest systems
Only for documentation purposes. Currently, MVS guest systems are not supported by HCC/VM.

(3) Message_Filter

Depending on the tape management system, different filter applications are used for the respective message formats. The abbreviation specified here refers to the name of the corresponding filter application.

Message_Filter	Filter Application	Tape Management System
DYN	HAC\$\$DYN	DYNAM/T, DYNAM/B
BVS	HAC\$\$BVS	BVS
STD	HAC\$\$STD	EPIC, HCC/BR, ADSM, VM:Tape, VM:Backup

Table 16: HCC/VM Message Filter

(4) Address mode for MOUNT/KEEP requests

V virtual (drive addresses in mount/keep requests are virtual addresses of the respective subsystem)

R real (drive addresses in mount/keep requests refer to real addresses)

(5) Receipt/Confirm¹

N No, the requesting subsystem is not informed about the success or failure of the MOUNT/KEEP request.

Y Yes, the requesting subsystem is informed about the success of the MOUNT/KEEP request.

¹ This parameter value must not be used any longer. Instead, the option NOTIFY for the mount request of the corresponding subsystem must be used. (See *System Reference Guide*)

(6) Scratch_List_Facility

The parameter values (6a) to (6b) refer to the Scratch_List_Facility. The definition of if and how a substitution of pool names in mount requests for specific volsers occurs, is possible for each subsystem.

(6a) Scratch_Vol_Substitution

- N **No**, the volsers in mount requests of this subsystem are always specific (i.e., when using BVS); i.e., no other cartridges with the volser SCRATCH (or any other pool name) are requested. The values (6b) to (6d) must be specified as '.' (period).
- Y **Yes**, the tape management system requests in addition to specific volume numbers (volser) also the ones with the volser SCRATCH or another pool name (i.e., when using DYNAM/T). In this case, HCC/VM must determine a specific volser from a scratch list. This procedure is referred to as scratch substitution.

(6b) Pool criterion

The HCC/VM determines according to this value, whether a mount request of this subsystem is a specific or unspecific mount. A composite value is created from the volser specified here and the volser in the mount request. If this composite value is found in the parameter file S13\$SCRA (chapter *S13\$SCRA (Scratch Pool Definition)*, page 36), the mount is unspecific and a substitution must be made.

The following values are possible:

- =.** is substituted with the UserID of the subsystem (1)
- string.** any character combination, i.e. '*.'
- *** defines the standard scratch pool (SCRATCH)

(6c) Scratch_Vol_Minimum

Here, a number of entries are defined in the scratch list defined in (6c), below which a message is created.

(6d) Scratch_List_File_Specification: *scr1_name*

scr1_name is the name of a scratch list defined in the parameter file S12\$SCRL (chapter *S12\$SCRL (Scratch List Definition)*,

page 34) from which for scratch requests corresponding volsers for this subsystem are selected.

(7) Batch_Command_Facility

The parameter values (7a) to (7c) refer to the Batch_Command_Facility. For each subsystem, the option can be defined to execute HCC commands by transferring command files to the HCC/VM server machine.

(7a) Batch_Command_Authorization

Y **Yes**, this subsystem is authorized to send batch command files to the CMS reader of the HCC/VM server machine.

The following naming conventions are used for the batch command file:

File Name	File Type
BTCHCMD	<i>random</i>

Table 17: Naming Conventions for Batch_Command_Files

N **No**, the subsystem is not authorized to send HCC/VM command files to the CMS reader of the HCC/VM server machine. Values (7b) to (7d) must be specified with '.' (period).

(7b) Batch_Command_Reception

Y **Yes**, the subsystem receives in its virtual reader a response to the batch command files sent to the HCC/VM server machine. For VSE subsystems, in most cases an N is entered here.

The following naming conventions are used for the batch response file:

File Name	File Type
Name of the subsystem	BTCHREC

Table 18: Naming Conventions for Batch_Receipt_Files

N **No**, the subsystem does not expect a response



The naming conventions for HCC/VM command files and corresponding response files mentioned here are only valid, if the HCC/VM command file is sent to HCC/VM by a subsystem de-

finned here.

For transferring HCC/VM command files from a HCC/VM administration user other naming conventions are valid (see *HCC/VM System Reference Guide*).

(8) Attach/Detach Control

The parameters (8a) and (8b) are used by HCC/VM to control the drive assignments.

- (8a) SVR drives are ATTACHed by HCC/VM to the respective subsystem after a successful MOUNT by the AML system.
- * for VM:Tape subsystems (parameter 2 = VMT)
 - DED for BVS subsystems (parameter 3 = BVS). Mounts are only executed for drives that are already assigned to the subsystem.

(8b) R(real addresses);V(virtual addresses) of the drives

The real and virtual addresses of the drives that the subsystem can work with are defined here.

R(*);V(R) All real devices can be assigned; the virtual addresses correspond to the real addresses.

R(*);V(181,182,183) All real stations can be assigned. However, virtually they are attached as 181,182, or 183.

