



AML Management Unit

2.40K

Release Notes

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1 Version 2.40K AMU Release Notes

This release notes covers the Version 2.40K release of the AML Management Unit (AMU). If question arise about any of these notes, call the ADIC/GRAU Technical Assistance Center at the appropriate number:

- 00-800-9999-3822

1.1 Requirements

This AMU version (order number 326 A24 0K0) is a fix for a previous installed AMU 2.40x. AMU 2.40K can replace all previously installed AMU versions from 2.40 up to 2.40H.

The following software releases are required:

Table 1-1 Software Compatibility

Software	Version
AML/2 robot software	AML/2 2.20D or higher
AML/E robot software	AML/E 2.20D or higher (2.30D for parallel gripper)
AML/J robot software	PMAC SW 2.40D or higher (latest code level: PMAC 4.00 PN:206R4000, EC: 13427)
Scalar 1000	Scalar 1000 SCSI-Software 1.01 Scalar 1000 Microcode 1.01 or higher
DAS	UNIX: DAS 1.20 OS/2: DAS 1.30c1 or higher
SNI-robar	Robar-SV V2.5 or higher
HACC/OS400	Version 2.2 or higher
HACC/VM	Version 1.4.1 or higher

Other host application software version prerequisites do not apply.

1.2 System Hard- and Software

Table 1-2 Hardware- and System-Software Requirements

Processor	Intel 80486 (Pentium recommended)
Memory	16MB Minimum (64MB recommended) Systems having heavy load or more than two hosts connected should have 64MB)
Disk	500 MB or more
IBM OS/2	Warp 3.0 or higher (highly recommended, for updates ask ADIC/GRAU Technical Assistance)
IBM DATABASE 2	DB2/2.x or higher (highly recommended, for updates ask ADIC/GRAU Technical Assistance)
IBM Communications Manager	if necessary: CM/2 1.11 or higher
IBM TCP/IP	if necessary: OS/2 WARP CONNECT with TCP/IP support

2 AMU Installation Program

2.1 Installation

Perform the following steps to install the AMU version 2.40K :

Step 1 Stop the current processing. Run shutdown only ABBA System.

Step 2 Insert the Installation CD-ROM or floppy

Step 3 Open an OS/2 window.

Step 4 Run the script INSTPREP.COM from CD-ROM or floppy

```
C:> E: <CR>
E:> instprep <CR>
```

Step 5 Restart the computer (shutdown and boot).

Information

Do not interrupt the installation process. This may lead to undefined conditions and problems with the database.

Step 6 Select the installation options for your hardware

```
          I N S T A L L A T I O N      U T I L I T Y
          A M U - F i x - V E R S I O N  2.40K
          A D I C / G R A U Storage Systems

1 = Installation of the AMU Version 2.40K of AMU
   for AML/2 an AML/E

2 = Installation of the AMU Version 2.40K of AMU
   for AML/J

3 = Installation of the AMU Version 2.40K of AMU
   for Scalar 1000

4 = Deinstallation (Rollback) of a previously installed Fix 2.40K

5 = End

Select an Option:
```

Step 7 Insert the diskettes as prompted (if installation from floppy).

Step 8 Login with AMUADMIN when prompted to log on.



Warning

Please do not interrupt the installation process.

Step 9 Remove the CD-ROM or floppy

The following steps only apply to systems with a second harddisk (AML controller).

Step 10 Terminate OS/2 and restart the computer.

Step 11 Wait until the following appears on the top left corner on the monitor:

■ OS/2

Step 12 Press keys <Alt>+<F1>

```
RECOVERY CHOICES

Select the system configuration file to be used, or enter the option
corresponding to the archive desired.

ESC - Continue the boot process using \CONFIG.SYS without changes
C   - Go to command line, (no files replaced, used original CONFIG.SYS)
V   - Reset primary video display to VGA and reboot
M   - Restart the system from Maintenance Desktop (Selective Install)

Choosing an archive from the list below replaces your current CONFIG.SYS,
Desktop directory, and INI files with older versions. These older versions
might be different from your current files. Your current files are savrd in
\OS2\ARCHIVES\CURRENT.

1) Archive created 18.6.97 12.00.00
2) Archive created 18.6.97 12.10.00
3) Archive created 18.6.97 12.20.00
X) Orginal archive from INSTALL created 18.6.97 10.00.00
```

Step 13 Select <C> as command line.

Enter the following commands:

```
C:> \amu\hddcopy
```

2.2 Deinstallation

During the installation, the previous AMU version, if present, was saved into backup directories. Selecting the corresponding option from the installation program menu allows to deinstall the AMU Version 2.40H and restore the previously installed AMU Version:

Step 1 Stop operation of the AML Management Software. (Host commands ROSO and HOLD or DAS command Robhome and DAS shutdown). Select "Shutdown ABBA System only" from the AMU User Interface.

Step 2 Insert the installation CD-ROM or floppy.

Step 3 Open an OS/2 window and change to CD-ROM drive or floppy.

Step 4 Run the script INSTPREP.COM from CD-ROM or floppy

```
C : > E: <CR>  
E : > instprep <CR>
```

Step 5 Restart the computer (shutdown and boot).

Step 6 Select the deinstallation option from the installation menu. Wait until the deinstallation process completes.

