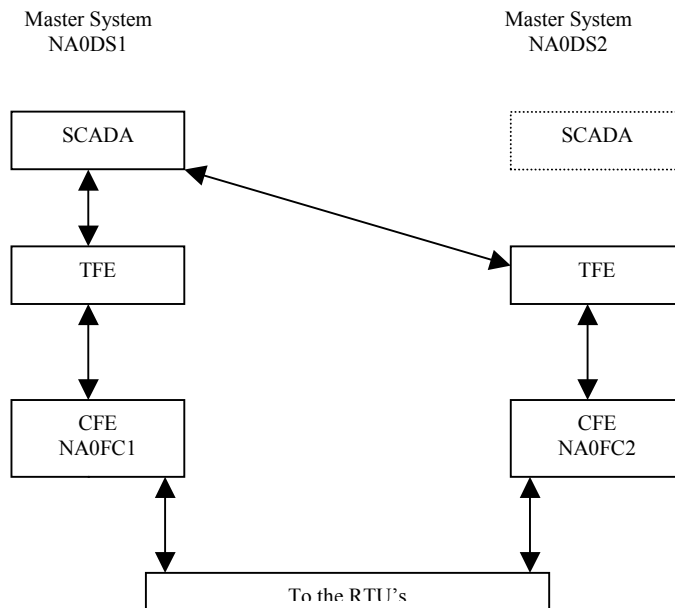


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1. How to identify RTU communication problems

First an overview of the SCADA-TFE-CFE architecture



In case all RTU's of a TFE were lost, first check if the CFE is communicating. Open a DecTerm on the Data Server communicating with the CFE and check if the CFE is "pingable" (ex. UCX PING NA0FC2). If not, the CFE has a hardware failure.

If the CFE is "reachable", check the "channels" are working properly. Position to the CODE directory and run the CFESTEST tool. Enter the following commands:

- SET/SERVER NA0FC2
- OPEN/CONTROLLER=0 (or 1 or 2 depending on the number)
- READ/LOG

If the "channel" cannot be opened, there is a hardware failure.

The TFE communicates with the CFE through the TSI process (i.e. Tfe Streams Interface). There is one TSI process for each CFE "channel". When the user puts a CFE out and in service (NIS and UNNIS) the TFE re-downloads the CFE channels (software and database). The corresponding TSI process will generate 2 log files containing the result of download and functioning. These files need to be checked. The files are located in the CODE directory and are called:

- TSI_NA0FC2_0.LOG and TSI_NA0FC2_0.LGF for channel 0
- TSI_NA0FC2_1.LOG and TSI_NA0FC2_1.LGF for channel 1
- TSI_NA0FC2_2.LOG and TSI_NA0FC2_2.LGF for channel 2

If the CFE channels can be read with the CFESTEST tool and the TSI log files are fine, this means the CFE is working properly.

If the CFE is working, but one or several RTU's are not communicating, you need to check the TFE log to have detailed information about the reason. Note that this is not possible for RTU's communicating over a "wide-band" (i.e. the local modem is distant) because the wide-band multiplexer does not provide the required signals to the CFE (CTS is jumped with RTS). As a result any failure will be seen as "RTU no reply". For all other RTU's follow the procedure below:

- In the COMSTATE display, put all failed RTUs on this CFE out of service except the one we want to monitor. Also put the RTU we want to monitor out of service on the other CFE so we are sure all traffic goes over this CFE.
- Open a UOC on the Data Server connected with CFE on which we have a failed RTU link
- Callup the TFE LOGDEF display and make sure "informational" messages are logged.

