NORSTAR

**SMDR6 System
Coordinator Guide**

Contents

About this guide

Introduction

This guide provides step-by-step instructions designed to assist you in administering the Station Message Detail Recording 6 (SMDR6).

Guide conventions

As you work through this guide you will notice that certain conventions are used to represent steps and procedures. Some numbers and words appear in square boxes. These represent numbers and buttons on a Norstar telephone dial pad. For example:

1. Press ⌈Feature⌉ ⑨ ⓧ ②.

This means, press the ⌈Feature⌉ dial, then press ⑨ ⓧ ② on the telephone dial pad.

Words appearing on the Norstar display are represented in a similar display text. For example:

2. Press NEXT.

This means press the corresponding display dial.

Getting started

About Station Message Detail Recording 6

The Station Message Detail Recording 6 (SMDR6) is a unit that connects to your Norstar Key System Unit (KSU) to record call activity. Each time a telephone call is made to or from your company, the information about the call is recorded. When the call is completed, information about the call is printed out in Call Records. The SMDR6 can also provide information on incoming calls as the events occur. The information reported is called Real Time Call Record.

The SMDR6 provides information about:

- date and time of the call, and digits dialed
- the originating and the terminating line or station set
- whether an incoming call was answered
- elapsed time between origin of a call and when it was answered
- whether a call was transferred or put on hold
- call duration
- calls associated with Account codes
- incoming call Calling Line Identification (CLID) information
- Bearer Capability of the line in the call
- Hospitality records for room occupancy status
- Real Time records for ringing, DNIS, answered, unanswered, transferred, and released events for incoming calls with CLID information and Hospitality room occupancy status

Note: SMDR6 delivers Custom Local Area Signalling Services (CLASS), Call Management Services (CMS), Automatic Number Identification and Dialed Number Identification Services (DNIS) in the form of Calling Line Identification (CLID) records. This information is available only if the appropriate Norstar hardware is installed and the service is available from your public telephone company. SMDR6 only prints records with CLID, Real Time records or cost of a call information on Norstar CCUs with digital lines and Hospitality records. Contact your Customer Service representative for more information.

The information collected by the SMDR6 can be used to:

- allocate telephone costs to departments or individuals
- charge back telephone costs to billable clients through Account codes
- determine whether the telephone system is being used efficiently
- guard against abuse of the telephone system
- provide immediate call information to database applications through Real Time call records
- track changes in room occupancy status

System Overview

The SMDR6 is a peripheral connected to the Norstar Key System Unit (KSU). It connects to any data collection device to provide records about telephone call activity. The following diagram illustrates a typical SMDR6 configuration.
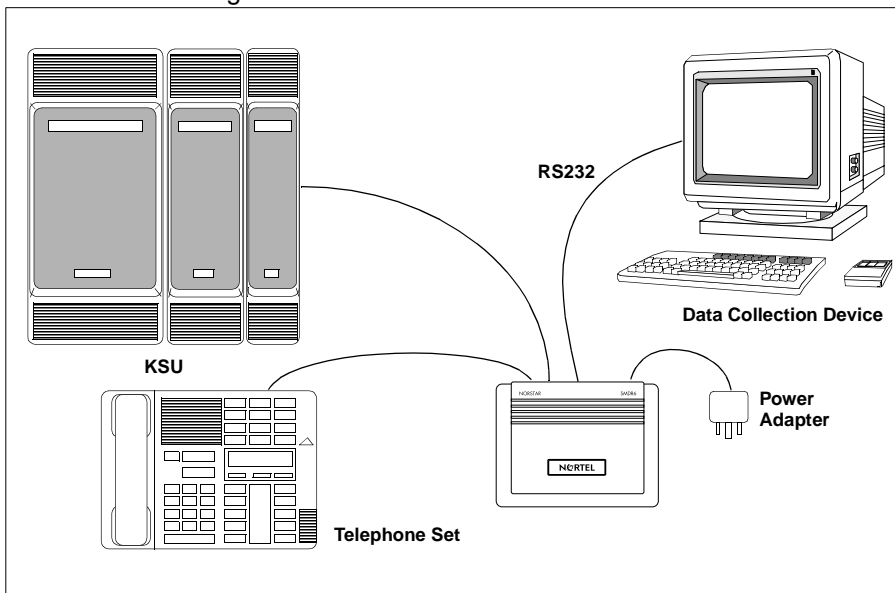
More than one SMDR6 unit can be installed per KSU. One and only one of them can be configured as master SMDR6, others must be configured as slave SMDR6s. **Do not mix SMDR6 with older versions of SMDR**.