3 Changes in AMU version 2.40K

Table 3-1 Changes in AMU 2.40K

changed Modul	Description of Change	Ticket No.
HocScan.DLL	The control character in the data stream from the barcode scanner was not evaluate. Now this data will be used from detect the start and the end of a data telegram from the scanner.	
	System error SYS 3170 during shut-down, because of wrong steps for the exit of processes	ET0000033645
KrnPmac.DLL	The command TEACH with the option 1P on an AML/J (PMAC parameter request) produced in the past a access violation in the function KrnReadPmacString because of a too small data buffer for the variable.	ET0000033920
	System error SYS 3170 during shut-down, because of wrong steps for the exit of processes	ET0000033645
KrnPhys.DLL	Drives with a drive name higher than D99 was not handled after a restart because of a wrong Teachpoint file reading. There was the error message: "Coordinate for %1 not found in Krn-RefPt.R0x."	ET0000034432
	Prevent the access to the KrnP request table in the function KrnTimer() und KrnPRecv() managed with a Mutex-Semaphore.	ET0000038039
HocEHLL.exe	Prevent a Access violation in the Communication module for IBM mainframes via EHLL or LU2) (Selection of a wrong Thread-Id)	

Table 3-1 Changes in AMU 2.40K

changed Modul	Description of Change	Ticket No.
KrnLUtil.dll	Prevention of a double mount if a ventory or a move run parallel on the system.	ET0000036853
cfg.dll	System error SYS 3170 during shut-down, because of wrong parameters in the exit list	ET0000033645 ET0000039948
Bud.exe	System error SYS 3170 during shut-down, because of wrong steps for the exit of processes	ET0000033645
ArcBase.DLL	COwner will not check during a update. Allowed values are only 1, 2 or 3	ET0000036525
ConEdVol.DLL	In the diolog Edit VolserRanges will now checked, that all necessary values are filled. if not, the user will be informed.	ET0000036525
Con.exe	AMU-Log is now a ASCII-File and not longer binary (compatible to AMU version 3.x) Prevent a System error SYS3170.	ET0000038532
ConLog.exe	For the Online-Log window, now the size of the window and the type and size of the font will be saved in the OS/2 configuration file OS2.ini und used for the restart. (Application: AMU; Keys: ConLog_Fontsize, ConLog_WinPosSize)	
ViewLog.exe	AMU-Log is now a ASCII-File and not longer binary (compatible to AMU version 3.x). For files which starting with LOG will be opened with log2asc and for files with only LO with LogCopy.	
evt.dll	Access violation SYS 3175 during using of PmMaint.	ET0000037607

4 Changes in AMU Version 2.40J

- Fixed same problems during startup of the AMU in the configuration server and the GUI
- Fixed the System Error during shutdown of the AMU
- Modifications in the install script for more easy installation

Information

The AMU version 2.40I corrected all known Year 2000 problems.

5 Changes in AMU Version 2.40I

- Correct y2k display error in the Rho File Manager
- Correct the Backup function for the first days in Year 2000
- Correct memory allocation in the function ArcAudit (DAS command qvolsrange)
- Correct the teach point for the Tower type T6 in the AMUCONST
- Correct the Online Log window problem, in case of very big log files

Workarounds for the Y2K-Problems for the previous versions from 2.40E

If the installation of the fix 2.40I until end of 1999 not possible, there are following workarounds for the Y2k-Problems:

- 1. Online-Log on the 29.02.2000.
Do not close the Online-log-Window on the 28.02.1999.
If the window is closed, please use the command log2asc from the command line and read the log in the editor.
- 2. Warm-Backup
In the first 5 days of year 2000 will be written with each command a Backup file (higher workload). Switch the function off by removing the mark from "Active" in the menu Service Process Configuration.
- 3. The date in the Rho File Manger displayed not correct.
Do not use this date

More problems with the version 2.40E with the year 2000 are not known.

6 New Features and Changes 2.40H

- New Quadro tower type T6 for support of higher number of D2 cartridges.
- Correction of the AMU-Online Log for the 29.02.2000
- Correction of Log-messages in case of restore of the warm backup
- Correction of the database rollback in case of the command stepping KEEP - MOUNT of the same volser.
- Enhance the Function of the Logical Ranges for eject of the Insert/Eject units. Now are possible to configure a Logical range with more than one media and over more than one I/O-unit. Also are other compartments (HACC-Dynamic and Foreign) in the range possible. (The compartments which has a other type (HACC-Dynamic and Foreign) will not used for the Logical Range.

7 New Features and Changes 2.40G

- Support of additional drives for AIT drives (DM)
- Changes in the description of the existing devices
- support of different media on the same drive for AML/J (D2 medium and D2 small or Betacam large and Betacam small)
- Correction of the pass trough handling for HACC/MVS: Coordinate in the pass trough area will now be set to empty and Volser 0000000000000000 after a move to the Foreign-Area.
- Enhance the Mandant control mechanism to other hosts. (Check the hostname in the header of the command)
- Prevention of misleading (wrong) warnings during the Restore of the warm backup
- Changes in the error recovery with the problem cartridge in gripper.

Information

The AMU version 2.40F will not delivered in the field.

