SubMenu

NOKIA

Safecopying in BSC

Contents

List of tables

Summary of changes

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made to previous issues.

Changes made between issues 9 and 8

The document has been revised throughout to comply with the latest documentation standards.

Added parameter *SYSTEM=<own>* to all IWY commands.

Chapter When to make a safecopy

Section *Alarm 2518* removed, because the same information is in the Alarm Reference Manual.

Chapter Making a fallback copy of the software build and database:

Section *Preparing for fallback copying*, step 3: added the second command line.

Section *Making a fallback copy via the command calendar*, example: changed the times given.

Chapter Making a backup copy to floppy disks

Section *Making a backup copy of transmission equipment software builds to floppy disks*: Step 1: command EWL replaced by QUL.

Chapter Restoring the software build

Section *Restoring the software build if one Winchester disk is faulty*, step 4: changed FF to FFF.

Section *Restoring the software build if both Winchester disks are faulty*, step 3: changed FF to FFF.

Sections *Restoring the software build if one Winchester disk is faulty* and *Restoring the software build if data files are corrupted in the BU build and FB build*: Removed command lines referring to WAGONS database.

Section *Restoring the software build if data files are corrupted in the BU build and FB build*, Step 7: added parameter to command USI.

Chapter Restoring databases from DAT tape

Section *Restoring BTS software build and hardware database from DAT tape*, Step 1: removed *BCF_PACK* from the second IWY command line

Chapter Fallback copying troubleshooting

Added the output: 0027 SOFTWARE PACKAGE FALLBACK COPYING NOTICE IN PROGRESS.

Changes made between issues 8 and 7

Chapters *Instructions for the use of the DAT drive* and *Recommendations* change places.

Structure of document after the chapter *Fallback of the software build and database* modified.

Chapter Concepts

Concepts Cartridge Tape Unit and Digital Audio Tape added.

Chapter Recommendations

Structure of chapter modified.

The description of alarm 2518 changed.

Chapter Instructions for the use of the CTU

Name of chapter updated (old name: *Instructions for the use of the DAT drive*).

Chapter Instructions for the use of the CTU, section Inserting a DAT tape to the CTU

Name of section updated

Chapter Instructions for the use of the CTU, the first section

The printout of section changed. Recommendation for the use of one tape added.

Chapter Instructions for the use of the CTU, section Displaying the contents of a DAT tape

DAT indexing changed from CTU, 0 to CTU,<x>.

Chapter Instructions for the use of the CTU, section Copying from hard disk to DAT tape

DAT indexing changed from CTU,0 to CTU,<x>.

Chapter Instructions for the use of the CTU, section Removing a DAT tape from the CTU

Name of section updated.

DAT indexing changed from CTU,0 to CTU,<x>.

Chapter Instructions for the use of the CTU, section Cleaning the reading head of the CTU

Name of section updated

Chapter Fallback of the software build and database, section Deleting the old fallback build

MML command changed from ZWQE: NAME=<FB_build_name>; to ZWQE: NAME=<FB_build_name>: DIRE=<fallback_dir>:MAFILE,:::;

Chapter Fallback of the software build and database, section Preparatory actions

The needed space is 200 000 blocks.

Chapter Fallback of the software build and database, section Fallback via command calendar

MML command parameters has been changed from DIRE=FALLBACK; to DIRE=<fallback_dir>:MAFILE,:::;

Chapter Backup copying to DAT tape, section Backup copying of transmission equipment software builds to DAT tape

New section.

Chapter Backup copying to floppy disks, section Backup copying of transmission equipment software builds to floppy disks

New section

Chapter Restoring databases from DAT tape, section Restoring transmission equipment build database from DAT tape

New section.

Chapter Restoring databases from floppy disks, section Restoring transmission equipment software builds from floppy disks

New section.

Changes made between issues 7 and 5

Software package changed to software build.

DAT indexing has been changed from CTU-N0 to CTU-N<x>

Chapter Instructions for the use of the DAT drive, section Copying all files and directories in a file set

<desired_directory> changed to be <root_directory>.

DIR-parameter use clarified.

Chapter Recommendations, section When to make safecopy

The recommendation is to take data files fallback daily.

New alarm 2518 added.

Chapter Fallback of the software build and database, section Preparatory actions

The needed space is 150000 blocks.

Chapter Restoring the software build

New database WAGONS added.

Chapter Restoring the software build, section One Winchester disk is faulty

Work order has been modified - first initialise then prevent file/disk update.

Chapter Restoring the software build, section Both Winchester disks are faulty

In ZMI formatting, the BLCODE, LFILES and MMDIRE directory sizes have been increased to 800(H) and HWDATA to 400(H).

Chapter Restoring the software build

Section Datafiles corrupted on disks, in memory and in fallback build in OMU is a new section.

Chapter Remote Backup

New chapter.