Your Role as System Coordinator
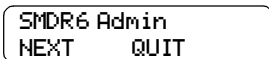
As System Coordinator, you perform the initial and ongoing administration tasks. Your tasks include:

- administering the SMDR6
- determining Account codes used as references for tracking telephone calls
- interpreting the SMDR6 reports

Programming SMDR6 Using M7310/M7324 telephones

When you use an M7310 or M7324 telephone, prompts and menu selections appear in the first line of the telephone display.
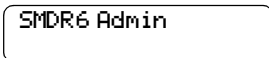
Commands for the three display buttons appear in the second line of the display. Pressing a display button performs the function specified on the option line. An example of a two-line display is shown below.

```
SMDR6 Admin
NEXT    QUIT
```

Programming SMDR6 Using M7100/M7208 Telephones

When you use M7100 or M7208 telephones, only prompts and menu selections appear on the display. An example of the M7100/M7208 display is shown below.

```
SMDR6 Admin
```

The SMDR6 commands are selected from the M7100 or M7208 dial pad. For example:

- Press ✳ for NEXT
- Press ⓪ for SHOW

• Press # for CHANGE

Accessing the SMDR6 Main menu

The SMDR6 menus are accessed by entering the Administration Feature code on your telephone dial pad. As System Coordinator, you should be the only person with access to Administration functions.

To access the SMDR6 Administration menu:

1. Press ⎡Feature⎤ ⎡9⎤ ⎡*⎤ ⎡2⎤. The display shows:

```
SMDR6 Admin
NEXT    QUIT
```

Note: All changes in SMDR6 Administration parameters are implemented immediately after they are selected, not after the SMDR6 Administration session is ended.

Exiting From the SMDR6 Main menu

After you have selected your specific parameters and want to exit from SMDR6 Administration, follow these steps:

1. Press ⎡Rls⎤.

or

2. Press QUIT at the Main menu.

or

3. Press ⎡Feature⎤ twice.

Any one of these commands returns you to the Norstar display.

LED control

The green light emitting diode (LED) located on the back of the unit is controlled by the SMDR6 software. It is used to indicate the five possible states of the SMDR6.

SMDR6 state	LED action	Rates	
Normal	on steady	On 100%	
Record overflow	very fast blink	On 50ms	Off 50ms
TCM Off-line error	single blink on	On 750ms	Off 750ms
Waiting for firmware download	fast blink	On 250ms	Off 250ms
Slave	short blink	On 750ms	Off 150ms

Note: The default for the LED is on steady.

Special station set numbers

Two special station set numbers are reserved by SMDR6 to represent special entities in the KSU that can answer calls. It is important to know these special entities to interpret the reports correctly.

The followings are the known station set entities defined:

- Auto Attendant
- Remote Pager

When the Auto Attendant answers incoming calls, the station set number is reported as zero if the SMDR6 is connected to a Compact ICS KSU.

When an incoming call is answered by Remote Pager, the station set number is reported as 7.