8 New Features and Changes 2.40E

8.1 Changes in Processing

- Explicit MOVE (A1) to problem box is now done by the specified robot (Problog 3576)
- Number of old logfiles held in the \AMU\LOGS-TRC directory is now restricted to 250. The oldest logfiles are deleted at midnight (Problog 3533)
- Error recovery improved for AMU-based restore of database.
- The priority of Archive Backup is increased to get out of runtime interference with other tools sometimes installed at customer site with the lowest priority.
- Sort criterion changed for deletion of database backup and journal files from filename to date/time of creation (or date/time of last write for old FAT partitions)
- Manual Mode now available for AML/J too
- Solved problem with N111 on insert of cartridge during mount. Error Code now N304. (Problog 3593)

8.2 Other Changes

- DBCONV gets a new option -w to write only a data file, without upgrading the database. This is helpful to correct detected wrong values after an upgrade happens or to get a printout of the current database. This program shall only be used by authorized and trained personnel.
- New log message from KRN in case of troubles reading the configuration file. (Problog 3084)
- Text for AMU1200 is changed to help user to recover troubles of KRN reading configuration file (Problog 3084)
- Solved problem with logoff used by telnet users (Problog 3552, Problog 3845)
- During installation of AMU2.40E (on update) patch files modifying AMUCONST.INI are detected and called. But the patch files to path must be made known to AMUCONF.INI. For more information about that please call ADIC/Grau Storage systems service. (Problog 3305)
- Calling Update Devices the user gets a new popup information to remind him to update the passive AMU manually. (Problog 3399)
- Some enhancements in installation routine for recovery (logo and startup.cmd)
- Calling Update Database of passive AMU (BUD-Control) the user gets a popup information, that the marking of all database records for transfer may take some time and will block all other processing during that process. Note: For our largest databases (about 50000 records and an 486 processor) it may take up to 2 minutes. For an AML/J it may take only some seconds. (Problog 3414)

- Note about that an inventory command is only possible within the same tower or linear rack. (Problog 3855)
- On a robot error the KRN9 trace information is now shown in the log. That helps service to get better information.
- Number of rows for L8 having V6 or V8 corrected (Problog 3336)
- Justutil supports now renaming of alphanumeric device names.
- View Log dialog is now closed on AMU Shutdown (DR434)
- No more misleading log messages on an insert operation having no more dynamic places. (DR593)
- Support of SONY AIT drives for Scalar 1000
- Support of up to 48 drives in Scalar 1000
- There was a very special error situation after a tape could not be ejected (Changes for beta Digital, Problog 3239, Problog 3511)
- Changes for Audio Racks and UHER Drive VA, DR, L5Va
- Changes for Radio Radicale (CAN Stepper Module)
- Enhancements in PMMAINT (teach and Axmove dialog)
- The log archive dialog is now canceled at shutdown of AMU (DR434)

9 New Features and Changes 2.40D

9.1 Changes in Processing

- After a *media-mismatch* (e.g. during eject operation) the AMU does not continue to send commands to the robot. (Problog 2747)

Remark:

Normally the AMU should not get any commands which end in media mismatch errors.

- Second/third mount to the IBM Jukebox was rejected. (ProbLog 2779)
- No more problems with the timestamp if the database of the active AMU is backed up and restored on the passive AMU. (Problog 2963, Problog 3137, Problog 3220)
- A command which is given with a wrong source-coordinate (e.g. a operator/ CE is using a command-window) is rejected at once. (Problog 2965)
- KRN-Trap after *media is not in a storage position* error message, if a MONT is requested for a cartridge which is already mounted (in another drive) or ejected. (Problog 2974, Problog 3048)
- Robot stops after crash during insert. This problem occurs if a HCC/ MVS makes an insert operation to a physically occupied bin and the HCC is sending in double send mode. In this case the insert (VICC) fails (crash during put to rack) the cartridge will be brought back to the source position (insert area). But the next command (search to the next place of the insert area) is already sent to the robot and this command fails with 'tape in gripper = N105'. In this case HACC does not send commands to this robot until a ROSA will be done. Now the SCH command will be answered with the internal return code 1290 (canceled by robot) and this RC will be mapped to N304 (barcode not recognized). (Problog 3066, Problog 3076)
- Now even for an unload command full AMUqueueing will be done. (Problog 3091)

9.2 Other Changes

- Volser was truncated on manual mode screen (it was shown with a leading "M.....-fillcharacter sequence). (Problog 2339, Problog 3010)
- The answer response time for our hosts is now configurable to up to 20000 ms. (the AS400 needs more time!) (Problog 2712)
- Now a device container can be connected to all available hosts (in the graphical configuration). (Problog 2814)
- Improvement in our installation program: Now the user gets more information if he should decide whether PMAC or Quadron support should be installed (the product names AML/2 AML/E and AML/J are used). (Problog 3012)
- Log view window comes to top now automatically.
- Some misleading log messages have been changed or enhanced. (Database and robot errors)
- Problems with host environment with different timezones solved
- Multiple update of database records by bud solved (Problog 3074)
- Database lock problem solved (Problog 3200)
- Changes for Audio Racks and UHER Drive VA, DR, L5Va
- Changes for Radio Radicale (CAN Stepper Module). Integration of Sotec-CAN Modules and the Softing PC CAN Card. Drive Typ DR is treated especially. When this drivetyp is configured CAN is automatically required!