Sample parameter file S04\$SUBS PARM:

```
/* **** */
/* HCC/VM - System-Parameter-File for Setup/Initialization. */
/* V141L00 */
/* **** */
/* */
/* File: S04$SUBS PARM */
/* */
/* Refer to: 'Server' as systab.4 */
/* */
/* Purpose: Foundation of Requestor_Type=SUBSYS. */
/* */
/* Note: In this case, a Subsystem is a */
/* "virtual machine" running under CMS or VSE/ */
/* MVS-Guest Supervision including any valid */
/* HCC/VM-SubSystemCommunicationInterface. */
/* Each Subsystem may have his own Tape- */
```

```

/* Management-System and requires partial or */
/* full control to the robot related resources, */
/* e.g Cartridges in archive, Cartridgeunits. */
/*
/* A Subsystem (defined by UserId) must be authorized */
/* to keep control with the HCC/VM environment */
/* using the appropriate SSCI (Sub-System-Communica- */
/* tion-Interface). The SSCI is responsible to */
/* carry out robot related requests such as MO/KE. */
/*
/* In conjunction with the Subsystem-Authorization, */
/* there are some other important facts which have to */
/* supply to accomplish this setup. */
/*
*****
/*
/* Description:
/*
/* (1) UserId of Subsystem which issues MO/KE_requests
/* - must be unique -
/*
/* (2) Subsystem_Synonym
/* 'CMS' = vm/cms-user
/* 'VSE' = vse-system (guest)
/* 'MVS' = mvs-system (guest)
/*
/* (3) Message_FilterID defines Parser-Exec (e.g. HAC$$DYN)
/* 'BVS' = BandVerwaltungsSystem: BVS Infosoft
/* 'DYN' = Tapemanagementsystem: DYNAM/T Computer Associates
/* DYNAM/CMS Computer Associates
/*
/* (4) Address_Mode for device-request by MO/KE
/* 'V' = virtual-machine-device-address(vcuu)
/* 'R' = real- machine-device-address(rcuu)
/*
/* (5) Receipt/Confirm MO/KE_Request required?
/* 'N'|'.' = no, there is no need for backward information
/* 'M'|'S' = yes, send an information by Msg|Smsg
/*
/* (6.) Scratch_List_Facility (definition by notation 6a to 6d)
/* -----
/*
/* (6a) Scratch_Vol_Substitution
/* 'N' = no, we assume that the SubSys volser_requests
/* are allways specific. This means the SubSys
/* don't issue any kind of Scratch_Vol requests.
/*
/* Note: In this case, the Scratch_List_Facility
/* is d i s a b l e d.
/*
/* 'Y' = yes, SubSys requires Scratch_List_Facility of
/* HCC/VM to support the functions
/* o Scratch_Vol_ID verification and/or
/* o Scratch_Vol_ID substitution
/* in case of an unspecific scratchvol request.
/* The substitution mechanism is described
/* under notation 6b.
/*
/* Note: In this case, the Scratch_List_Facility
/* is e n a b l e d.
/*
/* (6b) Scratch_Pool_Selection
/*
/* The purpose of Scratch_Pool_Selection is, to create a

```

```

/*      search-argument with the following expression:      */
/*      */
/*      ==>  Scratch_Pool_Identifier.Scratch_Vol_ID(volser)  */
/*      */
/*      The definition below determine the Scratch_Pool_Identifier, */
/*      which is the major part of the Scratch_Pool_Selection- */
/*      search-argument. The value of Scratch_Pool_Identifier */
/*      can be one of the following:      */
/*      */
/*      =.          means, use the subsystem-name (refer to 1)  */
/*                  as Scratch_Pool_Identifier                */
/*      *.          means, global/generic Scratch_Pool_Identifier, */
/*                  e.g. like all or fall-thru                */
/*      any.        means, a free chosen string with the exception */
/*                  of characters = and *                      */
/*      */
/*      The minor part of the Scratch_Pool_Selection-search-argument */
/*      is represented by the origin volser, issued as a part of the */
/*      subsys order (e.g. MO/KE).      */
/*      Each subsystem order causes a function called */
/*      "Scratch_Vol_ID verification". This function examine the */
/*      file S13$SCRA PARM by using the Scrach_Pool_Selection- */
/*      search-argument. A match-condition indicate, that the */
/*      appropriate subsystem volser is unspecific.      */
/*      In case of a mount order, HCC decides automatically that */
/*      "Scratch_Vol_ID substitution" takes place.      */
/*      */
/*      (6c) ScratchVol_Minimum      */
/*      number          as a threshold-value. The value determine */
/*                  the amount for the following attention:      */
/*                  The minimum of available scratchvols in the */
/*                  concering scratch-list has been reached.      */
/*                  HCC produce an alertmessage for that.      */
/*                  Processing continues until the scratch-list */
/*                  becomes empty. In this case, each unspecific */
/*                  volser request can't managed by HCC. Critical! */
/*                  To avoid such a situation, install an unattended */
/*                  procedure to supply a new scratch-list auto- */
/*                  matically even if the appropriate alert exist. */
/*      */
/*      (6d) Scratch_List_File_Specification: fname:option      */
/*      */
/*      This definition will be used for:      */
/*      1. Creation of Scratch-List      */
/*      2. Substitution of unspecific volser requests      */
/*      */
/*      fname          free chosen fname, but HCC will check it.      */
/*                  Attention: The ftype must be 'SCRATCH'.      */
/*      -----      */
/*      */
/*      (7.) Batch_Command_Facility (definition by notation 7a to 7c) */
/*      -----      */
/*      */
/*      (7a) Batch_Command_Authorization      */
/*      'Y' = yes, SubSys is allowed to perform batch-commands */
/*                  by creating a rdr-file: subsys BTCHCMD      */
/*      */
/*                  Note: In this case, the Batch_Command_Facility */
/*                  is e n a b l e d.      */
/*      */
/*      'N' = no, SubSys isn't allowed to perform batch-commands */
/*      */
/*                  Note: In this case, the Batch_Command_Facility */
/*                  is d i s a b l e d.      */