Administering SMDR6

Introduction

The SMDR6 uses programming parameters to specify the kinds of calls to be reported and the report format. Each programming parameter has a default setting (shown in bold below) that can be changed at any time. The displays used to assign SMDR6 programming parameters are shown below.

```
SMDR6 Admin
NEXT    QUIT
```
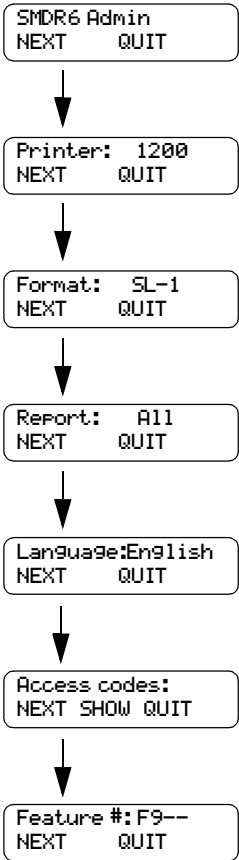
Option choices

115200	57600
38400	19200
9600	4800
2400	**1200**

```
Printer: 1200
NEXT    QUIT
```

```
Format:  SL-1
NEXT    QUIT
```

SL-1
Norstar

```
Report:  All
NEXT    QUIT
```

All
Outgoing
Accounts
Long dist

```
Language:English
NEXT    QUIT
```

English
French

```
Access codes:
NEXT SHOW QUIT
```

```
Feature #:F9--
NEXT    QUIT
```

F9--
F999

Printer speed

Printers with a RS-232c serial port that supports 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 baud can be connected to the SMDR6 to print the reports. The minimum printer speeds for different KSUs are listed below:

- for the Compact KSU, the minimum is 1200 baud
- for the Modular KSU, the minimum is 2400 baud

Note: The amount of data transmitted by the SMDR6 is dependent on the call activity and the report format you select. Therefore, using higher baud ensures the records are printed.

Setting the printer speed

To set the printer speed, you must access SMDR6 Main menu.

1. Press Feature   9   *   2 .

2. Press NEXT until the display shows:

    ```
    Printer:  1200
    NEXT    CHANGE
    ```

3. Press CHANGE until the desired printer speed appears on the display.

Record formats

SMDR6 generates records in both Norstar and SL-1 formats. SMDR6 defaults to the SL-1 format.

SL-1 Record format

The SL-1 record format is primarily used when the SMDR6 output is being supplied to legacy commercial call accounting packages or equipment.

The SL-1 record format supports reporting Standard record format as well as Calling Line Identification (CLID) record format.

The SL-1 CLID record format prints the CLID information only if the information is delivered. Otherwise, it reports the call in SL-1 Standard record format.

The SL-1 record format does not support the reporting of Bearer Capability and DDI Busy records.

Selecting SL-1 Standard record format

To select the SL-1 Standard format through SMDR6 Main menu:

1. Press Feature   9   *   2 .

2. Press NEXT until the display shows:

   ```
   Format:  SL-1
   NEXT SHOW CHANGE
   ```

3. Press SHOW. The display shows:

   ```
   SL-1  Standard
   NEXT   CHANGE
   ```

The SL-1 Standard format is the default report format. If the display does not show Standard, press CHANGE until the desired report format appears on the display.

Selecting SL-1 CLID records

SL-1 record format supports reporting CLID information. It can be selected through Administration.

Note: The SMDR6 will only report the CLID Information for lines which are capable of delivering CLID. Calls on non-CLID capable lines are reported in SL-1 Standard Record Format.

To select the SL-1 CLID format you must access the SMDR6 Main menu.

1. Press Feature   9   *   2 .

2. Press NEXT until the display shows:

```
Format:   SL-1
NEXT SHOW CHANGE
```

Note: SHOW only appears on the display if you are running DR5 systems and greater.

3. Press SHOW. The display shows:

```
SL-1   Standard
NEXT     CHANGE
```

4. Press CHANGE. The display shows:

```
SL-1     CLID
NEXT     CHANGE
```

Norstar record format

Norstar records are used when the SMDR6 output is connected to a printer. In this case, detailed and concise call records are generated.

There are four Norstar record formats available through the SMDR6 Main menu if you are running DR5 systems or greater.

Selecting a Norstar record format

To select the Norstar report format you must access the SMDR6 Main menu.