10 New Features + Changes 2.40CS

10.1 Support for Scalar 1000

The AMU AMU version 2.40CS is based on AMU AMU version 2.40C. It has the same functionality and support as 2.40C, but includes support for the Scalar 1000. The following modules were added or changed to provide Scalar 1000 support:

- CON.EXE
- HOC.EXE
- AMUCONST.RC
- AMUCONST.INI
- KRNA1ERR.INI
- AMU.MSG
- AMUH.MSG
- CONCONF.DLL
- CFG.DLL
- KRNSCSI.DLL
- KRNSETS.DLL

The following modules changed due to open problem logs:

- KRN.EXE
- KRNSETR.DLL
- KRNSETP.DLL
- KRNSET.DLL
- KRNPYHS.DLL
- KRNLUTIL.DLL
- KRNLSTEP.DLL
- KRNLMSG.DLL
- KRNLLOWE.DLL
- KRNLINT.DLL
- CONMAN.DLL

10.2 Changes in Configuration

- Support for 2 Scalar 1000 SCSI medium changers (R5).
- Support for SCSI controller (O3).
- Support for AMU SCSI interface (IA).
- Support for Scalar 1000 linear racks (modules) LU, LV, LW, and LX, LY, LZ with 3480/3490, 3590, or DLT tapes.
- Support for Scalar 1000 EIF E8 and E9.

NOTE: The Scalar 1000 does not configure a problem box.

10.3 Changes in Processing

Support for the Scalar 1000 required processing modifications, which differ from current AML/2, AML/E and AML/J processing. Since the Scalar 1000 contains an internal database, the AMU AMU is able to upload this database with every AMU AMU startup procedure. Thus, any inventory commands previously issued for other models, are no longer required. The Scalar 1000 database upload also provides database information for the tape drives, which is used to update the AMU database with drive mount attributes and home positions.

The AMU AMU queries the Scalar 1000 status on a fixed time interval to determine whether the Scalar 1000 is still ready, even if AMU commands are not sent, and to obtain EIF status information. Such polling of the Scalar 1000 status causes the internal Scalar 1000 log and trace buffers to clear if an errors occur, which make the Scalar 1000 no longer available. In such event, the Scalar 1000 error and trace logs are preserved by stopping all AMU status polling. The AMU logs will show that the corresponding Scalar 1000 is no longer available. Once the error has been corrected, the Scalar 1000 may be re-activated by issuing a **STATUS** command with the **R1** or **R2** option for Scalar 1000 1 or 2 respectively. Scalar 1000 status polling will resume, and the Scalar 1000 database will be uploaded.

If the Scalar 1000 status polling needs to be stopped, in the event the Scalar 1000 logs are being examined and the polling requests fill the Scalar 1000 logs, a **HOME** command may be issued with the **1** or **2** option for Scalar 1000 1 or 2 respectively. The HOME command causes the Scalar 1000 to be no longer available until the AMU AMU is restarted, or a STATUS command is issued.

Information:

For normal AMU to Scalar 1000 operation, an Scalar 1000 library should be configured from the OP panel for the following modes:

1. Auto Teach ON
2. Auto Inventory ON
3. Default or Mixed media support, but all media extensions OFF
4. Scalar 1000 on-line and ready

11 New Features and Changes 2.40C

11.1 Update Specialties

- For ROBAR hosts, please make sure that the communication write time-out of the ROBAR-AMU connection (AML/2) is set to 4000 ms at minimum. Please use the graphical configuration screen.
- PMMAINT now supports COM port connections other than COM2.

11.2 Changes in Configuration

- A new logical scanner type S1 for AML/J was added. This new type makes it possible to configure the following: The scanner itself is unchanged, but on a mount, move or eject operation, a barcode reading error is ignored. The cartridge is moved as if the barcode has been read. An insert operation is rejected if a barcode read error occurred.
- Full support of BETACAM small and large (see below).
- It is now possible to define drive names without restriction to decimal or hexadecimal names. That means that a drive name can be DZZ or D4T etc.
Only restriction: The first character needs to be a „D“.
- It is also possible to define host names like the drive names. Only restriction: The first character needs to be an „H“.

11.3 Changes in Processing

- BETACAM small and large media is now handled in the same manner as 3480 and 3590 cartridges.
- Log messages are generated, when an INI-File is restored automatically. Also when KRN is started before CON. (DR 518)
- Drastic improvement on problem with hanging Log Window. (Problog 2659)
- Stopping the KRN process with a Ctrl-C in its main window does not display a log message for an SQL-Error any longer. Also the Database Manager is not stopped, but the database AML is closed, so that on a power down the AML database is safe. On restart of the KRN process, the system start is quicker.
- On some different situations, Edit Volser Ranges has set the attribute of volsers to TEMP AWAY. This is fixed now.
- OS/2 FixPack 17 can be installed now (Problog 2661).
- The write time-out of AML/2 Communication Dialog is now used to solve ROBAR time-out problems (Problog 2552)
- On a damaged COWNER, the error code 1035, N004 is generated, respectively (Problog 2694).
- Invalid internal command “KRN couldn’t identify message“ logs are no longer generated (Problog 2656).

- Improvements in switching the ADS (Automated Data Switch) (Telekom) (Problog 2731).
- Time-out for ADS is now 20 seconds.
- Time-out for retries in BUD set to 30 seconds. That should solve the multiple retries on updating the same coordinate (Problog 2790).
- Time-out problem with scanner (AML/J) fixed (RFA 400 099).
- Problem with tape in gripper fixed (Problog 2765).
- On a move of an expired cleaning tape directly into problembox when the problembox was full, there was a stand still. A new error code N507 is now implemented (Hotfix Stadtwerke München).
- Error in queuing for multiple mounts or dismounts on the same drive (Hotfix for Pressedata).
- Automatic scanner reset after rebooting and on scanner time-out.
- New error codes in AML/1 Host Interface (80-byte) (SBS requirements for ROBAR).
N302 (Volser not in library) was too inaccurate on MONT(MO). Now (and only for the MONT):
 - N303volser already mounted on this device.
 - N309volser already mounted on a different device. The device field DEV) contains the device, where the volser is actually mounted.
 - N308volser ejected.