```

```

/*
/* (7b) Batch_Command_Reception
/* 'Y' = yes, SubSys is asking for a receipt of their cmd's
/* by forcing a rdr-file: subsys BTCHREC
/* 'N' = no, SubSys doesn't need a receipt of their cmd's
/*
/* (7c) Batch_Command_TrigerLevel (1 to 50)
/* This value determine the number of Batch_Command(s) they
/* have to dispatched at once; this means: brought into the
/* system by MLOG-insertion. Default=1.
/*
/* (8.) Attach/Detach_Control (definition by notation 8a to 8b)
/* -----
/* (8a) Attach/Detach by Userid/Server ('DED' | '_NAME' | '_TMSS')
/*
/* (8b) 'R(realrange);V(virtrange)'
/* realrange :: '*' | rcuu[,rcuu,...]
/* rcuu :: rcuu[-rcuu2]
/* virtrange :: 'R' | vcuu[,vcuu,...]
/* vcuu :: vcuu[-vcuu2]
/* -----
/*-wordindex->(3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13)
/*-(1)-- (2) (3) (4) (5) (6a) (6b) (6c) (6d) (7a) (7b) (7c) (8a)
HACUSR CMS STD V . N . . N N 1 _TMSS R(*)V(181)
VSEBVS VSE BVS R . N . . . Y Y 1 _TMSS R(*)V(R)
VSELYN VSE DYN R . Y *. 50 DYNBKR Y Y 1 _TMSS R(*)V(R)
DYNAMCMS DYN DYN R N Y *. 25 DYNBKR Y Y 1 _TMSS R(*)V(120)
OBISAI01 CMS ABR R N Y *. 2 OBISABR Y Y 1 _TMSS R(*)V(R)

```

S05\$VOLS (VOLSER)

The cartridge pools (SERVER_ARCH POOL in S08\$SERV, chapter *S08\$SERV (HCC/VM Server)*, page 26) managed in the AML robot system are defined in the parameter file S05\$VOLS.

Particularly important is the fact that the volsers of the cleaning cartridges to be used are entered.



When using the HCC/VM archive component HAA, the data cartridge pools need not be defined. However, the volsers of the cleaning cartridges must be entered here.

Sample parameter file S05\$VOLS PARM:

```
/* **** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* **** */
/*
/* File: S05$VOLS PARM */
/*
/* Referred by: Server as systab.05 (EXECLOAded for ARCH='POOL') */
/*
/* Purpose: Source for generating Archive_Mirror */
/* Source for initializing HCCLEAN_NAMES */
/*
/*
/*
/* **** */
/*
/* Description: */
/*
/*
/* (1) Volser, from (length=6) (m) */
/* '-' (Dash, indicating VolserRange) (m) */
/* (2) Volser, to (length=6) (o) */
/* (3) Start. Coord. of Home (ttssrrss) (o) */
/* tt tower/rack; tt=01..99 */
/* ss segment ; ss=01..32 */
/* rr row ; rr=01..18 */
/* ss slot ; ss=01..10 */
/* (4) System (S=n) (o) */
/* s system ; s=1..9 */
/* (Defaults to 'S=1') */
/*
/* (5) Robot (R=n[,m]) (o) */
/* n robot1 ; n={1,2} */
/* m robot2 ; m=2 for n=1 */
/* (Defaults to 'R=1') */
/*
/* (6) Status of Volser (lp) l=logical ,p=physical (o) */
/* MB MediaVol , 'in liB' */
/* ME MediaVol , 'Ejected' */
/* SB ScratchVol, 'in liB' */
```

```

/*                               SE           ScratchVol,'Ejected          */
/*                               CB           CleanVol  ,'in lib'          */
/*                               CE           CleanVol  ,'Ejected'        */
/*      (Status defaults to 'MB')                                         */
/*      Status 'Sx' can be used with the HACSLMFY XEDITS05 to check      */
/*      Volsers in a ScratchList being appropriate ScratchVolsers.      */
/*                                                                           */
/* (7) CleanCapacity              (C=nnn)                                (m) */
/*                               nnn          any whole number           */
/*      (For CleanVols only)                                             */
/*                                                                           */
/* Note: Except for 'R=n,m': all Comma (',' ) may be omitted.          */
/*      (m) mandatory                                                    */
/*      (o) optional                                                      */
/*-----*
/* (1)-(2)----(3)----- (4)-(5)---(6)-(7)-----*
CL0001-CL000n,xxxxxxx,S=1,R=1,  CB,C=450 /* CleanVols, mandatory */
S00001-S00500,xxxxxxx,S=2,R=1,  SB      /* for ARCH = POOL only */
100000-104999,xxxxxxx,S=1,R=1,  MB      /* for ARCH = POOL only */

```

S06\$UNIT (DEVICES)

All cartridge devices that are serviced by the HCC/VM are assigned according to the respective AML systems.

UNIT=(*rdevrange,ldev,sys,rob,devtype,owner,vdev*)

<i>rdevrange</i>		real address or address range of devices that are serviced by the AML system (for example, 3F0-3F3)
<i>ldev</i>		first logical address defined in the AMU of the device address range specified in <i>rdevrange</i> (for example, B. D01)
<i>sys</i>		Number of the AML system in which the cartridge devices defined in <i>rdevrange</i> are available (for example, 2)
<i>rob</i>		Number of the robot in the AML system <i>sys</i> that can service the cartridge devices defined in <i>rdevrange</i> (for example, 1)
<i>devtype</i>		a symbolic name (defined in S99\$CNST) for the hardware type of the cartridge devices specified in <i>rdevrange</i> (for example, DEVT2 for IBM 3490 model E)
<i>owner</i>	<i>userid</i>	UserId to which the cartridge devices defined in <i>rdevrange</i> are automatically assigned during the start of HCC/VM.
	*	the HCC/VM server machine is the “owner” of the cartridge device(s). HCC/VM controls these drives (ATTACH/DETACH or GIVE).
	\$SHARED\$	devices that are defined as \$SHARED\$ are assigned by HCC/VM (ATTACH) only to a subsystem (client) if no other drives controlled by HCC/VM are available. Devices must be defined as \$SHARED\$ if a subsystem (tape management system) manages the drives (for example, BVS).
<i>vdev</i>	<i>vdev</i>	first virtual address for the cartridge devices defined in <i>rdevrange</i> with which the corresponding device of the UserId specified in <i>owner</i> is assigned (for example, 181)
	=	the devices defined in <i>rdevrange</i> are assigned with their real addresses to the UserId specified in <i>owner</i> .