1. Press ⎡Feature⎤ ⎡9⎤ ⎡*⎤ ⎡2⎤.

2. Press <u>NEXT</u> until the display shows:

```
Format:  SL-1
NEXT SHOW CHANGE
```

3. Press <u>CHANGE</u> to change to use Norstar report format:

```
Format: Norstar
NEXT SHOW CHANGE
```

   Note: <u>SHOW</u> only appears on the display if you are running DR5 systems or greater.

The default for Norstar report format is Standard report format. To change to use different Norstar report format:

4. Press <u>SHOW</u> for the current Norstar report format selected.

```
Norstar:Standard
NEXT    CHANGE
```

5. Press <u>CHANGE</u> until the display shows the desired report format. The different Norstar report type display screens are shown below.

```
Norstar:Standard
NEXT    CHANGE
```

```
Norstar:  CLID
NEXT    CHANGE
```

```
Norstar:RealTime
NEXT    CHANGE
```

```
Norstar:  All
NEXT    CHANGE
```
   <u>CHANGE</u>
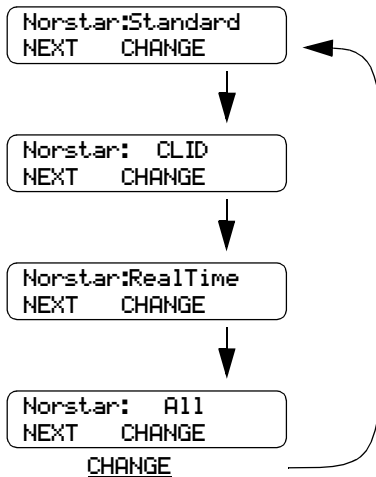
Report types

The Call Report option allows you to specify the type of calls to be collected. This option can be set to:

- All calls
- Outgoing calls only
- Calls with Account codes only
- Calls that match the prefix strings only

Only one of the above reports can be selected at one time. The report type default is **All** and can be changed through the SMDR6 Main menu.

All
SMDR6 reports all incoming and outgoing calls.

Outgoing
SMDR6 reports only outgoing calls.

Accounts
SMDR6 reports only calls with account codes associated with them.

Prefix
SMDR6 reports only calls matching the pre-determined digit strings. These calls are usually long distance calls.

Note: Invalid Password attempts are reported regardless of the Report Type selected. Real time call records are not affected, regardless of the Report Type selected.

Setting the Report type

To set the Report type you must access the SMDR6 Main menu.

1. Press ⌷Feature⌷ ⌷9⌷ ⌷*⌷ ⌷2⌷.

2. Press NEXT until the display shows:

    ```
    Report:   All
    NEXT    CHANGE
    ```

3. Press CHANGE to select the desired Report Type.

If you select the Prefix report type, you must also specify the prefix digits.

The purpose of the Prefix option is to record only long distance calls, calls to certain area codes or calls to specific numbers.

If the first digits dialed match one or more of the programmable prefix strings, the call is recorded, otherwise, the call will not be reported. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each prefix string is eight digits.

To specify the long distance prefix digits:

1.   When in Report Type menu, press CHANGE until the display shows:

```
Report: Prefix
NEXT SHOW CHANGE
```

2.   Press SHOW to view or modify the prefix strings.
      The display shows:

```
Prefix1 -
    CLEAR OK
```

3.   Using the dial pad, enter the long distance prefix digits. (In this example 9293 is used). The display shows:

```
Prefix1 9293
BKSP  CLEAR OK
```

Either the BKSP or CLEAR buttons can be used to correct characters that are entered in error. The BKSP button erases one character at a time. The CLEAR button erases all of the characters you have entered.

When you are programming SMDR6 from an M7310 orM7324 telephone, the asterisk (*) button is accepted as a wild card character that represents any digit.

 Note: The defaults are 0, 1, 90, 91, 411 and 9411. A maximum of eight digits are allowed.

4.   Press OK to continue to the next prefix string.
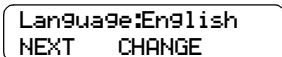
Report language

If your KSU supports both the English and French, you have the option to select reporting the call records in English or French.