11.4 Support of robar releases before robar V2.6B

- For robar V2.6B are provided the error code N302 was split into more specific new error codes N303, N308 and N309.
- To support robar releases before robar V2.6B the previous behaviour of AMU, sending only N302, you can get by patching some values. See the following.
 - Stop AMU-Software
 - Open a OS/2-Window
 - CD /AMU
 - MD INIS
 - COPY *.INI INIS
 - COPY KRNA1ERR.INI AMUCONF.INI
 - PATINI KRN 1306 N302
 - PATINI KRN 1307 N302
 - PATINI KRN 1308 N302
 - PATINI KRN 1153 N007
 - COPY AMUCONF.INI KRNA1ERR.INI
 - COPY INIS\AMUCONF.INI
 - start AMU

12 New Features and Changes 2.40B

12.1 Enhanced Installation Program

- Problems on update from AMU AMU 2.0 and AMU AMU 2.2 to AMU AMU 2.40 and 2.40a are corrected.
- Conversion of old AMUINI.INI to AMUCONF.INI.
- Database updates corrected for 16 character volser.
- Recognized corrupt database entries will be replaced by special default values.
- More sophisticated information on errors in database conversion.
- BUD now activated automatically.

12.2 Changes in Configuration

- Support of SONY DTF drives (AKEBONO).
- Linear rack above 2 of 6 shelves / above EIF-E for D2 small now available.
- Some robot offset values changed (Segment offsets for optical disks, 8mm, D2 medium, DTF large and VHS).
- Description for linear racks modified.
- Number of rows for DTF-L on all towers corrected.
- Offset values for OD-R corrected. (Affects only first teaching.)
- Offset values for D2-M corrected. (Affects only first teaching.)

12.3 Changes in Processing

- A mount of a volser to a drive that already contains the volser causes in immediate positive response without any robot action.
- Mixed-media AMLs combined with ROBAR do now work correctly on mount, clean, insert and eject commands.
- Selecting the View Log push-button no longer converts the current log file, but allows the user to select a log file first prior to the log file conversion.

13 New Features and Changes 2.40

The AMU AMU is now a 32-bit application with the following features and changes:

13.1 TCP/IP communication

The TCP/IP communication interface provides a new 32 bit interface, new access control, and solved the reconnect delay.

13.1.1 TCP/IP 32-bit interface

New requirement: IBM TCP/IP 2.0 for OS/2 or higher, or OS/2 Warp Connect.

13.1.2 Name Service support for TCP/IP

Instead of using the IP address, the TCP/IP host name may now be specified in the TCP/IP host configuration window. It is possible to use up to 64 characters. The name must be available through ETC/HOSTS or by a domain name server (see TCP/IP User + Admin Guide or Domain Name Server Guide). To get information about the correct start of the connection, use trace HOC2 ("TRC ... nameserver query failed/successful for local/partner").

Information:

To test the conversion from name to address use the command "**ping <host name>**" from an OS/2 command line. To test whether the host IP-address is available, use "**ping <IP-Address>**".

13.1.3 Access Control for TCP/IP

The AMU AMU only accepts connections from the IP-address specified in the HOST-IP-ADDRESS field located in the TCP/IP interface configuration dialog. Connection requests from any other IP-address will be denied. The keyword "**ANY**" specified for the HOST-IP-ADDRESS turns off such access control.

13.1.4 No delay time for reconnect

The reconnect time delay of 1 minute is now eliminated for TCP/IP connections.

13.2 Serial communication 3964-protocol

Corrupted communication data caused AMU AMU log error entries, which will be discarded now. (-> BCC errors).

13.3 Multiple 3270-sessions

The AMU AMU now supports multiple 3270-host-connections. A maximum of four 3270-sessions in DFT mode and four 3270-sessions in non-DFT mode can be processed simultaneously.

Important Restriction:

In DFT mode, support of only one IBM 3278/79 emulation adapter per controller PC is available. The adapter is connected via a co-axial cable to an IBM 3x74 terminal control unit (SNA or non-SNA). Other non-IBM emulation adapters are not supported at the moment !!!

13.4 Enhanced Disaster Recovery

The Disaster Recovery selection now supports two robots and is protected by a password (DISASTER). The password may be changed from the Process Configuration selection. No password configuration may also be performed.

After logging on to the Disaster Recovery window, the current *.DSR files of the AMU AMU RECOVERY directory (normally C:\AMU\RECOVERY) are listed.

The *Eject Area* input field is a stub. In the future it might be possible to restrict the eject area using logical ranges. Now the complete EIF is used for eject operations.

The *Start* button starts the disaster recovery for the specified robot. After some time, a pop-up window is displayed, requesting the operator to empty the EIF area. Answer *YES* to continue after the EIF has been emptied. Answering *NO* will stop the disaster recovery process.

The disaster recovery process may be stopped with the *STOP* button.

NOTE:

The disaster recovery selection lists are filled with the first found file for robot 1, the second file for robot 2, if existing, the third for robot 1, and so on. In case of a disaster recovery, only the *START* button needs to be pressed to quickly eject media. Always assure that the disaster recovery files are uptodate to allow immediate disaster recovery in emergency situations.

13.5 Support of volsers with 1-6 characters

The AMU AMU now supports volsers with fewer than 6 characters.