Beispiel

UNIT=(3F0-3F3,D01,2,1,DEVT2,MVSA)

The real cartridge devices 3F0, 3F1, 3F2, and 3F3 are assigned to the MVS guest system during the start of HCC/VM. In this case, drives of the type DEVT2 are in the AML system, number 2, and are serviced by robot 1. The logical address for the first device 3F0 is defined in the AMU as D01.

Beispiel

UNIT=(580,D05,2,1,DEVT1,*)

The assignment (ATTACH) of the drive with the real address 580 is done by the HCC/VM. This device is assigned at the start of HCC/VM to the HCC/VM server machine and, upon request, transferred to the subsystems (clients) via CP GIVE.

Beispiel

UNIT=(581,D06,2,1,DEVT1,\$SHARED\$)

Device 581 is not assigned by HCC/VM. This is necessary, in case the assignment of cartridge devices is controlled by other mechanisms (tape management systems, VM operator, other automation tools, for example Net-View).

Beispiel

UNIT=(582,D07,2,1,DEVT1,CMSUSER,181)

The drive with real address 582 is assigned at the start of HCC/VM to the CMS user with the UserId CMSUSER as virtual address 181.

Sample parameter file S06\$UNIT PARM:

```
/* **** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* **** */
/* */
/* File: S06$UNIT PARM */
/* */
/* Refer by: 'Server' as systab.6<xxx> */
/* **** */
```

```

/* Purpose:          Definition of HCC/VM controlled Cartridge_Units */
/*                  for one or more AML/x_Systems.                    */
/*                  */
/*                  */
/* Description:      */
/*                  */
/* (1) Real-Device(s) and its robot-relation(s)                      */
/*                  */
/* Syntax for single address-assignment:                             */
/*                  (rcuu,Dnn,sys,rob,devt,dflto,dfltv) (...) ...    */
/*                  */
/* Syntax for range address-assignment:                              */
/*                  (rcuu-rcuu2,Dnn,sys,rob,devt,dflto,dfltv) (...) ... */
/*                  */
/* Meaning:          */
/*                  */
/* rcuu = Real Unit_Address (physical device_address at host) */
/* rcuu2 = Last Real Unit_Address of a Range_Definition.      */
/* Dnn = AML_Unit: works as a Logical_Device_Address between */
/* HCC/VM and AML. 'Dnn' may be specified without the */
/* leading 'D'; nn must be in the range 01..99.              */
/* (AMU_UnitCoord. '0000nn01' are internally generated) */
/* sys = System_Id of AML_System (defaults to '1');          */
/* should be the suffix of AMU_Id.                            */
/* rob = Robot_Id within an AML_System with more than one */
/* Robot (defaults to '1'). The specified cartridge */
/* devices are served by this Robot exclusively.            */
/* devt = DeviceType is used to classify cartridge devices */
/* of different hardware characteristics (e.g. Time to */
/* REWIND, Cleaning Period, a.s.o.)                          */
/* devt = 'DEVT1,DEVT2'; default = 'DEVT1'                  */
/* The suffix of DEVTi ('i') is used as a wordpos for */
/* S08$SERV-Parms (CLEP,KEWT,URCx).                          */
/* dflto = DefaultOwner of the specified device(s)           */
/* '*' or '' means the server-userid himself                */
/* '$SHARED$' means not exclusive under CP-control          */
/* (If dflto <> '$SHARED$': rcuu will be attached to it) */
/* dfltv = default vdev to be attached to dflto.            */
/* '=' or '' means dfltv = rcuu                             */
/* for a range-addr.assign: dfltv will be incremented       */
/*                  */
/* Examples:         */
/*                  */
/* 1) UNIT=(30A-30B,D01,1,1,DEVT1,*,480)                      */
/*                  */
/* 2) UNIT=(480-483,D03,1,1,DEVT2,$SHARED$)                  */
/*                  */
/*-----*/
/*-(1)-----*/
UNIT=(100-103,D01,1,1,DEVT1,*)
UNIT=(200-203,D05,2,1,DEVT2,$SHARED$)

```

S07\$LDEV (FOREIGN MOUNT AREA)

The foreign mount areas of the AML systems that are to be managed by HCC/VM are defined via the LDEV parameter:

LDEV=name,00,03,03,row1,row2,slot1,slot2,slots

name Fnn (nn chosen freely)
row1 first row of the foreign mount area
row2 last row of the foreign mount area
slot1 first slot of the foreign mount area
slot2 last slot of the foreign mount area
slots number of slots per row of the E/I/F device

Sample parameter file S07\$LDEV PARM:

```
/*
/* HCC/VM - System-Parameter-File for Setup/Initialisation.
/* V141L00
/*
/* File: S07$LDEV PARM
/* Referred by: 'Server' as systab.7xxx/.14.
/* Purpose: Definition of AML/x Exchange Devices
/* Description:
/* LDEV=name,00,03,03,row1,row2,slot1,slot2,slots,S=s,R=r
/* name Fnn (nn=01,..,99)
/* row1 first row of ForeignMount_Area
/* row2 last row of ForeignMount_Area
/* slot1 first slot in <row1>
/* slot2 last slot in <row2>
/* slots Number of slots per row
/* s Systemid (1,..,9)
/* r Robotid (1,..,2)
/*-----*/
LDEV=F01,00,03,03,01,01,01,01,10,S=1,R=1
LDEV=F02,00,03,03,01,01,01,02,10,S=2,R=1
```

S08\$SERV (HCC/VM SERVER)

Server Parameter

All significant server initialization parameters are defined in the parameter file S08\$SERV.