- Callup the TFE LOG display and observe the messages being logged. Below are the most important ones:
 - CTS NOT RAISED WITHIN TIME LIMITS generally means a modem problem
 - UNEXPECTED DATA CARRIER generally means a modem problem
 - RTU NO REPLY generally means a RTU problem
 - CRC CHECKSUM ERROR generally means a communication line problem
- In case the RTU is communicating, check the number of errors in the RTU communication statistics display
- In case some analogs or status points are suspect but the RTU is communicating, check the status of the couplers in the Scada tabular displays (points with DEVTYP=RTU)

If the RTU is communicating but you want to check the data which is exchanged between the RTU and the CFE, you can either put the ASE2000 “protocol” monitor or use the “Habitat based” TFETEST tool. For the latter, position to the CODE directory of the TFE/CFE to be monitored and RUN the TFETEST tool as follows:

- ✓ SET DEF CODE
- ✓ CONTEXT TFE EMS
- ✓ RUN TFETEST
 - >>>MAP
 - >>>DUMP/LOG/OUT=TFE_TRACES.LOG
 - >>>repeat this command several times
 - >>>EXIT
- ✓ Check the log files.

2. How to maintain Oracle Forms and Reports

On each Operator Console has been installed the Oracle “Developer 2000” package. This package is composed by:

- Dev2000 Forms Designer: allow to create and modify Forms
- Dev2000 Forms Viewer: allows displaying “compiled” Forms.
- Dev2000 Reports Designer: allow to create and modify Reports
- Dev2000 Reports Viewer: allows displaying “compiled” Reports.

The “Dev2000 Forms Designer” and the “Dev2000 Reports Designer” can be started on any RSCC/SLDC Operator Console logged in programming mode using the appropriate menu

The HIM application is delivered with a standard set of Forms and some template Reports. Each customer (i.e. RSCC and each state/constituent) should build its own Reports (and may create its own Forms).

If for any reason a standard HIM Form need to modified, they should be put back into CMS on the Development Server (the name of the codeset in the HIM CMS library are FORMS and REPORTS)

The source files have the following name format:

- Forms: Myfile.FMB
- Reports: Myfile.RDF

These files should be located in the directory DISK\$DEV2000:[SOURCE] of each operator console.

Before these files can be used by the Developer 2000 “Viewers”, they should be build (i.e. compiled).

Dedicated BUILD procedures are delivered to automate this work, called:

- BUILD_FORMS.COM
- BUILD_REPORTS.COM

Once build, the Forms and Reports become “executables”. The file name format of the executable is:

- Forms: Myfile.FMX
- Reports: Myfile.REP

If new Forms/Reports are created, make sure they were added in the BUILD procedure before starting the build. The purpose of the build is to make sure all used database columns are known of the Oracle database schema. Therefor, when starting the build, you should inform the HIM Server and the database schema to which Developer2000 should connect while compiling. If this information is unknown, check the file TNSNAMES.ORA located in the directory DISK\$DEV2000:[NETWORK.ADMIN].

A typical BUILD command for the UPSEB State would be:

```
$SET DEF DISK$DEV2000:[SOURCE]
$DIR.FMB*
@BUILD_FORMS.COM HIMSYS/HIMSYS@UPSEB_ISRSRV
```

If all files are compiled successfully, copy them to the same directory of all the other Operator Consoles (including Sub-LDC's)

3. HIM Juke-box management

The SLDCs and the RSCC are equipped with a Juke-Box for Optical Disks used by the HIM application to archive periodically the content of the ORACLE database.

Those juke-boxes contains a given number of “optical disks”, each disk containing the historical data of one month (the HIM application allows also to retrieve this historical data for post analysis)

The juke-box is wired so that it can be accessed from both HIM servers, but at a given time only one HIM server get access to the device.

The juke-box has a software “driver” that can be used from a DECTERM on any of the HIM servers using the HIMMANAGER account.

Note that the driver SHOULD NOT be running when the HIM application starts its “archival”.