1 BSC safecopying overview

Safecopying means taking a copy of the BACKUP software build either to FALLBACK software build on disk or to any other medium (floppies or DAT).

Note

These instructions are compatible with the S10 software only.

These instructions explain how to make a safecopy to Winchester disks and a backup copy of software builds and software databases to a DAT tape or to floppy disks.

Recommendations for safecopying in BSC

- avoid making database updates or other changes during backup
- take fallbacks during low traffic, for example at night
- always restore the entire backup to retain the consistency of a software build
- have always at least the required number of initialised diskettes available
- name the backup file sets systematically on the DAT tape to specify the software build and release and the fallback activation time.

When to restore backup

Restore backup from the DAT tape or floppy disks when:

- both Winchesters of the OMU unit are faulty
- data files are corrupted on both Winchesters of the OMU and fallback build is also corrupted.

Restore backup from another Winchester disk if one Winchester unit of the OMU is faulty.

Restore backup from the fallback build whenever you want to activate the FB build and the conditions in the above instances are not met.

When to make a safecopy

- After fallback copying, always make a backup copy of the fallback to DAT tape or floppy disks.
- Make a fallback copy always after the software build has been changed. When the new build turns out to function well, make a fallback copy of the entire build and backup copy of the fallback to the DAT tape or floppy disks.
- After major data changes, always make a fallback copy of data files and backup copy the entire build to the DAT tape or floppy disks.
- It is recommended to make a full fallback *at least once a week*. Fallback for data files is recommended to be made *daily*. When you make the fallback for the first time, you have to make the entire fallback.
- If the alarm 2518 'No valid fallback copy for default package' is set, check the reason for the alarm and follow the instructions in *Alarm Reference*.

When you make the backup from the fallback build to the DAT tape or floppy disks, you do not need to check the databases, or prevent the database or disk updating.

Remote backup

Fallback and backup procedures can also be made from the NMS. '

This requires an optional NMS feature: DX 200 Support for Remote Backup. For more information, see NMS/2000 or NetAct documentation.

NMS/2000 documentation:

- *System Management Basic Operating Principles and Procedures* (information about the feature)
- *System Management Tasks* (instructions)

NetAct documentation:

- *Administrator Principles* (information about the feature)
- *Taking Backups of DX200 Network Elements* (instructions)

Safecopying procedures

- Using the CTU
- Making a fallback copy of the software build and database
- Making a backup copy to DAT tape
- Making a backup copy to floppy disks

- Restoring the software build
- Restoring databases from DAT tape
- Restoring databases from floppy disks
- Fallback copying troubleshooting

2 Using the CTU

The Cartridge Tape Unit (CTU) is located either in WDDC1 cartridge or in SD3C-S cartridge.

The following table describes the length and capacity of the recommended DDS tapes:

Table 1. The length and capacity of the recommended DDS tapes

Tape drive type	Length of the tape	Capacity of the tape
DDS-1 tape drive	60 m	1.3 Gb
	90 m	2 Gb
DDS-2 tape drive	90 m	2 Gb
	120 m	4 Gb
DDS-3 tape drive	90 m	2 Gb
	120 m	4 Gb
	125 m	12 Gb

It is recommended to use 90m tape, because it can be used in all DAT drives.

You can check the type of your DAT drive from the front panel of the device:

- DAT2G shows that it is a DDS-1 tape drive
- DAT4G shows that it is a DDS-2 tape drive
- DAT12G, DAT12-S shows that it is a DDS-3 tape drive

The capacity of the tape depends on the structure of the data that has been saved on the tape. During saving the data is compressed, which means that it is coded to a more concise form than the original.

It is recommended that the use of one tape is limited to 100 backup operations.

2.1 Inserting a DAT tape to the CTU

An empty tape is immediately ready to be used. The tape must be located in the DAT drive (CTU) to enable the operation of MML commands concerning the CTU.

Steps

1. If the tape is not in the CTU, check that the CTU is in the BL-SY state (IMD)

   ```
   ZIMD;
   ```

2. Insert the DAT tape to the CTU

   Ensure that the tape is in the drive by checking that the green light on the front panel of the drive is on.

   If any other light colours or combinations occur, refer to *The Digital Audio Tape Drive in the DX 200 BSC* for their meanings.

3. Check the state of CTU (IMD)

   When the tape is in the drive the normal state of the CTU is WO-ID.

   The updating of the state information from BL-SY to WO-ID takes about a minute from the moment the tape has been inserted into the drive. If you enter, display, and copy commands for the CTU after the tape has been inserted, the state will also be updated from BL-SY to WO-ID.