The names of the individual parameters begin with the prefix “*SERVER_*”. Generally, several values can be assigned to the SERVER variables.

If a parameter is not required, a ‘.’ (period), ‘N/A’ (not applicable) or ‘NONE’ must be entered in the appropriate position.

An alphabetical listing of the most important SERVER variables follows below. The other parameter values should be used with the default value supplied. The corresponding descriptions can be found in the comments of the parameter file.

SERVER_ADMU

Server Administration Users

Function: Up to three HCC/VM administration users can be defined. These machines will be authorized in addition to the subsystems defined in the parameter file S04\$SUBS (chapter *S04\$SUBS (Subsystems)*, page 9) to use the HCC/VM batch facilities, i.e., in addition to authorized subsystems only the virtual machines specified here can send HCC/VM commands as batch files to the HCC/VM server machine. Also, a HCC/VM administration user for a subsystem can send scratch lists to HCC/VM.

Specific naming conventions are used for sending Batch_Command_Files or scratch lists. These conventions are described in the *HCC/VM System Reference Guide*.

-
- (1) Administration_UserId_1
 - (2) Administration_UserId_2
 - (3) Administration_UserId_3



The virtual machines defined as HCC/VM administrator **cannot** be defined simultaneously as subsystem (client).

SERVER_ARCH

Archive Support

Function: Determines the type of management for cartridges contained in the HCC/VM system. Only for multiple HCC/VM connection to an AML system, the HCC/VM archive function HAA must be used.

(1) NONE / HAA / POOL

- NONE - No archive support (default)
- HAA - Archive support is activated. HCC/VM must be operated with the archive function, if several HCC systems (HCC/VM, HCC/MVS) with non separated volume pools are connected to several AML systems. Prerequisite is a communication capability between individual HCC systems.
- POOL - Assignment of volsers ranges to AML systems. This assignment must be made when connecting a HCC/VM system to several AML systems or when connecting to an asymmetrical double robot system, if the HCC/VM archive HAA is not used. This parameter is recommended, if in addition to cartridges within the AML system also volsers that must be manually mounted on drives (outside the AML) are used.

SERVER_AUSR

Alarm UserId

Function: This UserId is to be alarmed when an exception is detected.

(1) UserId

UserId that is to respond to an alarm (usually the operator).

(2) MSG/SMSG/MSGNOH/NOMSG

Defines the method by which the virtual machine specified in value 1 is to be informed during the alarm.

(3) PUNCH/NOPUNCH/SENDFILE

This value can define that the virtual machine specified in value (1) shall receive a reader file in addition to a message.

SERVER_BASE

Link / Access Information to Base Minidisk HCC/VM

Function: Under certain circumstances, the server machine must newly link to the HCC/VM product minidisk and access it again. The required information is written here.

(1) *Userid:rdev:readpw*

UserId - UserId for which the HCC/VM product minidisk is entered in the CP directory.

vdev - virtual address of this minidisk

readpw - read password of the minidisk

(2) virtual address with which the HCC/VM server machine is linking to the HCC/VM product minidisk. This value must only be specified, if no LINK entry for this minidisk is made in the CP directory for the HCC/VM server machine.

(3) file mode with which the HCC/VM server machine accesses the HCC/VM product minidisk.

SERVER_FMNT

Foreign Mount Support

Function: Depending upon the value, the foreign mount function is supported or not.

(1) ON/OFF

ON - Foreign mount is supported (default setting)

OFF - Foreign mount is not possible

SERVER_HOME

ID of the Server within the HCC Complex

Function: Within the entire HCC complex, a separate identification must be defined for every HCC/VM server machine.

- (1) Homeld of the server within the HCC complex. This value must match the value set in the AMU.

SERVER_NAME

Userld of the HCC/VM Server Machine

Function: Defines the Userld of the server machine.

- (1) Userld

SERVER_ROUS

Router Start

Function: defines the Userid and the start procedure for the HCC/VM router.

- (1) SVR / MAN

SVR - The HCC/VM server starts the HCC/VM router machine automatically during the start of the HCC/VM.

MAN - The HCC/VM router machine is not activated automatically at the start of HCC/VM. The machine can be activated subsequently with the command "START ROUTER Userld".

(2) *Userld* - Userld of the router machine. When '.' (period), 'N/A' (not applicable) or 'NONE' entered here, the values (1), (3) and (4) of HCC/VM are not used.

(3) NOPASS / *password*

NOPASS no password is required since the HCC/VM router is started with XAUTOLOG.

password if the HCC/VM router machine is to be started from the HCC/VM server via the CP command AUTOLOG, the password of the router machine must be entered here.

(4) *Userld* Userld of the logical operator of the HCC/VM router machine. Here, any virtual machine in the VM system can be entered.

S09\$SVRC (SERVER CONTROL)

If problems occur during the operation of HCC/VM, specific service functions can be activated in this parameter file.

Normally, no modifications are made to this parameter file during the HCC/VM installation.

S10\$ROBC (ROBOT COMMANDS)

All available robot commands are defined in this parameter file.

Normally, no modifications are made in this parameter file during the installation of HCC/VM.

S12\$SCRL (SCRATCH LIST DEFINITION)

The parameter file S12\$SCRL describes the characteristics of the scratch lists managed by HCC/VM. This is necessary when HCC/VM receives unspecific MOUNT requests from subsystems for SCRATCH cartridges.