This driver allows to:

- load/unload a cartridge (this can also be done from the jukebox front panel)
- see the status of the cartridges
- mount/unmount a cartridge (once it is mounted, it becomes a regular disk and its files are managed by the standard VMS commands such as DIR and EVE) use the regular VMS commands Juke-box software driver commands

To launch the software driver enter the following commands:

```
$SET DEF SYSS$SPECIFIC:[JVPM]  
$@JVPM_DCL.COM.COM (declares logicals and symbols)  
$@STARTJVPM_1.COM
```

Then the following juke-box commands can be entered:

- To mount a specific disk in the drive (from ODA0: to ODA31:)
\$MOUNT/OVER=ID ODA0
- To see the status of all the juke-box volumes:
\$JK1/VOL
- To start the Juke box interactive user interface:
\$JK1/INTER
- To list the files on a specific disk:
\$DIR ODA0:[PAN36]*.*
- To load a new cartridge in the first available slot:
\$JK1/LOAD
- To stop the driver:
\$JK1/SHUTDOWN

The process of HIM “archival” is periodic and automatic. The archival activities are logged in a special ORACLE table, which can be viewed through a dedicated FORM (LOGARC). Check this Form regularly to see the archival is being performed properly.

The HIM application can only archive its data IF there are “optical disks” loaded in the juke-box and available for archival. A special HIM FORM shows the status of the “optical disks” currently loaded.

This display allows the user to:

- Enter the label name. The format is MMM-YYYY if the data of one month can be archived on a single disk side or MMM-YYYY_2 if both disk sides are needed. The label name is used by the software to initialise the disk. You should also write this label name on the disk itself, so that later, when the disk is unloaded, one can know its contents.

- Enter the TYPE of disk (whether it is used for ARCHIVAL or RETRIEVAL)
- Enter if the disk should be re-initialised by the software (set the flag MEDIA INITIALISATION to REQUESTED). If requested, the disk will be initialized with the “label name”.

When no optical disks are available, the HIM function stops archiving. Data are kept in the ORACLE database as long as tables are available. In this case, the administrator should either:

- Mark a cartridge as “available” for archival (i.e. its contents will be lost). This is done through the above mentioned FORM display by:
 - ✓ Changing the label name.
 - ✓ Set the flag TYPE as ARCHIVAL
 - ✓ Set the flag MEDIA INITIALISATION to REQUESTED
- Load an additional empty cartridge in the jukebox using the JK1 command (provided there are still slots available in the jukebox). Then he has to use the HIM archival FORMS to
 - ✓ Enter a label name as described above
 - ✓ Set the flag TYPE as ARCHIVAL
 - ✓ Set the flag MEDIA INITIALISATION to REQUESTED
- Unload a cartridge (and store it on a safe place for later use) and load an empty cartridge in that slot (use jukebox front panel or the JK commands).

4. Disk space maintenance

The EMP software monitors the availability of the disks in each Data Server. There will be an alarm if 75% of a disk capacity is reached, and another emergency alarm if it reaches 90%. When such an alarm appears, the system engineer must react to get more free space. This section lists all needed indications about the files that can be deleted to free space.

1. Daily automatic cleanup

A cleanup procedure is run automatically on the Data Servers, HIM servers, ICCP servers and Operator Consoles every day at 3:00 AM. This procedure essentially purges old versions of log files that are generated by the EMP software (10 versions are kept).

2. HDR files

The HDR function, which is part of the SCADA application, records historical data in files. This function runs on all Data Servers (RSCC, SLDC's and SubLDCs). The files are recorded in a directory called HDR\$RECORD. Periodically, the recorded files are copied to the HDR\$BACKUP directory on both Data Servers. The cleanup procedure presented earlier deletes also HDR files in the HDR\$BACKUP directory of the Data Servers in case more than 90% of the disk capacity where HDR files are stored is reached. In case of need, old HDR files can be copied on tape in order to be available for some later reconstruction study.

3. Savecases:

The 5 main models used by EMP are:

- ✓ The SCADA Model
- ✓ The Network Model
- ✓ The Generation Model
- ✓ The Hydro Model
- ✓ The OAG/ICCP Model

These models contain the "description" of the electrical network, so they may be changed frequently. This may lead to different file versions of these savecases. If wanted, older versions of these savecases can be kept in a "zipped" format. Use the PRESS symbol to "zip" these savecases.