2.2 Displaying the contents of a DAT tape

Steps

- Display the file set in the tape (IBX)

  The command also displays the names of the files contained in the file set providing that the desired file set name has been defined in the command.

  ```
  IBX;
  ```

```
IBX:CTU,<source unit number>,<set name>;
```

Note

If you wish to interrupt copying or displaying the contents of the DAT tape, you *must* use an MML-guided command, in other words, press the key 'S'. If you interrupt the execution of the command in some other way, the tape will remain in the reserved state. If the state of the tape is reserved, the tape must not be removed from the tape drive before the state of the tape is released. Release the state of the tape:

```
IME::CTU,<tape unit index>;
```

2.3 Copying from hard disk to DAT tape

Steps

1. Set the source parameters (IWY)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=<full
path>,DRIVE=WDU-<index>;
```

2. Define the destination parameters (IWY)

```
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=CTU-N<index>;
```

3. Copy the files from a source directory (IBC)

```
IBC:,,,,,,,,,<copy mode>:DSN=<name of destination file
set>:<add>;
```

Further information

Note

If you want to delete the latest file set from the tape before you continue copying to the same DAT tape, use command `IBD`.

2.4 Copying from diskette to DAT tape

Steps

- Copy the files

  Make the copies as instructed in Copying from hard disk to DAT tape with the exception that the source unit is the diskette drive, FDU-N0.

2.5 Copying from DAT tape to hard disk

There are three ways to copy the contents of the DAT tape to hard disk. Choose one of the following options.

Steps

- For implementing this step you have the following alternatives:

  a. Copy *all files and directories in a file set*

  1. Define from where to copy: DAT

     ```
     IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/
     ,DRIVE=CTU-N<index>;
     ```

  2. Define where to copy: hard disk

     ```
     IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/<root
     directory>,DRIVE=WDU-<index>;
     ```

  3. Copy all files in a file set

     ```
     IBC:,,,,,,,,,:SSN=<name of source file set>;
     ```

     Subdirectories are created based on the indexed structure of the DDS format, when the DIR-parameter is not used.

Note

If the DAT tape has not been created in the same network element where restoring is attempted, the command syntax is:

```
IBC:,,,,,,,,,:SSN=<name of source file
set>,SYSTEM=ALL,UNIT=ALL;
```

---

b. Copy all the files of a file set from a *specific directory*

1. Define the source directory on DAT

   Give the directory name under which the files to be copied are:

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<dir on the DAT containing files>, DRIVE=CTU-N<index>;
   ```

2. Define the destination directory (hard disk)

   ```
   IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/<root directory>,DRIVE=WDU-<index>;
   ```

3. Copy all files in a directory

   ```
   IBC:,,,,,,,,,DIR:SSN=<name of source file set>;
   ```

   DIR means that the file(s) are copied from a directory defined with the IWY command without creating a directory. Note that copying the files from a certain directory on DAT tape to hard disk takes some time because the whole tape will be read through.

Note

If the DAT tape has not been created in the same network element where restoring is attempted, the command syntax is:

```
IBC:,,,,,,,,,DIR:SSN=<name of source file set>,SYSTEM=ALL,UNIT=ALL;
```

---

c. Copy *a specific file* in a desired directory of the file set

1. Define the source directory on DAT tape

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<desired directory>,DRIVE=CTU-N<index>;
   ```

2. Define the destination directory (hard disk)

   ```
   IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/<root directory>,DRIVE=WDU-<index>;
   ```

3. Copy the file

   ```
   IBC:,,<file name>,<file name extension>,,,,,DIR:SSN=<file set name>;
   ```

   DIR means that the file is copied from the directory defined in the IWY command.

Note

If the DAT tape has not been created in the same network element where restoring is attempted, the command syntax is:

```
IBC:,,<filename>,<ext>,,,,,DIR:SSN=<name of source file set>,SYSTEM=ALL,UNIT=ALL;
```

2.6 Copying from DAT tape to diskettes

Steps

- Copy the files

  Make the copies as instructed in Copying from DAT tape to hard disk, with the exception that the destination unit is diskette drive, FDU-N0.

2.7 Removing a DAT tape from the CTU and cleaning the CTU

Steps

1. Press the eject button in the front panel of the CTU and wait until the tape comes out

   When the tape is being removed, the drive will automatically rewind the tape to the beginning.

   During copying the state of the drive is reserved and the eject button does not work. Therefore, it is not possible to interrupt copying accidentally by pressing the eject button. If you interrupt the execution without using an MML-guided command, the tape will remain in the reserved state. To release the state:

   ```
   IME::CTU,0;
   ```

2. Clean the reading head of the CTU

   Follow the instructions in Cleaning the CTU.

3 Making a fallback copy of the software build and database

A fallback copy can be made of the entire software build , all data files or all changed files to the FALLBACK directory. The directory can be defined by the operator as something else than FALLBACK. The directory name should, however, be defined so that the BSC user clearly understands that the directory contains a fallback copy of the software build.

If you make the fallback for the first time, make an entire fallback. For more information on when to make the fallback of the entire build or of the data files only or of changed files only, see Recommendations.

3.1 Preparing for fallback copying

Steps

1. Find out the system disk (IWQ)

   ```
   IWQ:<own system>,OMU:
   ```

   Press enter to see the system disk.

   Press ctrl+Y to interrupt the command.

2. Check the state of the Winchester disks (ISI)

   Both Winchester disks must be in the WO-BU state.

   ```
   ISI::WDU;
   ```

3. Check the available disk space (IWX)

   Check that there is enough space for the fallback build on Winchester disks. The needed space is approximately 200 000 blocks.