Sample parameter file S12\$SCRL PARM:

```
/* ***** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* ***** */
/* */
/* File: S12$SCRL PARM */
/* */
/* Refer to: 'Server' as systab.12 */
/* */
/* Purpose: Defines the characteristics of ScratchList- */
/* Handling. */
/* */
/* Note: The ScratchListFn is referred by Entries */
/* in S13$SCRA PARM. */
/* */
/* ***** */
/* Description: */
/* */
/* (1) ScratchListFn, identifies a CMS-File 'scrlistfn SCRATCH A' */
/* which resides on the Server's Minidisk. */
/* (2) Action at Minimum = 0 { . |None|PUNch|Smsg|Msg } */
/* (3) PunchClass { . |num|alpha } */
/* (4) TargetId (MSG|SPOOL PUN TO..) { . |vmid } */
/* (5) CMS_FileId of VSE-Job { . |Fn.Ft.{Fm|LinkStatements} } */
/* or CMS_EXECname; while (2) = 'SMSG' | 'MSG' */
/* (6) Mode to handle the new ScrList { . |NEW|UPD|APP } */
/* (7) MacroName for Parsing ScrList { . |macroname } */
/* */
/* (8) Scratchvol_Minima .. based on OWNER-Identifier(s) */
/* Syntax: owner_1=number|owner_2=number ..... */
/* Attention: An Owner-Id of blank will be represented */
/* as 'HX04' e.g HX04=100 */
/* number as a threshold-value. The value determine */
/* the amount for the following attention: */
/* The minimum of available scratchvols in the */
/* concurring scratch-list has been reached. */
/* HCC produce an alertmessage for that. */
/* Processing continues until the scratch-list */
/* becomes empty. In this case, each unspecific */
/* volser request can't managed by HCC. Critical! */
/* To avoid such a situation, install an unattended */
/* procedure to supply a new scratch-list auto- */
/* matically even if the appropriate alert exist. */
/* ***** */
/*(1)----(2)--(3)-(4)----(5)------(6)-(7)------(8)-----*/
DYNBAK SMSG . PROP HACGENSC NEW HACSLDYN VL=50,CO=50
DYNSCR PUNCH A VSEDYN SCRLIST.JCL.A UPD HACSLDYN 0X=4,5X=50,9X=50
```

OBISABR MSG . OBISAMAM SCRLIST NEW . OB=2 ,HX04=5

S13\$SCRA (SCRATCH POOL DEFINITION)

When using scratch lists, this parameter file defines the different pools from which a subsystem can send a mount request to the AML robot system.

Sample parameter file S13\$SCRA PARM:

```
/* **** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* **** */
/*
/* File: S13$SCRA PARM
/*
/* Refer to: 'Server' as systab.13
/*
/* Purpose: Describes the Scratch-Pool-Definitions for the
/* whole Subsystem-Environment controlled by HCC/VM. */
/*
/* One or more unspecific Scratch_Vol_Identifier can
/* be used as subscript of each Pool_Identifier.
/* Usually, a Pool_Identifier is represented by the
/* appropriated subsystem-name.
/*
/* In some circumstances it may be helpfull to use
/* an independent, free chosen Pool_Identifier.
/*
/* Note: The selection of the concering search-
/* algorithme have to made in S04$SUBS PARM.
/*
/* **** */
/*
/* Description:
/*
/* (1) Searchargument for Scratch_Pool_Selection (must be unique)
/* (1a) Scratch_Pool_Identifier
/* . a period is used for concatenation
/* (1b) Scratch_Vol_Identifier (unique between each Pool_ID)
/*
/* (2) Location:length of volser in scratch-list (must)
/* (3) Location:length of owner in scratch-list (optional)
/* A value of 0 indicates that volser ownership is not required.
/*
/* -----
/* (1)----- (2)---- (3)-----
*.SCRTCH 1:6 9:2
*.PRIVATE 1:6 0:0
```

S16\$MSGE (MESSAGE REPOSITORY)

The different AML message codes are described in this system parameter file. This file is not customized during installation.

S17\$CAUT (COMMAND AUTHORIZATION)

In this parameter file, command files and authorization codes are assigned to the individual HCC/VM commands.

By assigning these authorization codes in the parameter file S02\$OUSR (chapter *S02\$OUSR (HCC/VM Monitor)*, page 7), the different virtual machines that are using the HCC/VM monitor function for their respective environment can be configured (for example, only display of information or authorization for direct execution of AML robot commands).

S21\$BPRES (BATCH PRE-PROCESSING)

In this parameter file, routines are defined that are executed upon receipt of specific reader files.

First, the sending subsystem (client) is checked for authorization to send batch command files. Then, the respective action routine is executed, if the spool file name of this reader file matches the name defined here. This enables the analysis of special lists that are created by subsystems and generation of HCC/VM batch commands, for example.

The action routine must be implemented by the customer according to the specific requirements. A sample routine (HACEJDYN EXEC) is contained on the HCC/VM product minidisk.

Sample parameter file S21\$BPRES PARM:

```
/* ***** */
/* HCC/VM - System-Parameter-File for Setup/Initialisation. */
/* V141L00 */
/* ***** */
/* */
/* File: S21$BPRES PARM */
/* */
/* Refer to: 'Server' as systab.21 */
/* */
/* Purpose: Batch-Pre-Processing. */
/* */
/* */
/* ***** */
/* */
/* Description: */
/* */
/* (1) SpoolFname (ActionName) */
/* (2) MacroName for Processing {.|macroname} */
/* */
/*-----*/
/*(1)----(2)-----*/
PULLIST HACEJDYN .
```

S99\$CNST (CONSTANTS)

Special HCC/VM constants are defined in this parameter file.

For example, the characteristics of different drive device types are defined here. Definitions in the parameter file S06\$UNIT (chapter *S06\$UNIT (Devices)*, page 20) for cartridge devices available in the AML system(s) refer to these drive types.