The savecases are stored on all the Data Servers (RSCC, SLDC's and SubLDC's) in a directory called HABITAT\$CMG_CASES.

4. FG Display Maintenance

a) Displays

Displays are maintained on a "Development" PC using the "FG Builder" and copied to the Data Servers using FTP. The "One-line" display and element set files are modified frequently, and each time new file versions are created. It is the responsibility of the programmer to purge those files frequently.

b) FG DISDEF and element set files

Once a display file has been modified, it needs to be loaded in HABITAT using the Rapport-FG compilation procedure (LOADHAB command). The compiled displays are added in the RFG_USER:PDISDEF.DISDEF file. So this file keeps growing, and becomes ultimately very big. So from time to time, this file needs to be deleted and re-created. This is achieved by a compilation of all the displays.

When "element sets" are compiled, they are kept in specific files that have an extension containing the compilation timestamp. So when re-compiling often the same element set, a lot of different compiled element set files is created in the RFG_USER directory. The Rapport-FG RFG_PURGESET command allows to purge all old versions of element set files, and to keep only the latest.

Each time a display is called-up the first time, the corresponding compiled "element" set is copied (in the RFG_USER directory) to the Operator Console where it has been called. If displays are often modified and compiled, you end up with many different versions of the same "element set". All these files may be deleted (the last "compiled" element set will be copied again on the first display call-up)

c) Alarm files

The ALARM application dumps periodically the “system activity log” into ASCII files into the DISK_ALM:[ALM_LOG36] directory on the Data Servers. These files are periodically copied into the Oracle database by the HIM application. However, if for any reason the HIM application is down, there need to be enough space in this directory to keep the files during this period (all the files will be copied and then deleted when HIM is started again)

5. How to build and download a RTU Database

The document “RTU Data Base Configuration Users Guide (NR-A/N-G00-1-A23) explains in detail how an RTU database is built and loaded in an RTU.

This section only briefly recalls the main principles.

An RTU database is built for a “target” system, i.e. the system to which the RTU is connected. That means the build process should be executed on the “target system” using the “target” SCADA database. To build and download a new RTU database the following is needed:

1. an operator console logged in programming mode with a DECTERM on the “master” Data Server
2. a SCADAMDCL savecase for the “target” system and a SCADAMDCL clone
3. a Laptop PC with the GBD900 database tool connected on the network

The process can be summarised as follows:

1. Retrieve the “target” case in the SCADAMDCL clone
2. From the session manager on the operator console, run the extraction tool. This generates in the directory DIR_XTOOLS a file with the extension S9R
3. Using FTP on the PC, copy this file to the directory C:\RTU\S900\DATA
4. On the PC use a dedicated icon to run the database translation tool and use the GBD900 icon to generate an RTU executable of the database (directory C:\SIM900\SIMU\BD\)
5. Using FTP on the PC, copy the executable file back to the directory DIR_RTUMMU of the Data Server being currently MASTER
6. Before downloading the new RTU database, NIS the “standby” communication line on the RTU communication diagram display so that no line switchover can occur during the download. Start the RTU download from the session manager on an operator console. When the download is completed, reset the RTU.

Once the RTU database has been downloaded, the new SCADA database can be put online in EMP.