```
IWX:,:WS,NODEF::%,%;

IWX:,:WB,NODEF::%,%;
```

4. Check that you are taking a backup copy of a consistent database (DBD)

```
DBD:OMU;
```

Check that there is no copying or loading in progress, that is, you should see the following output: DUMPING OR LOADING: NONE.

3.2 Making fallback copies

Steps

- For implementing this step you have the following alternatives:

  a. Make a fallback copy of the entire software build

     1. Check that the OMU computer unit is in the state WO-EX

        ```
        USI:OMU;
        ```

     2. Make the fallback

        The fallback build can only be made from the build that has BU status.

        ```
        ZWKS:MODE=FULL,NAME=<package
        name>,DIRE=<package directory>;
        ```

        The WKS command always copies the default versions from the current directories to the backup directories if the module names are found from the Software Package Master File (MAFILE). The ASWDIR and SCMANA directories are also copied.

        You can interrupt the copying with the `WKQ` command. All reserved resources and disk updating will be freed.

b. Make the fallback of the data files only (WKS)

```
WKS:MODE=DATA;
```

The data files are copied to the fallback build directory (the build which has FB status).

c. Make the fallback of changed files only (WKS)

```
WKS:MODE=ARCHIVE;
```

The changed files are copied to the fallback build directory (the build which has FB status). If the build ID has been changed (CD has been installed), it will also be updated.

3.3 Making a fallback copy via the command calendar

The command calendar is a program entity, which is used to execute MML commands and command files at a given time or on the basis of alarms.

Set the backup procedure into the command calendar permanently. Activate the command calendar.

Note

Every time you make a backup, you have to check from the session log whether the backup has been successfully made.

The command calendar can handle only one task at a time. If a task execution should start when the previous one is still on, it is set to pending and execution is delayed.

There are three modes for making a fallback:

1. FULL; creates a new fallback build.
2. DATA; makes a safecopy of data files.
3. ARCHIVE; makes a safecopy of changed files.

Steps

1. Define the command into the command calendar (ICI)

```
ICI:<mml command code>,::<execution parameters>;
```

After the ICI command execution, the necessary parameters for the given MML command are requested.

```
<mml command code>:MODE=<mode>,DIRE=<dire>,NAME=<name>;
```

Example 1. Data type.

```
ZICI:WKS,::TIME=01-00,PTYPE=DA,PNBR=1,NBR=255;
```

The parameters for the command `WKS` are requested:

```
MODE=DATA;
```

The command calendar makes a safecopy of the data files every night at 01:00 a.m.

Example 2. Archive type.

```
ZICI:WKS,::TIME=01-00,PTYPE=DA,PNBR=1,NBR=255;
```

The parameters for the command `WKS` are requested:

```
MODE=ARCHIVE;
```

The command calendar makes a safecopy of the changed files every night at 01.00 p.m.

Example 3. Full type.

If the command calendar is used for making a fallback of the entire software build, the name and directory of FB build in the command should not exist or the FB build with the same name must be deleted from the Winchester disk before command execution.

In the example, the delete command of the existing fallback is added to the calendar before the actual fallback command, and a sufficient amount of time is reserved for the deleting operation.

In the example, the command calendar deletes the existing fallback build every night at 00:40 a.m. and then makes a safecopy of the entire software build every night at 01:00 a.m:

Deleting the existing fallback:

```
ZICI:WQD,::TIME=00-50,PTYPE=DA,PNBR=1,NBR=255;
```

The parameters for the command `WKS` are requested:

```
DIRE=<fallback directory>:MAFILE,::;
```

Making a new fallback:

```
ZICI:WKS,::TIME=01-20,PTYPE=DA,PNBR=1,NBR=255;
```

The parameters for the command `WKS` are requested:

```
MODE=FULL,DIRE=<fallback directory>,NAME=<fallback name>;
```

2. Test the task execution of the command calendar (ICT)

   With the `ICL` command you can list the command calendar tasks.

3. Check that fallback is successfully completed by displaying the log file of the fallback (WKP)

   ```
   WKP:<fallback type>:<execution parameters>;
   ```

   Expected outcome

   Fallback is successfully completed when no errors occur during the procedure.

   Unexpected outcome

   If there are any errors, fallback must be made again.

   Check the usability of the copy in the supplementary information field of the alarm.

   For more information, see Fallback copying troubleshooting.

4. Check the states of databases (DBS)

   The states of databases (BSDATA and OEDATA) should be normal or dumping, except the state of EQUIPM in the spare unit should be abnormal.

Further information

You can delete a command calendar task with the `ICD` command.

4 Making a backup copy to DAT tape

4.1 Making a backup copy of the BSC software build to DAT tape

Each fallback directory is copied to its own file set. This is because when restoring just a certain directory of fallback from the DAT tape, copying could take a fairly long time if the whole fallback build is in the same file set. For more information about the naming of the file sets, see Recommendations.

Steps

- For implementing this step you have the following alternatives:

  a. Copy the entire fallback build to the DAT tape (IWY, IBC)

  1. Copy

     - Copying of BLCODE:

       ```
       IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/
       ,DRIVE=CTU-N<index>;
       IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
       directory>/BLCODE,DRIVE=WDU-S;
       IBC:,,,,,,,,,DIR:DSN=<BLCODE file set
       name>;
       ```

     - Copying of LFILES:

       ```
       IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
       directory>/LFILES,DRIVE=WDU-S;
       IBC:,,,,,,,,,DIR:DSN=<LFILES file set
       name>;
       ```

     - Copying of MMDIRE:

       ```
       IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
       directory>/MMDIRE,DRIVE=WDU-S;
       IBC:,,,,,,,,,DIR:DSN=<MMDIRE file set
       name>;
       ```

2. Copy the SCMANA from the fallback directory (OMU) to the DAT tape

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
directory>/SCMANA,DRIVE=WDU-S;
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/
,DRIVE=CTU-N<index>;
IBC:,,,,,,,,,DIR:DSN=<SCMANA file set name>;
```

3. Copy the ASWDIR from the fallback directory (OMU) to the DAT tape

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
directory>/ASWDIR,DRIVE=WDU-S;
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/
,DRIVE=CTU-N<index>;
IBC:,,,,,,,,,DIR:DSN=<ASWDIR file set name>;
```

b. Copy only the data files to DAT tape (IWY, IBC)

If a fallback has been made only for data files, it is recommended to copy the files also to the DAT tape.

```
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=CTU-
N<index>;

ZIWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB_dir>/
LFILES,DRIVE=WDU-S;

IBC:,,,,,,,,,DIR:DSN=<LFILES file set name>;
```

4.2 Making a backup copy of the BTS software builds and hardware database to DAT tape

Steps

- For implementing this step you have the following alternatives:

a. Copy BTS software builds and hardware database to DAT tape (IWY, IBC)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/
BCF_PACK,DRIVE=WDU-S;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=CTU-
N<index>;

IBC:,,,,,,,,,DIR:DSN=<name of destination file
set>;
```

b. Copy only the BTS hardware database to DAT tape (IWY, IBC)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/BCF_PACK/
HWDATA,DRIVE=WDU-S;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=CTU-
N<index>;

IBC:,,,,,,,,,DIR:DSN=<name of destination file
set>;
```

4.3 Making a backup copy of transmission equipment software builds to DAT tape

Steps

- Copy the transmission equipment software builds to DAT tape (IWY, IBC)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/TRE_PACK,DRIVE=WDU-
S;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=CTU-N<index>;

IBC:,,,,,,,,,DIR:DSN=<name of destination file set>;
```

5 Making a backup copy to floppy disks

Before you start

Check that you have reserved the required number of formatted floppy diskettes for backup.

5.1 Making a backup copy of the BSC software build to floppy disks

Steps

- For implementing this step you have the following alternatives:

  a. Copy the entire build from the system disk (WDU-S) to the floppy disks (IWY, IBC)

  - BLCODE:

    ```
    IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
    directory>/BLCODE,DRIVE=WDU-S;
    IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/
    ,DRIVE=FDU-N0;
    IBC;
    ```

  - LFILES:

    ```
    IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
    directory>/LFILES,DRIVE=WDU-S;
    IBC;
    ```

  - MMDIRE:`IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB directory>/MMDIRE,DRIVE=WDU-S;`
    `IBC;`

- SCMANA:
  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
  directory>/SCMANA,DRIVE=WDU-S;
  IBC;
  ```
- ASWDIR:
  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB
  directory>/ASWDIR,DRIVE=WDU-S;
  IBC;
  ```

b. Copy the data files only (IWY, IBC)

If a fallback has been made only for data files, it is recommended to copy the files to the floppy disk.

