SubMenu

NOKIA

Guidelines for BSC Problem Reporting

Contents

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 4 and 5

Chapter *Information needed in Problem Reports*

New commands added in section 3.15 Reporting problems with PCU/PCU log writings from all the BCSUs..

Changes made between issues 4 and 3

References to CSC changed into DMS. Commands added into the following lists: 3.9 Reporting problems with OSI, 3.13 Reporting problems with CCS7, 3.14 Reporting problems with TCSM2, 3.15 Reporting problems with PCU (bullets 9 and 10), 3.17 Reporting problems with A-interface signalling, and 3.19 Reporting problems with BSS Radio Network Recovery.

Changes made between issues 3 and 2

Headings of the document and document stucture changed according to NOM structure.

Problem Report fields

A tool for customers to store and deliver Problem Reports changed into After Sales Management System (ASMS).

Moderate (3)

The term 'Change Note' replaces the term 'Technical Note'.

Information needeed in Problem Reports

Commands ZAHP and ZWNH replace commands AHP and WNH.

Command ZWOO removed in section Reporting problems with handover.

Reporting problems with TCSM2

Commands updated.

Reporting problems with PCU

New section.

Reporting problems with SMSCB

New section.

Reporting problems with A-interface signalling

New section.

Reporting problems with Abis-interface

New section.

Changes made between issues 2 and 1

Information needed in problem reports

Added new section TCSM2.

First issue

This is a new document that replaces the document *Problem Report Filling Instructions, Maintenance Manual* (CAG 21480/2) which has been included in the BSC library earlier.

1 BSC Problem Reporting overview

Fast and reliable problem solving is beneficial to all parties involved.

The aim of these guidelines is to instruct how to fill in a Problem Report and what steps to take when collecting data for a reported problem. Following these instructions will improve problem location and speed up the correction process.

The guidelines given here should be regarded as the minimum information required in a Problem Report. Any other information is welcome, but for example message monitoring without the knowledge of the exact process causing the problem might not be worth the effort.

You should also mention whether any special actions have taken place prior to the problem (for example, Change Delivery installation, network configurations, extensions). As it might not be possible to execute all the commands given as examples in these instructions, they need to be considered case by case. Avoid using local abbreviations and terminology, or at least explain them carefully.

These instructions do not handle hardware Problem Reports that are attached to faulty units being sent to the repair centre.

A Problem Report (PR) can be used for many purposes other than reporting actual problems.

Hardware problem

When you suspect that the hardware of the BSC causes the problem but you cannot determine the faulty unit, you can report it with a PR. Please inform the HW configuration and the units in use related to the problem.

Check that the *TYPE* of the PR is set to the value *HARDWARE*.

If you find the faulty unit, fill in the hardware problem report, attach it to the unit, and send them over to your local Nokia Operator Services/Delivery and Maintenance Services (DMS).

System defect or problem

The most common usage of a PR is reporting system defects and problems. They relate to the software or data configuration of the BSC.

Check that the *TYPE* of the PR is set to the value *SOFTWARE*.

Documentation problem

Whenever you discover a deficiency in BSC documentation, make a PR. Remember not only to report the actual problem but also to specify:

- the subject where you have discovered a deficiency
- identification and issue information concerning the text (for example DN9912345, Issue 3–1) , and
- the release it is in.

Check that the *TYPE* of the PR is set to the value *DOCUMENTATION*.

If you are using the NED, click the circled green 'i' on the top right corner of the text window. You will now be able to see the identification and version information concerning the text.

Improvement proposal

You can also use a Problem Report if you have suggestions on how to improve the functionality of the BSC even when no actual problem can be found.

Check that the *TYPE* of the PR is set to the value *GENERAL*.

Send new feature proposals directly to BSC Product Marketing.

Improvement proposals can be made for BSC documentation, as well.

Other

If you have a deficiency or a problem which is other than the ones mentioned above, check that the *TYPE* of the PR is set to value *OTHER*. Describe the problem in detail.

2 Problem Report fields

The details of Problem Reporting (for example Problem Report format and delivery to Nokia) should be agreed with the local Nokia DMS.