13.6 Message on missing LOCAL.AMU file

The file *LOCAL.AMU* is necessary to detect the name of the AMU controller (A01, A02) in case of a configuration using the DUAL AMU or Backup AMU. Now, indications of such missing files will be displayed by a pop-up window.

13.7 Configuration Changes

13.7.1 No more insert and eject types for EIF

Especially for HACC/VM and ROBAR, insert and eject types have been added in the past to support an easy and unique way to handle insert and eject operations. New requirements and smaller EIF stations made it necessary to define a new design to share insert and eject areas in EIFs for different hosts, and to provide a more specific use for the EIF (i.e. quick insertion of only a few media). Now all insert and eject areas are specified as *AMU Dynamic Logical Ranges (LORA)*, like in previous releases and there are no more special insert and eject types.

How to support HACC/VM and ROBAR?

Use AMU-dynamic and E01 for the name of a logical range for eject area with robot 1. Corresponding use E02 for eject area of robot 2. Also use I01 and I02 for insert areas.

What to do in case of updates from previous releases, which use I and E types?

The *I* and *E* types were converted automatically to AMU dynamic! This conversion is displayed by a pop-up window and a message is written to the AMU AMU log.

Information:

You must type the names for the AMU Dynamic ranges manually in the graphical configuration! We left that, so that you have full control over that process! After saving the logical ranges configuration, you must perform an Update EIF in the Edit Volser Ranges Dialog.

Recommendation:

On all updates of AMU AMU, switch on the CFG-log flag either in the CON - Process Dialog (see Service Menu) or using „*patini PROC CFGLOG ON*“ from the OS/2 command line. After checking the AMU logon completed successfully, switch off this flag for better performance.

13.7.2 Drive container and automatic generation of drives

The graphical configuration for large systems was confusing, because a large number of drives needed a lot of space in the configuration window. Now there is a drive container, which provides a container to hold drives. Drives may be added to the list by drag & drop from the device container or by drag & drop of an existing drive.

Information

All drives in the drive container get the same connections to hosts and robots like the drive container itself. Be careful adding existing drives to a container because of their teachpoints.

It is also possible to remove drives from the drive container using drag & drop.

Selected drives may be deleted using the *Delete* button.

Drives in a container will be taught (normal (red) or 1N (blue)), if the container is taught. (It is planned to enable the teaching of selected drives). Teaching a container makes only sense, if all drives have the teach points and gages applied.

The *Generate* button will prompt for type, start name and number of drives. Note the decimal/hexadecimal selection of drive counting!

Attention:

**If you move existing taught drives into a drive container which is not connected to a robot, it will lose all teachpoints!!!
So connect each drive container directly after you installed it!**

Attention:

Deleting a container deletes also all drives within the container and all the connections to robots and their (initial) teachpoints!

Recommendation:

Use maximally 15 drives of the same type in one container. Add a meaningful description to each container to indicate access and types.

13.7.3 Hexadecimal count of drive names

Until now, drives were counted in hexadecimal notation when adding them to the configuration. Now a checkbox was added to the graphical configuration window to select the drive count method. The default is the decimal drive count.

NOTE:

When using HCC/MVS the UNITNUM parameter in HACCPARM might have to be modified. (UNITNUM=HEX)

NOTE:

If your system has less than 100 drives, but is planned to increase drive numbers, use the hex mode for easy configuration additions. Changing the name of a drive causes changes in the teachpoint file, which means, that the drives may have to be retaught!

13.7.4 Support of HICAP

To enable insert and eject operations of large bulks of media to and from an AML/J, the HICAP was developed. The device is a complete door of an AML/J module, which can be opened and used as an EIF device. As a precaution (see regulations) the robot must be stopped and the host be informed about the opening and closing of the door, so that the host can stop sending requests to the AML and continue after the EIF operation completes. (The HICAP was developed primarily for HCC/MVS host requirements).

13.8 Backup of AMU-configuration files

After an OS/2 trap, the configuration files could not be accessed sometimes, causing a hidden (old) INI file (AMUCONF.!!!) to be used.

Now the files are copied twice each time the configuration is changed.

```
AMUCONST.INI    ->  CONSTAMU.INI
AMUCONF.INI     ->  CONFAMU.INI
```

If a file cannot be found, the corresponding backup file is copied back and the hidden file will be removed.

```
CONSTAMU.INI    ->  AMUCONST.INI
CONFAMU.INI     ->  AMUCONF.INI
```

This backup file selection is displayed by a message written to the AMU AMU-Log.

13.11 Processes

13.11.1 ARC

- New function for DAS 1.3 audit support.
- New database table POOL for extended scratch pool management.
- New columns in database AMU.Coordinates and AMU.SCoordinates:
 - VTYPE for scratch type indication (S=scratch, U=Undefined)
 - LOCKED for future locking capability of volsers, I/E areas and drives
 - Journaling and backup items are devided in their respective files by a character other than blank.
 - The Edit Volser Range selection sets all modified records to "dirty" for correct updates.
 - Modifications and changes to support new interfaces to DATABASE 2 version 2.1 and 2.1.1.

13.11.2 ART, LOG, TRC

- Trace points DAS0 to DAS9 were added to support DAS 1.3 integration.
- The Log Delete function has been modified substantially. Files will not fill up hard disk any more.
- ADS support required log messages 980 to 986.
- Diagnostic log messages added for PMAC gripper turn axis (522), and gripper grip axis (524).
- Log message change after a tower or I/E unit time-out occurred.