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB directory>/
LFILES,DRIVE=WDU-S;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

IBC;
```

5.2 Making a backup copy of the BTS software builds and hardware database to floppy disks

Steps

1. Before copying the BTS software, check the existing subdirectories (EWL)

   ```
   EWL;
   ```

   To avoid confusion in the future, copy the hardware database and each BTS software build on its own floppy disk.

2. Copy the BTS software builds to floppy disks (EWL, IWY, IBC)

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/BCF_PACK/<package
   name>,DRIVE=WDU-S;
   ```

   `package name`: directories where BTS software builds are stored

   ```
   IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

   IBC;
   ```

3. Copy the BTS hardware database to floppy disks (IWY, IBC)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/BCF_PACK/
HWDATA,DRIVE=WDU-S;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

IBC;
```

5.3 Making a backup copy of transmission equipment software builds to floppy disks

Steps

1. Check the transmission database (QUL)

   ```
   QUL;
   ```

2. Copy the transmission equipment software builds (IWY, IBC)

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/TRE_PACK/<package
   name>,DRIVE=WDU-S;

   IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

   IBC;
   ```

   `package name`: can be named freely.

6 Restoring the software build

The fallback activation restores the situation that was present at the time the fallback was made. If any changes have been made after the last fallback, the changes must be made again.

Depending on the fault situation, there are several different tasks or routines that you have to do in order to get the network element working properly again.

If fallback copying fails, see Fallback copying troubleshooting.

6.1 Restoring the software build if the BU build is faulty

If the BU build is found to be faulty, the FB build can be restored to serve as the BU build.

Steps

1. Change the FB build to be the default (WSD)

```
WSD:STAT=FB;
```

Note

Changing the default build causes the system to restart. The system informs the user about this and asks for verification.

2. When the FB build is working, roll back the statuses so that the FB build is changed to the BU build (WSR)

```
WSR;
```

3. Verify the contents of the build if necessary (WQB)

6.2 Restoring the software build if one Winchester disk is faulty

Steps

1. Check the strapping of the new Winchester disk and replace the faulty disk
2. Check that the system recognises the disk (ISI)

   ```
   ISI::WDU;
   ```

3. Change the state of the Winchester to WO-ID (ISC)
4. If no formatted Winchester disks are available, initialise a new Winchester disk (IWI)

   ```
   IWI:<bsc name>,OMU:WB,<format>,<volume
   label>,FFF,2,<initials>;
   ```

Note

Use a formatted Winchester disk if possible, because the disk initialisation may take up to two hours.

---

5. Change the state of the new disk to WO-BU (ISC)
6. Before copying, prevent the file updates and disk updates of all the databases (DUP, DBP)

   The databases are *BSDATA*, *EQUIPM* and *OEDATA*.

   ```
   DUP;
   ```

   ```
   DBP:<database name>,<occurrence>:DISK;
   ```

7. Check that all updates have been released from the disk (DUQ, DBD, DBS)
8. Empty the database disk updating log (DBX)

   ```
   DBX:<database name>,<occurrence>;
   ```

9. Copy the contents of the fault-free Winchester disk to the new disk (IWY, IBC)

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=WDU-S;
   ```

```
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=WDU-B;

IBC:,,,,,,,,,DIR;
```

10. Check that all file updates in the queue are written to disks (DUQ)

```
DUQ:OMU;

DUQ:MCMU;
```

11. If the file and database updating are prevented, resume them (DUR, DBR)

```
DUR;

DBR:BSDATA,0:DISK;

DBR:EQUIPM,0:DISK;

DBR:OEDATA,0:DISK;
```

12. Copy *BSDATA*, *EQUIPM* and *OEDATA* databases from memory to disk (DBC)

```
DBC:BSDATA,0;

DBC:EQUIPM,0;

DBC:OEDATA,0;
```

13. Check that the databases are consistent on disks (DBD)

```
DBD:OMU;
```

14. Dump the data files from OMU and MCMU to disks of OMU (DFC)

```
DFC:OMU;

DFC:MCMU,<wo>;
```

6.3 Restoring the software build if both Winchester disks are faulty

When both Winchester disks are faulty, MML commands do not work. Formatting, creating directories and copying have to be done with the OMU Service Terminal commands.

Steps

1. Restart the OMU to minidebugger mode
   1. Connect the service terminal to the OMU.
   2. Press the reset button and then the debugger button until the system restarts.
2. Check the strapping and initialise new Winchester disks
3. Format disks

```
ZMI:W0-<DISK_NAME>,FFF,2

ZMI:W1-<DISK_NAME>,FFF,2
```

4. Create directories to W0

```
ZMCD:W0-/<Build_root_dir>,20

ZMCD:W0-/<Build_root_dir>/BLCODE,900

ZMCD:W0-/<Build_root_dir>/LFILES,900

ZMCD:W0-/<Build_root_dir>/MMDIRE,900

ZMCD:W0-/<Build_root_dir>/ASWDIR,FF

ZMCD:W0-/SCMANA,FF

ZMCD:W0-/BSCSTA,FFF

ZMCD:W0-/BCF_PACK,64

ZMCD:W0-/BCF_PACK/PACK_<x>,64

ZMCD:W0-/BCF_PACK/HWDATA,400

ZMCD:W0-/TRE_PACK/PACK_<x>,300
```

6.3.1 Restoring Fallback from DAT tape

This procedure instructs how to restore the fallback software build from the DAT tape to the first Winchester disk.

Steps

1. Copy

   ```
   ZMM:C0-/<FB_directory>/BLCODE/,W0-/<Build_root_dir>/
   BLCODE/,<BLCODE_file_set_name>