APPENDIX

INSTALLATION CHECK LISTS

HCC/VM System	Default	Definition
UserId of the server machine ¹	HACSVR	
HostID ²	H9	
UserId of the maintenance machine ³	HACMNT	
UserId of the monitor machine ⁴	HACMON	

-
- ¹ Each HCC/VM system is centrally controlled by a server machine. The default value for the userid of this machine must be changed, if existing naming conventions require this.
 - ² Changing the default value H9 is necessary only if another host system (for example, HCC/MVS) with this HostID is already connected to a robot system. The value set up here **must** match the respective definition of the hostid in the AMU.
 - ³ Installation and maintenance of the HCC/VM system is performed in this virtual machine.
 - ⁴ At least one virtual machine should be designated for operating and monitoring the HCC/VM system. It is also possible to define several machines with different authorizations.

Clients (Subsystems)		
Subsystems with a direct HCC/VM Interface¹	Userids	
VSE guest systems with DYNAM/T		
VSE guest systems with EPIC		
VSE guest systems with BVS		
CMS user		
Subsystems with HCC/VM connection via HCC/VM router machine²	Service Machine	Router Machine

-
- ¹ Userids of the virtual machines that send requests (mount and keep) directly to the robot system must be entered here.
 - ² Each service machine of the following VM tape management systems has an assigned HCC/VM router machine that functions as the interface with the HCC/VM system.

DYNAM/T-CMS		
VM:Tape		

INSTALLATION CHECK LIST FOR AML SYSTEM 1

System 1				Default		
(a) AMU Id				A1		
(b) UserId of the adapter machine				HACADP		
(c) AMU connection (LU2 or local)				no default		
(d) LU name or real device address of the AMU				no default		
Robot ID	Drive Specifications			Volser Ranges		E//F Areas
	(e) Host addresses	(f) Type	(g) AMU)	(h) Cleaning	(i) Data	(j) Area
1						Foreign mount Insertion area Ejection area
2						Foreign mount Insertion area Ejection area

For information on completing the installation check lists see **NOTES ON COMPLETING THE INSTALLATION CHECK LIST** page 6 ff.

INSTALLATION CHECK LIST FOR OTHER AML SYSTEMS

System <i>n</i>				Default		
(a) AMU Id				A1		
(b) UserId of the adapter machine				no default		
(c) AMU connection (LU2 or local)				no default		
(d) LU name real device address of the AMU				no default		
Robot ID	Drive Specifications			Volser Ranges		E//F Areas
	(e) Host addresses	(f) Type	(g) AMU)	(h) Cleaning	(i) Data	(j) Area
1						Foreign mount Insertion area Ejection area
2						Foreign mount Insertion area Ejection area

For information on completing the installation check lists see **NOTES ON COMPLETING THE INSTALLATION CHECK LIST** page 6 ff.

NOTES ON COMPLETING THE INSTALLATION CHECK LIST

- a) Normally, this value (A1) must not be changed in the HCC/VM system. However, the value set up on the AMU **must** be identical to the value specified here.
- b) The HCC/VM system communicates with each connected AML robot system via a separate HCC/VM adapter machine.
- c) A local connection (EXCP - not via VTAM) is recommended. Depending on the connection type, corresponding settings are necessary at the AMU. The installation of a special HCC/VM USSTAB in the VTAM is required for a LU 2 connection. For additional information about connection options of an AML system to the HCC/VM see *HCC - AMU Communication* page 1 ff.
- d) Depending on the AMU connection type, the LU name or the real device address of the AMU must be known.
- e) For each robot of an AMU system, the real host addresses (VM) of the drives that can be reached by the robots must be specified. (A robot can only service the drives assigned to it)
- f) For every address or address range in field (e)), the device type of the respective drives (3480, 3490, etc.) must be specified.
- g) The logical drive names of the AML robot system corresponding to the host addresses (as defined in the AMU - D01, D02, etc.) must be specified.
- h) For each robot of an AML system, separate cleaning cartridges must be available and defined in the HCC/VM.
- i) If several AML systems or double robot systems with asymmetrical configuration (not every robot of an AML system can move every cartridge) are connected, volser ranges must be defined for every robot. When using, an AML system with a single robot the specification of a volser range is not required, but is recommended for organizational reasons.
- j) For each robot of an AML system, names for the insertion, ejection and foreign mount areas, that are also defined in the AMU, must be specified.

GLOSSARY

This glossary defines the most important HCC/VM and HCC/VSE abbreviations and terms.

\$JOBEXnn. This SVA routine performs recovery tasks as a HCC/VSE component after job aborts and at the end of jobs and steps when VSE systems are connected to HCC/VM.

\$ROBEXIT. This SVA routine performs the communication with the HCC/VM system as a HCC/VSE component when VSE systems are connected to HCC/VM.

AML. Automated Media Library. Identifies cartridge robot systems made by GRAU Storage Systems.

Adapter. The HCC/VM adapter machines serve to communicate with the AML systems.

Aggregate. VM data stock defined in the MAM archive that can be automatically backed up with HCC/BR.

Alert. A so-called Alert UserId is defined within the HCC/VM system parameters and this UserId is alerted by messages or spool files when problems occur during automatic operation. An alert log (*svrid* ALERTLOG) is also created for problem analysis.

AMU. AML Management Unit. the control computer of an AML system. Also used for communication between HCC/VM and the AML System.

Archive. All coordinates and cartridges (volser) are stored in the AMU database (SQL). An archive can also be kept in the HCC/VM system. This is especially necessary when several HCC systems (HCC/VM and HCC/MVS) access an AML system without organizational separation.

Batch Process. HCC/VM creates a batch process for each Batch_Command_File received with an own task number (TaskId). Special HCC/VM commands can be used to control batch processes.

Batch_Command_Facility. A HCC/VM facility to execute certain organizational processes (i.e. ejecting a large number of cartridges) by sending several HCC/VM commands simultaneously in a CMS file.

Batch_Command_File. A file (file name BTCHCMD) containing AML commands (*BAT statements) to be processed by HCC/VM. A Batch_Command_File is sent to the virtual reader of the HCC/VM server machine for processing.