6. How to Backup/Restore a Disks in OpenVMS

It is recommended to make a “image” (i.e. the full contents) backup of all the disks:

- ✓ periodically (typically once a year)
- ✓ each time major upgrades have been made (i.e. software changes and/or configuration changes like)

In case a machine is restored with a tape which is one year old, an “updated” version of some files will have to be copied:

- ✓ the savecases (Scada Model, Network Model, Generation Model, Hydro Model, OAG/ICCP Model)
- ✓ the FG displays
- ✓ the EXE (executable files) if any has been changed since the tape was made

This section applies to:

- ✓ Data Servers (Sub-LDC, SLDC and RSCC)
- ✓ HIM Servers (SLDC and RSCC)
- ✓ ICCP Servers (SLDC and RSCC)
- ✓ Operator Consoles (SLDC and RSCC)

6.1 Backup of the system disk

The backup of the system disk (DKA0) on a DAT tape is done as follows:

- ✓ Open a privileged session (on the SYSTEM or PAN36 account) and Shutdown the system using:
`@sys$system:shutdown`
- ✓ In the case of an operator console, power off the equipment, connect the external desktop tape unit and power on.
- ✓ Insert a tape in the drive and verify it is write enable
- ✓ At the “>>>” sign, issue the following command to get the name of the CD-ROM device, and the name of the DAT drive.
`>>>show device`
The CD-ROM device name may be DKA400, or DQB0 in the case of some Workstation (Operator consoles or ICCP server). The DAT drive device name may be MKA500
- ✓ Boot the system with the OpenVMS alpha distribution CD-ROM:
`>>>boot <CD-ROM-device-name>` (put the device name found earlier).
- ✓ At the end of the boot sequence, a menu is displayed. Choose the item allowing to execute DCL commands.
- ✓ Execute the following commands to initialize the tape, mount the system disk and the tape, and start the backup :
`$INIT/MEDIA=COMPACT MKA500: <volume label>`
`$MOUNT/FOR/MEDIA=COMPACT MKA500:`
`$MOUNT/OVER=ID DKA0:`
`$BACKUP/IMAGE/VER DKA0: MKA500:<saveset name>/LABEL=<label name>/MEDIA=COMPACT`
`DISMOUNT MKA500:`
`DISMOUNT DKA0:`
- ✓ Log out and choose the item allowing to shutdown the system.
- ✓ Reboot
- ✓ Make sure you write-protect the tape after removing it from the tap drive
- ✓ Label the tape with an explanation of the nature of the backup, the date, the name of the volume and save-set. Store the tape in a safe place.

6.2 Restoration of the system disk

The restoration of the system disk (DKA0) from a DAT tape is done as follows:

- ✓ Open a privileged session (on the SYSTEM or PAN36 account) and shutdown the system using
`@sys$system:shutdown`

- ✓ In the case of an operator console, power off the equipment, connect the external desktop tape unit and power on.
- ✓ Insert the tape in the drive and verify it is write protect
- ✓ At the ">>>>" sign, issue the following command to get the name of the CD-ROM device, and the name of the DAT drive.
 >>>>show device
 The CD-ROM device name may be DKA400, or DQB0 in the case of some Workstation (Operator consoles or ICCP server). The DAT drive device name may be MKA500
- ✓ Boot the system with the OpenVMS alpha distribution CD-ROM:
 >>>>boot <CD-ROM-device-name> (put the device name found earlier).
- ✓ At the end of the boot sequence, a menu is displayed. Choose the item allowing to execute DCL commands.
- ✓ Execute the following commands to mount the system disk and the tape, and start the restore :
 \$MOUNT/FOR MKA500:
 \$MOUNT/OVER=ID DKA0:
 \$BACKUP/IMAGE/VER MKA500:<saveset name>/LABEL=<label name> DKA0:
 DISMOUNT MKA500:
 DISMOUNT DKA0:
- ✓ Remove the tape. Log out and choose the item allowing to shutdown the system.
- ✓ Reboot

6.3 Backup of a user disk

To backup any user disk on any OpenVMS machine, follow these instructions:

- ✓ Open a privileged session (on the SYSTEM or PAN36 account) and shutdown the system using
 @sys\$system:shutdown
- ✓ In the case of an operator console, power off the equipment, connect the external desktop tape unit and power on.
- ✓ Insert a tape in the drive after verifying it is write enable
- ✓ At the ">>>>" sign, issue the following command to get the name of the CD-ROM device, and the name of the DAT drive.
 >>>>show device
 The CD-ROM device name may be DKA400, or DQB0 in the case of some Workstation (Operator consoles or ICCP server). The DAT drive device name may be MKA500
- ✓ Boot the system with the OpenVMS alpha distribution CD-ROM:
 >>>>boot <CD-ROM-device-name>
 Note : it is better to boot from the distribution CD-ROM in order to prevent the system from automatically mounting the disk and starting the application.
- ✓ At the end of the boot sequence, a menu is displayed. Choose the item allowing to execute DCL commands.
- ✓ Execute the following commands to initialize the tape, mount the system disk and the tape, and start the backup :
 \$INIT/MEDIA=COMPACT MKA500: <volume label>
 \$MOUNT/FOR/MEDIA=COMPACT MKA500:
 \$MOUNT/OVER=ID <user disk>
 \$BACKUP/IMAGE/VER <user disk> MKA500:<saveset name>/LABEL=<label name>/MEDIA=COMPACT
 DISMOUNT MKA500:
 DISMOUNT <user disk>
- ✓ Log out and choose the item allowing to shutdown the system.
- ✓ Reboot
- ✓ Make sure you write-protect the tape after removing it from the tap drive
- ✓ Label the tape with an explanation of the nature of the backup, the date, the name of the volume and save-set. Store the tape in a safe place.

6.4 Restoration of any user disk

The restoration of the system disk (DKA0) from a DAT tape is done as follows:

- ✓ Open a privileged session (on the SYSTEM or PAN36 account) and shutdown the system using `@sys$system:shutdown`
- ✓ In the case of an operator console, power off the equipment, connect the external desktop tape unit and power on.
- ✓ Insert the tape in the drive after verify it is write protect
- ✓ At the ">>>" sign, issue the following command to get the name of the CD-ROM device, and the name of the DAT drive.
 >>>show device
 The CD-ROM device name may be DKA400, or DQB0 in the case of some Workstation (Operator consoles or ICCP server). The DAT drive device name may be MKA500
- ✓ Boot the system with the OpenVMS alpha distribution CD-ROM:
 >>>boot <CD-ROM-device-name> (put the device name found earlier).
 Note: it is better to boot from the distribution CD-ROM in order to prevent the system from automatically mounting the disk and starting the application.
- ✓ At the end of the boot sequence, a menu is displayed. Choose the item allowing to execute DCL commands.
- ✓ Execute the following commands to mount the system disk and the tape, and start the restore :
 \$MOUNT/FOR MKA500:
 \$MOUNT/OVER=ID <user disk>
 \$BACKUP/IMAGE/VER MKA500:<saveset name>/LABEL=<label name> <user disk>
 DISMOUNT MKA500:
 DISMOUNT <user disk>
- ✓ Remove the tape. Log out and choose the item allowing to shutdown the system.
- ✓ Reboot

7. How to perform System Troubleshooting

7.1 How to monitor the system

There are several commands that are useful to monitor the VMS system:

- ✓ MONITOR SYSTEM
- ✓ MONITOR TOPCPU (can also be started using the TOP command)
- ✓ SHOW SYSTEM (shows all the running processes)
- ✓ SHP (show all the Habitat processes)

To get the information about the current quotas of a process use the QUOPRO utility. Identify the PID of the process to monitor (use the SHOW SYSTEM command) and run the QUOPRO utility:

\$QUOPRO

- ✓ Process PID: xxxx
- ✓ Recording interval: x (typically 2 seconds)

Check the process quotas displayed:

- ✓ WSSIZE, WSPEAK and SIZE_WS are the “working set” real time values
- ✓ PAGEFLTS: total number of page faults since the process started
- ✓ STATE: current state (LEF, COM, etc)
- ✓ VIRTPEAK: max. virtual memory used

All other columns show the remaining free resources. **They should never fall to zero.**