   ZMM:C0-/<FB_directory>/LFILES/,W0-/<Build_root_dir>/
   LFILES/,<LFILES_file_set_name>

   ZMM:C0-/<FB_directory>/MMDIRE/,W0-/<Build_root_dir>/
   MMDIRE/,<MMDIRE_file_set_name>

   ZMM:C0-/<FB_directory>/SCMANA/,W0-/SCMANA/
   ,<SCMANA_file_set_name>

   ZMM:C0-/<FB_directory>/ASWDIR/,W0-/
   <Build_root_directory>/ASWDIR/,<ASWDIR_file_set_name>
   ```

2. Copy the BTS software builds and the hardware database

   ```
   ZMMD:C0-/BCF_PACK/,W0-/,<BCFPACK_file_set_name>
   ```

3. Copy the transmission equipment software builds

   ```
   ZMMD:C0-/TRE_PACK/,W0-/,<TREPACK_file_set_name>
   ```

4. Copy the contents of the Winchester disk to another one

   ```
   ZMMD:W0-/,W1-/
   ```

5. Restart the OMU by pushing the reset button

6. When an MML session is available, restart the BSC (USS)

   ```
   USS:SYM:C=DSK;
   ```

   Expected outcome

   After restarting, the system will automatically create the rest of the BCF_PACK subdirectories and start loading the BTSs.

6.3.2 Restoring Fallback from floppy disks

This procedure instructs how to restore the fallback software build from the floppy diskettes to the first Winchester disk.

Steps

1. Copy

   Repeat the copying command until all the diskettes in the directory have been copied.

   ```
   ZMM:F0-/*.*,W0-/<Build_root_dir>/BLCODE/

   ZMM:F0-/*.*,W0-/<Build_root_dir>/LFILES/

   ZMM:F0-/*.*,W0-/<Build_root_dir>/MMDIRE/

   ZMM:F0-/*.*,W0-/<Build_root_dir>/ASWDIR/

   ZMM:F0-/*.*,W0-/BCF_PACK/PACK_<x>/
   ```

   BCF_PACK/PACK_<x> files are the BTS software builds.

   ```
   ZMM:F0-/*.*,W0-/BCF_PACK/HWDATA/

   ZMM:F0-/*.*,W0-/TRE_PACK/PACK_<x>/
   ```

   TRE_PACK/PACK_<x> files are the transmission equipment builds.

   ```
   ZMM:F0-/*.*,W0-/SCMANA/
   ```

2. Copy the contents of one Winchester disk to the other

   ```
   ZMMD:W0-/,W1-/
   ```

   After restart, the system will automatically create the rest of the BCF_PACK subdirectories and start loading the BTSs.

6.4 Restoring the software build if data files are corrupted in the BU build and FB build

If data files are corrupted in both the BU build and FB build on the hard disks of the OMU, you need to copy the data files (LFILES) from a DAT tape to the current build. To copy the data files from a DAT tape to the hard disk, follow the steps below.

Steps

1. Prevent file updates (DUP)

   ```
   DUP;
   ```

2. Prevent disk updates of databases (DBP)

   ```
   DBP:BSDATA,0:DISK;

   DBP:EQUIPM,0:DISK;

   DBP:OEDATA,0:DISK;
   ```

3. Check that all updates have been unpacked from the disk log to the disk database (DBX)

   The DBX command unpacks disk logs if they are not empty.

   ```
   DBX:BSDATA,0;

   DBX:EQUIPM,0;

   DBX:OEDATA,0;
   ```

4. Copy the data files from the DAT tape to the current build (IWY, IBC)

   ```
   IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<FB directory>/
   LFILES,DRIVE=CTU-N<index>;

   IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/<build directory>/
   LFILES,DRIVE=WDU-SB;

   IBC:,,,,,,,,,DIR:SSN=<file set>;
   ```

5. Delete the DBI*.* and DBA*.* files from the disks (IWD)

   ```
   IWD::WSB,NODEF:<build directory>,LFILES:DBI%,IMG;
   ```

```
IWD::WSB,NODEF:<build directory>,LFILES:DBA%,IMG;
```

6. Restart the system (USS)

```
USS:SYM:C=DSK;
```

Note

The system restart resumes the file updates.

---

7. When MML commands work again, interrogate the restart states of the units (USI)

```
USI:COMP;
```

7 Restoring databases from DAT tape

7.1 Restoring BTS software build and hardware database from DAT tape

Steps

- For implementing this step you have the following alternatives:

  a. Restore all BTS software builds from DAT tape (IWY, IBC)

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<BCF pack
  directory>,DRIVE=CTU-N<index>;

  IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=WDU-SB;

  IBC:,,,,,,,,,:SSN=<name of source file
  set>,SYSTEM=ALL,UNIT=ALL;
  ```

  b. Restore a specific BTS software build from DAT tape (IWY, IBC)

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/
  <path>,DRIVE=CTU-N<index>;
  ```

  `path`: specify the build directory.