The sender normally receives an acknowledgement as a reply list after the Batch_Command_File has been processed.

BR (Backup/Restore). Optional HCC/VM components for automatic backup in VM. Can be of use when VM does not have a tape management system.

BRM (Backup/Restore Manager). Subcomponent (virtual machine) of BR. Controls all backup and restore tasks of the BR.

BRP (Backup/Restore Processor). Subcomponent (virtual machine) of BR. Several BRP machines can be used to process several BR backup and restore tasks in parallel.

Cleaning. The write/read heads of the cartridge drives must be cleaned from time to time by inserting a cleaning cartridge. This is a preventative measure in HCC/VM, this means that HCC/VM automatically mounts a cleaning cartridge before the control unit of the cartridge demands cleaning.

Client. HCC/VM regards all virtual machines that communicate with HCC/VM server as clients. Client types are grouped as follows:

- ⌘ SUBSYSTEM
- ⌘ ADAPTER
- ⌘ OPERATOR
 - ROUTER
 - MONITOR

Dynamic area. An area defined as dynamic has no specific assignment between the volser of a cartridge and a coordinate as in a hierarchic system. This means that the respective slot released by the removal of a cartridge within the dynamic area can be used later for the insertion of a different cartridge.

DYNEXIT. The following exits are implemented in this routine when DYNAM/T is used as tape management system under VSE:

- Message Exit MSGHOOK
- Open Exit OPNHOOK
- Close Exit CLSHOOK

EJECT. EJECT is the process of cartridge removal by the insertion/ejection unit of the AML system.

EPIC. Tape management system from the Legent company.

FAQS/ASO. Software package from the Legent company for automatic control of a VSE system.

FMSD. Foreign Mount Source Device. Refer to foreign mount.

Foreign mount. Cartridges that are to be loaded temporarily on a drive within the AML system can be loaded using the so-called foreign mount area of the input/output device. The AML system does not check or consider a barcode which may be on the cartridge.

HCC (Host Control Component). Control software that controls the connection between host applications and the AML robot system.

HCC/VSE. Interface software that is implemented when connecting the VSE tape management systems DYNAM/T and EPIC/VSE.

HACCPARM. A parameter file to be assembled for the connection of DYNAM/T-CMS to HCC/VM. The HACCPARM EXEC procedure must also be adapted when the HCC/VM router machine is used.

HACCPVSE. The HACCPVSE parameter file is assembled and linked in the VSE system when DYNAM/T-VSE is connected to HCC/VM. The corresponding phase (HACCPVSE.PHASE) must be loaded in the SVA when HCC/VSE is enabled.

HACCVSNAP. This internal routine automatically generates a complete list of all significant variables when a HCC/VM error occurs.

Hexa tower. A revolving storage rack within an AML system comprising 6 segments. The maximum load capacity is currently 4320 cartridges.

IMOD (intelligent module). Identifies REXX procedures that can be executed under control of the FAQS/ASO software of the Legent company in a VSE system.

INSERT. INSERT is the process of cartridge insertion by the insertion/ejection unit of the AML system.

KEEP. The request to HCC/VM to dismount a cartridge from a drive supported by the AML system.

Coordinate. A unique coordinate is assigned to each slot serviceable by the AML system as well as every drive.

Logging. All messages received by HCC/VM are recorded in the SERVLOG LOG1 log file and all messages sent by HCC/VM are recorded in the SERVLOG LOG2 log file. (Enabled during HCC/VM parameter settings).

MAM (Media Archive Manager). Subcomponent (virtual machine) of BR to manage backup data files created with BR.

MLOG. All tasks sent to the HCC/VM system as SMSG messages are managed in the so-called message log (message queue) and are moved to the TLOG as soon as all resources required for execution are available (drive, volser).

Monitor. The HCC/VM monitor function serves to control and monitor the HCC/VM system. A HCC/VM monitor machine is a special HCC/VM Operator.

MOUNT. The request to HCC/VM to load a cartridge on a drive supported by the AML system.

Operator. A HCC/VM operator is a virtual machine that can generate HCC/VM commands. A special operator is a HCC/VM monitor machine.

Problem box. When any sort of mechanical problems occur during cartridge handling in the AML system, the cartridge is ejected to the problem box.

Quadro tower. A revolving storage rack within an AML system comprised of 32 segments with 4 inner towers (each with 6 segments) and 8 outer segments. The maximum load capacity is currently 5760 cartridges.

Robot. One or two robots within an AML system that service the cartridges and drives within the AML system.

Router. A HCC/VM router machine can generate HCC/VM commands controlled by console messages (also SMSG) from another virtual machine or by CP messages. The HCC/VM router machine is used, for example, when DYNAM/B is connected. The HCC/VM router machine is a special HCC/VM operator type.

Scratch_Facility. A HCC/VM facility that supports scratch substitution. Internal scratch lists are created from scratch lists read in from the respective tape management system via the virtual reader of the HCC/VM server machine.

Scratch substitution. HCC/VM supports the scratch mount request. For this purpose, HCC/VM manages internal scratch lists generated from the respective lists of the tape management system.

Server. The HCC/VM server machine manages all tasks passed to the AML system.

Stealing. Tape management systems with the AVR function (Automatic Volume Recognition) do not create a mount message when a requested cartridge is already loaded on an available drive. This means that a drive is assigned to an application with AVR for which a parallel application has already created a mount request (i.e. by scratch processing). This leads to two applications requiring a cartridge, but only one mount request. HCC/VSE recognizes this situation and automatically creates a second mount request in this case.

TLOG. The so-called task log contains all active HCC/VM tasks.

TMS exit. An interface application that passes certain information to HCC/VSE via the tape management system (i.e. messages). This exit is part of the HCC/VSE in certain circumstances.

TMS. Tape Management System (tape management system such as Dynam/T or BVS).