Nokia provides a tool called *After Sales Management System (ASMS)* for customers to store and deliver Problem Reports. For more information, contact your local Nokia DMS.

The following sections describe the most important fields in the Problem Report (PR) where you should pay special attention when filling them in.

2.1 Title field in Problem Report

Make sure that the *Title* field clearly describes the main content of the problem.

2.2 Description field in Problem Report

When filling in the *Description* field make sure that you include the following important information:

- the actual problem
- the impact of the problem to the operator, mobile subscriber, or a third party
- the description of the procedures and the environment before the problem occurred, for example parameters of the MML commands
- description of the problem situation, how it appeared and effected the system
- how the situation was recovered and
- the possible cause for the problem.

Often this information is not clearly stated and, as a result, it is very difficult or even impossible to investigate the problem. This results in the correction delivery to be delayed.

Fill in the description field properly. For example, stating 'See enclosed files' is not a valid description, even if the enclosures have good explanations.

Note that each problem needs to be reported separately, that is only one problem per Problem Report. This is important because different problems are normally handled in different software groups, and the management of 'multi-PRs' is not possible.

Avoid using terms or abbreviations not commonly known in GSM vocabulary (for switch names, special services, etc.), unless you explain them.

2.3 Delivery field in Problem Report

It is important to fill in the right C-number of the BSC (BSC id) to the *Delivery* field. This is important because the customer code is based on it and the software status can be checked with the help of the number. The C-number is a unique identification given by BASK logistics.

You can find the C-number from the bottom of the cabinet or you can output the C-number with following command:

```
ZQNI;
```

2.4 Impact field in Problem Report

In addition to the visual impact described in the *Description* field, use also the *Impact* field to indicate the scale of the impact that the problem has in relation to all the other Problem Reports.

The scale to be used is from one to five, so that only very urgent cases should be indicated as *Impact 1* . It does not speed up the correction process if all Problem Reports are given Impact 1, because then really important cases can be buried in the mass of lower cases.

However, the correct use of this field will help detect the most important problems and thus speed up the investigation.

The following sections describe the different impact values with the help of examples. The examples should help you classify your problem with the correct impact value.

Critically heavy (1)

- system restart, all links down
- simultaneous restarts of active computer units
- more than 50 % of traffic handling capacity is out of use
- subscriber related BSC functionality is not working
- the BSC can not be accessed or monitored from the NMS
- performance measurement or alarm management is not working.

Heavy (2)

In a problem situation with heavy impact the operation of an essential functioning of a total subsystem or a system level feature is prevented or severely hindered.

Example situations are:

- single restart of computer units
- single performance measurement is not working
- problems with backup
- configuration changes (RNW, HW and SW) are not working
- alarm management of objects (BTS, functional units) are not working
- subscriber related BSC functionality is not working completely
- capacity/quality related functionality is not working.

Moderate (3)

In a problem situation with moderate impact the normal operation of the network is affected but not prevented. The level of service or service quality in the network is degraded.

Example situations are:

- activation of a new feature fails
- single performance measurement is not working completely
- configuration changes (RNW, HW and SW) are not working completely
- alarm management of objects (BTS, functional units) are not working completely
- capacity/quality related functionality is not working completely.

Example cases for documentation problems are:

- alarm or description is missing from documentation
- vital subjects are missing from the BSC documentation
- pictures or tables are missing from documentation.

Problems concerning documentation may have as a solution a Documentation Change Note or a work-around solution.

Minor (4)

In a problem situation with minor impact the operation or service quality is not affected.

Example situations are:

- all other problems not listed in the other impact level examples
- errors in MML syntax
- cosmetic errors in MML/Statistic output.

All other documentation problems not listed in moderate impact are classified as minor impact.

Enhancement or improvement proposal (5)

You can suggest enhancements or improvement proposals for existing features or suggest totally new ones.

Targets for improvement or change proposals are both the BSC software and documentation.

3 Information needed in Problem Reports

Note

As it might not always be possible to execute all the commands given as examples, they need to be considered case by case.

For most cases it is important to collect information on the problem right away, as later it may no longer be possible and the real reason for the problem may thus remain unsolved.