  ```
  IWY:D:UNIT=OMU,PATH=/,DRIVE=WDU-SB;

  IBC:,,,,,,,,,DIR:SSN=<name of source file
  set>,SYSTEM=ALL,UNIT=ALL;
  ```

  c. Restore the hardware database separately (IWY, IBC)

  Do as in step 1b, but for parameter value `path`, give HWDATA instead of build directory.

7.2 Restoring transmission equipment build database from DAT tape

Steps

- For implementing this step you have the following alternatives:

  a. Restore all the transmission equipment software builds from DAT tape (IWY, IBC)

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/<TRE pack
  directory>,DRIVE=CTU-N<index>;

  IWY:D:UNIT=OMU,PATH=/TRE_PACK,DRIVE=WDU-SB;

  IBC:,,,,,,,,,:SSN=<name of source file
  set>,SYSTEM=ALL,UNIT=ALL;
  ```

  b. Restore one specific transmission equipment software build from DAT tape

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/
  <path>,DRIVE=CTU-N<index>;

  IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/
  TRE_PACK,DRIVE=WDU-SB;

  IBC:,,,,,,,,,DIR:SSN=<name of source file
  set>,SYSTEM=ALL,UNIT=ALL;
  ```

  `path`: specify the build directory.

8 Restoring databases from floppy disks

Depending on the situation, it may not be necessary to restore both BTS software builds and the hardware database. The following instructions describe how to restore either BTS software builds, the hardware database or equipment software builds.

Steps

- For implementing this step you have the following alternatives:

  a. When: restoring the BTS software builds

  Copy the data files from the floppy disk to the WDU-SB (IWY, IBC)

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

  IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/BCF_PACK/
  <path>,DRIVE=WDU-SB;

  IBC:;
  ```

  `path`: give the name of the directory where the specific BTS software build is to be copied.

  Repeat the copying command for each BTS software build until all desired BTS software builds are restored to hard disk.

  b. When: restoring the BTS hardware database

  Copy the data files from the floppy disk to both Winchester disks (IWY, IBC)

  ```
  IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;
  ```

```
IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/BCF_PACK/
HWDATA,DRIVE=WDU-SB;

IBC:;
```

c. When: restoring transmission equipment software builds from floppy disks

Copy the data files from the floppy disk to the WDU-SB (IWY, IBC)

```
IWY:S:SYSTEM=<own>,UNIT=OMU,PATH=/,DRIVE=FDU-N0;

IWY:D:SYSTEM=<own>,UNIT=OMU,PATH=/TRE_PACK/
<path>,DRIVE=WDU-SB;

IBC:;
```

Note

Depending on the situation, it may be necessary to restore transmission equipment software builds.

9 Fallback copying troubleshooting

In a normal situation the following notices are output:

```
0027   SOFTWARE PACKAGE FALLBACK COPYING NOTICE STARTED

0033   FILE UPDATES TO DISK PREVENTED
```

The following output occurs only if the fallback lasts more than ten minutes:

```
0027   SOFTWARE PACKAGE FALLBACK COPYING NOTICE IN PROGRESS

0036   FILE UPDATES TO DISK RESUMED

0027   SOFTWARE PACKAGE FALLBACK COPYING NOTICE READY
```

Fallback copying is interrupted, if either of the following alarms is set:

- Alarm 2393: the fallback is interrupted and the fallback build cannot be used.
- Alarm 2394: an error occurs in finishing the fallback copying. However, the fallback copy is not necessarily useless. The supplementary information field of the alarm indicates whether the copy can be used. To check the error messages:

  ```
  WKP:<output mode>:EMODE;
  ```

  Other parameters for the command enable you to check what phases have been made before the interruption and which files have possibly been copied.

If the execution of a command is for some reason interrupted, check the following:

Steps

1. Check that all file updates in the queue are done on disk (DUD)

   ```
   DUD;
   ```

2. Resume disk updating prevention if needed (DUR)

```
DUR;
```

3. Check the state of the Winchester disks (ISI)

   The state must be WO-BU. Dumping is not possible, if the state is TE-ID.

```
ISI::WDU;
```

4. Ensure that the database states are restored to normal or dumping (DBS)

5. Check that all alarms related to the fallback copying are cancelled (AHO)

   The alarms 2393 and 2394 are cancelled only at the time of the next successful fallback.

```
AHO;
```

6. Make a new fallback