13.11.3 BUD

- BUD-Trace level 9 now traces the BUD status prior and after command execution.
- BUD-Error" was changed to "BUD-Active: Partner lost".

13.11.4 CON

- Icons are read during start of CON. This reduces need for memory allocation and lost icons.
- Disaster Recovery dialog added (Default password: DISASTER).
- The Disaster recovery password may be changed in the Process Configuration Dialog.
- Configuration device count may be set to decimal or hexadecimal (more than 99 devices).
- Graphical configuration supports driver container, which groups interfaces and drive types.
- Graphical teach stops only for drives. Unteachable racks will have a log entry, teach resumes.
- Problems during volser range entries have been solved.
- EIF logical ranges no longer support INSERT and EJECT. ROBAR uses E01/I01 and E02/I02.
- CON saves display position on shutdown and displays a default size if problems occur on startup.

- Archive Management Dialog displays new VTYPE. The type's entry field cannot be modified.
- Support of HIGHCAP EIF-D.

13.11.5 HOC

- Default Port values for TCP/IP were changed from 3001 to 3010.
- Support of TCP/IP name server:
If the TCP/IP configuration specifies a name server entry, or the \tcPIP\etc\hosts file lists a host names with associated IP addresses, the AMU AMU configuration windows may now enter either the IP address, or the host name in the host-IP-address and AMU-IP-address entry fields. HOC is capable of resolving host name IP address configuration from the TCP/IP configuration.
- Access control security added:
If the AMU AMU configuration lists a host name or IP address, HOC will verify the validity of the requesting partner's IP address. A request from unconfigured hosts/clients will be rejected. If no authentication should be performed, the configuration's host IP address entry field requires an entry of the word "ANY".
- Communication path connections do not have a connection delay any longer:
If a hosts disconnects, a reconnect may be attempted right away. The one minute delay is removed.
- Improvement of serial communication (3964) errors:
If electrical interference causes BCC errors, received data will no longer be sent to the AMU-P, but will be discarded.
- Extended 3270 emulation:
Up to 4 3270 sessions for non-DFT and 4 sessions for DFT mode are supported. (In DFT mode, only ONE 3278/79 adapter is supported.)

13.11.6 KRN-L

- New commands GETS and SETS for scratch tape handling.
- New file KRNLMSG.DLL for asynchronous host notification.
- Support of HIGHCAP EIF-D.
- Dual AMU: New implementation and special support for TELEKOM KREFELD.
- Improved disaster recovery.
- Support of 1-6 character volsers in ABBA/1 command format.
- ROBAR insert and eject areas are AMU DYNAMIC (I01, E01 for robot 1, I02, E02 for robot 2).
- Removed VIC commands (use unknown).
- UPDT command (AML/2 command format) now supports CRASH and USE counters.
- MOVE operation from drive to drive allowed.
- EJECT operation from drive to EIF supported.
- If robots turn off-line, the version number will be reset to NOT-READY.
- Cleanup of SIN command.
- Redesign of SIVK command.
- ULV command for volser in EIF now returns coordinates.

13.11.7 KRN-P

1. Double-Send error recovery improved substantially. If error recovery is necessary for a processed command, i.e. return of tape or flip of OD or request of MOVE to problem box, another command which is being processed will not return error message 1192 (AMUP tells AMUL to move a medium with unknown volser to the problem box.), but return error code 1290 instead (A command was canceled because of an error situation by robot) (PROBLOG 2210).
2. The AML/J barcode scanner from Accu-Sort may not respond after hardware resets. The read request will now be repeated up to 10 times, until a time-out (1170) is displayed.
3. A problem with an unexpected robot ready condition was corrected. An unexpected ready message had been ignored previously, leaving the robot off-line.
4. Support of ADS switch position status request command.
5. Support of HIGHCAP EIF-D.
6. No more TRAP D on missing AMUPATH statement in CONFIG.SYS.
7. A confusing message after a successful UNLOAD drive button operation was suppressed. This is not relevant for drives without UNLOAD buttons.

13.11.8 RFM

No changes.

13.12 PMMAINT

- Teach and Move axis dialogs no longer selected from the action bar, but from Installation menu.
- Support of new PMAC cards (without AKKU).
- Support of new scanner hardware.
- Axis move Dialog changed to stop axis movement immediately. Buttons added to open/close gripper., and to select the media type grip positions.
- Patch menu is now selected from the Teach menu.
- Download menu option allows download operation of new BACKUP.PMC file.
- The Backup menu option stores gripper and newgrip PMAC variables from the PMVAR.BAK file into the BACKUP.PMC file.

13.13 Tools

DBCONV: Journaling and Backup operations now uses a separator character other than blank.

13.14 Configuration

- Support of more than 64KB of data.
- Save operations of AMUCONST.INI and AMUCONF.INI now create backup files. CONSTAMU.INI and CONFAMU.INI. If problems occur when loading INI files the backup files be used to restore the configuration.
- CFG associated errors will now be displayed in the log window.
- The version name length is now increased to 8 characters.
- GET/PUT/READ offsets have been changed for drive types D9 (IBM/SNI 3x90) and DN (IBM3590 / ADIC8590).
- Support of new media for CD CADDY (C6) for all rack types L0 to L3, all towers T0 to T5 and all EIF types E0 to E4, as well as drive DW (SNI HR650).
- HIGHCAP EIF-D support of device type E6.
- EIF-E support of device type E7.
- Problem box support for EIF-E device type P7.
- The number of rows for segments of type L2 and towers T2 and T5 have been changed for media type V4 (D2 medium) from 5 rows to only 4 rows.
- The GET/PUT/READ offset for device types LA, LB, and LC for media C2 (3590/8590) has been corrected.