Whatever the problem may be, the following needs to be reported:

- a detailed description of what was done or what happened prior to the problem and what actions were taken during it. It is important to explain all the operational activities, even if it seems that they are not related to the problem itself. Also, possible special conditions must be described, for example in call profiles.
- the alarm history starting from an appropriate time before the problem occurred. The command `ZAHP` can be used to print the alarm history.
- installed Change Deliveries. The command `ZWNH` can be used to list information on installed CDs.

Remember also to fill in the *Title, Description*, and *Impact* fields in *Problem Report fields*.

3.1 Reporting problems with system restart

In case of problems in system restart, the following information has to be collected:

- the blackboxes of working (WO) and spare (SP) computer units
- the alarm history and blocked alarms of the network element starting four hours before the system restart
- the MML log files of those users, which were active prior to reset for possible further investigations.

The following commands can be used:

```
ZDDE:<computer_unit>:'ZLE:1,BOXANAGX','Z1U';

ZAHP::::<date,time>;

ZIWY::PATH=-MMDIRE/<username>,;

ZIBT:,,%,%,,,,A;
```

3.2 Reporting problems with unit restart

When encountering problems with unit restarts, the following information has to be collected:

- the blackbox of the unit
- the alarm history of the unit starting four hours before the restart
- the MML log files of those users, which were active prior to reset.

The following commands can be used:

```
ZDDE:<computer_unit>:'ZLE:1,BOXANAGX','Z1U';

ZAHP::::< date,time >;

ZIWY::PATH=-MMDIRE/<username>,;

ZIBT:,,%,%,,,,A;
```

3.3 Reporting problems with process restart

When encountering problems with process restarts, the following information has to be collected:

- the alarm history of the unit starting four hours before the process restart
- the logs, operating system error counters, used buffers of the unit and the version of the restarted process.

The following commands can be used:

```
ZAHP::::< date,time >;

ZDDE:<unit>:'ZSLP','ZSLE','ZSB','ZSCFE';

ZWQV::xxx%; (xxx= 3 1st letters of process)
```

3.4 Reporting problems with backup

When encountering problems with backup, the following information has to be collected:

- alarms - those that are on, alarm history and blocked alarms
- the MML log of user (note: Command Calender is also user = COMCAL)
- used backup media
- used procedure
- computer log of the unit in question.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZIWY::PATH=-MMDIRE/<username>,;

ZIBT:,,%,%,,,,A;

ZDDE:<unit>:'ZGSC';
```

3.5 Reporting problems with handover

When encountering problems with handovers, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- MML outputs
- computer log of the unit in question.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZEQO:BTS=<source_bts_id>:ALL;

ZEQO:BTS=<target_bts_id>:ALL;

ZEAO:BTS=<source_bts_id>;

ZEHO:BTS=<source_bts_id>;

ZEGO:ALL;

ZEEI;

ZEEO;

ZDDE:<unit>:'ZGSC';
```

3.6 Reporting problems with power control

In case of power control problems the following command can be used for more information:

```
ZEUO:BTS=<source_bts_id>;
```

The following monitorings are also useful - GPA monitorings from Abis- and A-interface (both source and target BTS) and the message monitorings from the BCSU that take care of the source BTS. The following commands can be used:

ZOQE:1B3;

ZOQE:1C0;

These monitorings are easy to take in a test environment, but in a live network it can be impossible.

3.7 Reporting problems in storing and/or transferring statistical data

When encountering problems in storing or transferring statistical data, the following information has to be collected:

- computer logs of the OMU, BCSU, and MCMU
- the connections of the logical files in OMU
- output of VDS status
- statuses of I/O devices of OMU

The following commands can be used:

```
ZDDE:<unit>:'ZGSC';

ZIID:,OMU;

ZIFO:OMU,OBSERV:1&&<amount_of_files>;

ZIFO:OMU,MEASUR:1&&<amount_of_files>;

ZISI:,<unit>;
```

3.8 Reporting problems with alarms

When encountering problems with alarms, the following information has to be collected:

- alarms - those that are on, the alarm history, and blocked alarms
- computer log of the unit in question