7.2 Looking for disk errors

Use the following command on any VMS machine to check disk errors (from a DECTERM logged in PAN36 account):

\$ANALYZE/DISK_STRUCTURE disk_name

If there are errors in the structure, use the following command to repair the structure:

\$ ANALYZE/DISK_STRUCTURE disk_name/REPAIR

Recheck the repair with the following command

\$ANALYZE/DISK_STRUCTURE disk_name/READ_CHECK

7.3 Looking for System Errors

The VMS maintains a record of all the system errors. This log file can be reviewed using the command

\$ANALYZE/ERROR

In this file once can see in particular

- ✓ When the system was last rebooted
- ✓ If the reboot was the result of a “operator shutdown” or not
- ✓ How many days the system was up since the last reboot
- ✓ All “system” errors if any

In case of a “system crash” (i.e. VMS), just before stopping VMS builds a “crash” file. This file can be reviewed using the command

\$ANALYZE/CRASH

7.4 Stopping and Starting Habitat

HABITAT is running on the following machines:

- ✓ Data Servers (RSCC, SLDC and SubLDCs)
- ✓ ICCP Servers

The table below gives an overview of the different Habitat states and the procedures used to change the state.

Procedures	Down Initialised Offline Online
HABSTART	X----->X
HABSTART_DEFINE_LOGICALS	X----->X
HABSTART_INSTALL_IMAGES	X----->X
PANSTART	X----->X
PANSTOP	X<-----X
HABSTOP_DEINSTALL_IMAGES	X<-----X
HABSTOP_DEASSIGN_LOGICALS	X<-----X
HABSTOP	X<-----X

To stop Habitat, log into the PAN36 account and issue the command:
@HABITAT\$BINDIR:HABSTOP.COM

To start Habitat, issue the command
@HABITAT\$BINDIR:HABSTART.COM

Note that on reboot, Habitat and EMP are started automatically.

Operator consoles are not HABITAT machines. Only client applications such as Remote-FG, ONP, ProGraf-RT and Oracle Forms for HIM are running there. They can be stopped using the appropriate menu of the session manager. Ending the session will stop all the clients. All the clients are started automatically when logging into an authorised mode (PAN36 account is for maintenance only).

7.5 How to re-initialise HABITAT clones

HABITAT clones are maintained in memory and on disk. It may happen that the clones on disk are corrupted, especially after a power failure, although the disk unit is operational (the reason is the memory could not be written completely to disk, making the clone structure inconsistent). In such a case the HABITAT clones need to be re-initialised. This is done using the following command:

\$PANINIT/RESET HABITAT\$DISK

This can only be done when HABITAT is offline. Note that this only updates the CLONER structure. If the contents of a clone (i.e. the data) are corrupted, the disk will have to be restored from tape.

8. Periodic Backup of critical files

The following are critical files:

- ✓ the source code in CMS
- ✓ the EMP savecases
- ✓ the FG displays build by the customer
- ✓ the DBB files build by the customer and associated savecases

The source code and the EMP savecases are located on the “development” machine. EMP files (displays, COM files, definition files, savecases, etc.) should NEVER be modified on a target system, ONLY on the “development” machine.

The FG displays and the DBB files build by the customer are located on a PC.

The FG displays build by the customer are also copied on the “data servers” where they are loaded into Habitat using the LOADHAB command.

The DBB files build by the customer are copied on the “development” machine where they are saved in a “master” savecase located in the HABITAT\$CMG_CASES directory. The extracted savecases (i.e. the target savecases) are also located on the “development” machine.

As a result the following actions should be performed **at least once in a month**:

- ✓ copy all the FG displays build by the customer (i.e. not the EMP displays) to the “development” machine in the RFG_USER directory
- ✓ Backup the CMS, RFG_USER and HABITAT\$CMG_CASES directory (only backup the changes since last backup)
- ✓ ZIP the DBB files and copy them to a “backup” PC