13.15 Instructions for CM/2 configuration

If you use VTAM connections, please install the CMWAIT and NNLINK progrAMU as explained below.

13.15.1 Installation of CMWAIT and NNLINK

The progrAMU NNLINK and CMWAIT are available on the third disk in the subdirectory A:\CM2 as EXE-files. The progrAMU have to be copied into the CM/2 subdirectory (C:\CMLIB).

CMWAIT

When starting the AMUAMU in the startup-procedure, it is important, that the CM-kernel is already activated. To be sure, the CMWAIT program should be started after the CM/2 start command and before starting the AMU AMU in the *startup.cmd* file.

CMWAIT checks the status of the CM-kernel and returns when it is active.

NNLINK

NNLINK is designed to keep the connections between APPN end nodes (LU 6.2) and network nodes active, but it can be used for any other links (LU 2) as well.

NNLINK has to be added to the *startup.cmd* to monitor the status of a defined link periodically. If a link is not active (i.e. after VTAM restart, or IPL), NNLINK tries to reactivate it.

14 Example of <startup.cmd>

```
startcm
cmwait -w 600
cd amu
start con
start krn
start nnlink
```

15 Problem Fixes, Change Requests

15.1 Addressed Tickets in AMU 2.40K

Table 15-1 Solved Problems in AMU 2.40K

Ticket number	Problem
ET0000033645	System error SYS 3170 during shutdown, because of wrong steps for the exit of processes
ET0000033920	The command TEACH with the option 1P on an AML/J (PMAC parameter request) produced in the past a access violation in the function Krn-ReadPmacString because of a to small data buffer for the variable.
ET0000033645	System error SYS 3170 during shutdown, because of wrong steps for the exit of processes
ET0000034432	Drives with a drive name higher then D99 was not handled after a restart because of a wrong Teachpoint file reading. There was the error message: "Coordinate for %1 not found in KrnRefPt.R0x."
ET0000038039	Prevent the access to the KrnP request table in the function KrnTimer() und KrnPRecv() managed with a Mutex-Semaphore.
ET0000036853	Prevention of a double mount if a ventory or a move run parallel on the system.
ET0000033645 ET0000039948	System error SYS 3170 during shutdown, because of wrong parameters in the exit list
ET0000033645	System error SYS 3170 during shutdown, because of wrong steps for the exit of processes
ET0000036525	COwner will not check during a update. Allowed values are only 1, 2 or 3
ET0000036525	In the dialog Edit VolserRanges will now checked, that all necessary values are filled. if not, the user will be informed.
ET0000038532	AMU-Log is now a ASCII-File and not longer binary (compatible to AMU version 3.x) Prevent a System error SYS3170.

Table 15-1 Solved Problems in AMU 2.40K

Ticket number	Problem
ET0000037607	Access violation SYS 3175 during using of PmMaint.

15.2 Addressed Tickets in AMU 2.40I

Table 15-2 Solved Problems in AMU 2.40I

Ticket number	Problem
ET0000021398	AMU 240E not Y2K
ET0000013699	AMU kernel is stopped or robot timeout after the DAS command qvolsrange on system with high work load

15.3 Addressed Tickets in AMU 2.40h

Table 15-3 Solved Problems in AMU 2.40h

Ticket number	Problem
ET0000012223 ET0000014243 ET0000013597 ET0000014058	Mismatch in AMU database after a error recovering on a drive and a additional mount of the same volser
ET0000019974	LORA eject with 2 I/O units (2 different medias!)
ET0000021398	AMU 240E not Y2K

15.4 Addressed Tickets in AMU 2.40g

Table 15-4 Solved Problems in AMU 2.40g

Ticket number	Problem
ET0000013860	Move from Pass Trough area to Foreign mount area will set status in Archive in the pass trough area now correct (empty and volser 0000000000000000)

Table 15-4 Solved Problems in AMU 2.40g

Ticket number	Problem
ET0000015175	using of the mandant controlling mechanism also from other host now possible, not only HACC/MVS Major/Minor)
GR0000003621	Errorhandling modified

16 Known Bugs and Work Arounds

Table 16-1 Known Bugs and Work arrounds

Ticket number	Problem	Workaround
ET0000013150	Error in command queue, double mount are possible in some cases	none
ET0000013454 ET0000014616	Keep command still in command queue after the error recovery of a previous Mount command with a crash on the drive	
ET0000015016 ET0000014268	Mismatch in the Kernel of the status of the drive (Mount will canceled with 1083 or N202 drive is not empty) although the database has the status empty.	Restart the AMU (Shutdown AMU and startup) for reset the KRN-status
GR000002681 GR000003836 GR000003943	If the I/O-unit will be opened during the automatic inventory, the inventory will interrupted and a crash on the I/O unit are possible during the next commands.	Do not open the I/O unit, until the automatic inventory is completed
GR000002985	Same times problem with the transfer of the AMUCONF.INI with 'BUD control	Use in this case ftp or a floppy
GR000004213	If on a Dual-AMU system are difference in the database index) the update of the other places are stopped	copy always the configuration to the other AMU and use the function Update devices on the passive AMU
GR000004295	On AML/2 twin systems the pass trough function do not work	Insert the cartrides always on the robot, where the drive is located for the mount