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZDDE:<unit>:'ZGSC';
```

3.9 Reporting problems with OSI

When encountering problems related to OSI, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- OSI configuration
- computer log of the unit in question.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZQTI;

ZQSI;

ZQLP;

ZQLI;

ZQGI;

ZQEI;

ZQDI;

ZQCI;

ZQBI;

ZDDE:<unit>:'ZGSC';

ZQBI::MAX;

ZQNI::COM;

ZWTI:P:OMU;
```

3.10 Reporting problems with hardware configuration

When encountering problems related to the HW configuration, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- output of HW configuration of the unit where problem occurs
- output of the response of the command currently used.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZWTI:P:<unit>;
```

The serial number and interchangeability of the plug-in unit has to be checked as well.

3.11 Reporting problems with I/O devices

When encountering problems related to the I/O devices, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- statuses of the I/O devices of the unit concerned
- computer log of the unit concerned
- the connections of the logical files in the unit concerned.
- device information - product name and interchangeability code

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZISI:,<unit>;
```

```
ZDDE:<unit>:'ZGSC';

ZIID:,<unit>;
```

3.12 Reporting problems with MML

When encountering problems related to MMLs, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- output of the response to the command currently used
- computer log of the unit in question.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZDDE:<unit>:'ZGSC';
```

3.13 Reporting problems with CCS7

When encountering problems related to CCS7, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- CCS7 network configuration
- computer log of the unit in question.

The following commands can be used:

```
ZAHO;

ZAHP::::<date,time>;

ZABO;

ZNET;

ZNRI;
```

```
ZNSI;

ZNHI;

ZNGI;

ZDDE:<unit>:'ZGSC';

ZEGO;

ZWTI:P:BCSU:<corresponding AS7 plug in unit type>
```

3.14 Reporting problems with TCSM2

When encountering problems related to TCSM2, the following information has to be collected:

- alarms - those that are on, alarm history, and blocked alarms
- TCSM2 network configuration
- computer log of the unit in question.

The following commands can be used after logged in TCSM with the command:

```
ZDDT:TCSM,<TCSM_unit_no>;

ZCS

ZAI

ZAW

ZAF

ZLS

ZGT

ZGI:<unit_type>

ZRC:<PCM_index>:<time_slot>

ZRD

ZEO:ALL

ZEP:ALL
```

```
ZER:ALL

ZEI:ALL

ZIF:<PCM_index>

ZIU

ZIT:<PCM_index>

ZWGO;
```

3.15 Reporting problems with PCU

When encountering problems related to PCU, the following information has to be collected:

- BTS version and SW release
- PCU software version; CBOOTASX.IMG in LFILES directory with the service terminal command:

  ```
  ZMXP:W0-LFILES/CBOO*:*
  ```

- number of default GPRS channels in the cell with the command:

  ```
  ZEQO:<bts_id>:GPRS;
  ```

- configuration in the Gb-interface (FR, NS layers) in the FW command group
- FR bearer channel access rate and committed information rate for NS-VC (BSC/SGSN) with the command:

  ```
  ZFUI::;
  ```

- Nethawk configuration file .gcf
- active alarms in BSC with the commands:

  ```
  ZAHO;

  ZEOL;
  ```

- Nethawk logs from the Abis- and Gb-interfaces all in a same .grc file
  - TRXsig (GSM Abis) channels
  - GPRS traffic (TRAU) channels
  - Gb-interface.

- PCU log writings from all the BCSUs:

  From OMU service terminal (ZDDS;), go to the service terminal of PCU with the command:

  `ZRS:<bcsu_mb_id>,40BE` or

  `ZRS:<bcsu_mb_id<,40BF`

  `ZRS:<bcsu_mb_id>,50BE` or

  `ZRS:<bcsu_mb_id<,50BF`

  `ZRS:<bcsu_mb_id>,60BE` or

  `ZRS:<bcsu_mb_id<,60BF`

  `ZRS:<bcsu_mb_id>,70BE` or

  `ZRS:<bcsu_mb_id<,70BF`

  PCU service terminal commands:

  - `clog-s` From this printout family_id can be noted
  - `clog-f<family_id>` (For example, clog-f 434) Printout logs from the process 434
  - `quit` Logout from PCU service terminal

- BTS information under investigation:

  ```
  ZFWO:BCSU=0&&8:BTS;

  ZFUI;

  ZEQO:<bts_id>:GPRS;

  ZEBP;
  ```

3.16 Reporting problems with SMSCB

When encountering problems related to SMSCB, the following information has to be collected:

- printout of alarm history with the command:

  ```
  ZAHP:::YYYY-MM-DD;
  ```

  (YYYY = year, MM = month, DD = one day before the problem started)

- printout of logwritings from OMU and MCMU units with the commands:

  ```
  ZDDS:<unit_type>:;
  ```

  ```
  G:I
  ```

- printout of CB related files CBFILE, CBAFIL and CBNFIL with the commands:

  ```
  ZDFD:<unit_type,unit_index>:704;
  ```

  ```
  ZDFD:<unit_type,unit_index>:705;
  ```

  ```
  ZDFD:<unit_type,unit_index>:8CE;
  ```

- printout of operation system logs with the commands:

  ```
  ZDDS:<unit_type>:;
  ```

  ```
  ZSLP;
  ```

- printout of logs with the commands:

  ```
  ZDDS:<unit_type>:;
  ```

  ```
  ZGSC;
  ```

3.16.1 Reporting problems with MML interface

When encountering problems related to MML interface, the following information has to be collected:

- printout of all given MML commands (especially commands from EC command group). Too much information is better than too little. Version number of CBBHAN.MML is needed with the service terminal command:

  ```
  ZMXP:W0-MMDIRE/CBB*:*
  ```

- printout of existing CB messages in BSC with the command:

  ```
  ZECP;
  ```

- if the problem can be repeated then the message monitoring is needed with the service terminal command in OMU:

  `ZOQE` (partner family = 1EB)

3.16.2 Reporting problems with CBC interface

When encountering problems related to CBC interface, the following information has to be collected:

- printout of existing CB messages in BSC with the command:

  ```
  ZECP;
  ```

- if the problem can be repeated then the message monitoring is needed with the service terminal command in OMU:

  ```
  ZOQ:38C
  ```

3.17 Reporting problems with A-interface signalling

When encountering problems related to A-interface signalling, the following information has to be collected:

- printout of alarm history with the command:

  ```
  ZAHP:::YYYY-MM-DD;
  ```

  (YYYY = year, MM = month, DD = day, two days before the problem started)

- information needed from MCMU unit
- information from every BCSU units with the service terminal commands in BCSU:

  ```
  ZOS:*,*,14E,,,,,6034,,,5,11,1

  ZGSC;

  ZSLE;

  ZNET;

  ZNHI;

  ZOBI;

  ZNFI;
  ```

3.18 Reporting problems with Abis-interface

When encountering problems related to Abis-interface signalling, the following information has to be collected:

- the GPA monitoring from the Abis-interface
- alarms starting 2 days before the failure situation with the command:

  ```
  ZAHP:::YYYY-MM-DD,;
  ```

- MCMU log writings with the service terminal command in MCMU:

  ```
  ZGSC
  ```

- all the BCSUs' inner Timer-table of AIV program block with the service terminal command:

  ```
  ZOS:*,*,14E,,,,,6034,,,5,11,1
  ```

- logwritings with the command:

  ```
  ZGSC
  ```

- messages to non-existent slave procedures with the command:

  ```
  ZSLE
  ```

- printouts of Abis-interface configuration with the commands:

  ```
  ZEEL;
  ZEEI;
  ZEEI::BCSU;
  ZEOH;
  ZDTI;
  ZERO:<accused BCF>
  ZEEP;
  ```

3.19 Reporting problems with BSS Radio Network Recovery

When encountering problems related to BSS Radio Network Recovery, the following information has to be collected:

- if the failure is related to locking, unlocking or resetting the network element the monitorings of programblocks GUPDAT (id. 1B5) and BTLARM (id. 01CD) are needed with the service terminal command:

  ```
  ZOQ:<programblock_id>
  ```

- alarm history with the command:

  ```
  ZAHO;
  ```