Setting the report language

To set the Report language you must access the SMDR6 Main menu.

1. Press Feature   9 ✳ 2 .

2. Press NEXT until the display shows:

```
Language:English
NEXT    CHANGE
```

3. Press CHANGE to select the desired Report language.

Note: The report language selected affects only the reports. The language used in SMDR6 Main menu and Account code entry remains associated with the station set language.

Access codes

Access codes are codes used to access certain long distance carriers. Personal Identification Numbers (PIN) can be associated with these codes. The long distance user dials the Access code of the carrier (up to five digits) followed by the PIN (0 to 16 digits), followed by the telephone number to make long distance calls. The Access Code feature provides security to the long distance user by suppressing the printing of the PIN in the output records.

You can have up to five Access codes assigned at any one time. Each Access code can be a maximum of five digits and can be associated with a suppression number equals to the length of the PIN. The first digits dialed are compared to the Access Codes. If there is a match, the next digits are suppressed. The number of digits suppressed equals to the value in the suppress field for that Access code. Only the Access code and the remaining digits (exclude the PIN) are printed in the output record.

Setting up the Access code

To set up the Access codes, you must access the SMDR6 Main menu.

1. Press ⌐Feature¬ ⌐9¬ ⌐*¬ ⌐2¬.

2. Press NEXT until the display shows:

```
Access codes:
NEXT SHOW CHANGE
```

3. Press SHOW. The display shows:

```
Access1 .
NEXT    CHANGE
```

4. Enter the Access code using the dial pad.

    Note: This number can be a maximum of five digits. Press CHANGE to erase the digits.

5. Press NEXT to enter the number of digits to suppress.

```
Suppress1 00
NEXT SHOW CHANGE
```

   Note: Up to 16 digits can be suppressed following the long distance Access Code.

Account feature code

Account codes allow you to cross-reference telephone calls from your company to different clients or telephone activities.

Before Account codes can be entered by users, an Account feature code must be established. The Feature code can be any number between 900 and 999.

When the SMDR6 is connected to the KSU, a default Feature code is requested from the KSU. To view or modify the Account feature code, you must access SMDR6 Main menu. After the Feature code is entered, users can enter the appropriate Account code to the call.

To set the Account feature code:

1.   Press `Feature` 9 ✳ 2 .

2.   Press <u>NEXT</u> until the display shows:

```
Feature#: F9_
NEXT    CHANGE
```

3.   Press <u>CHANGE</u>. Enter the last two digits of the Account Feature Code.

```
Feature#: F920
NEXT    CHANGE
```

4.   Press <u>NEXT</u> to accept the Feature Code.

      Note: If the display shows `Code in use` you must select another code.

      IMPORTANT: Remember to provide your colleagues with the SMDR6 Account feature code.

Account code list

Account codes create a reference for tracking telephone calls. For example, someone contacting a billable client would enter an assigned code each time a call was placed to that client.

Account codes are from one to 12 digits long. Account codes cannot contain the ✳ or # symbols. An example of an Account code list is shown below.
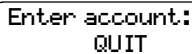
Account code	Description
11127	Barry Rogers
37	Field Support
239	L.E. Steele
45	Monique Leblanc
1552	Dawn Smith
53	Modern Ways Limited
100	Long distance

Using Account codes

Account codes can be associated with any incoming or outgoing calls. Account codes feature can be accessed from any Norstar station set by first entering the Account feature code (F9_ _).
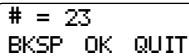
To use Account codes:

1. Select an outside line.

2. Press [Feature] and enter the three digit SMDR6 Account feature code. The display shows:

    ```
    Enter account:
            QUIT
    ```

3. Enter a one to 12 digit number. (In this example, the number 23 is used). The display shows:

    ```
    # = 23
    BKSP  OK  QUIT
    ```

    Note: If an Account code is entered incorrectly, press BKSP and re-enter the number.

4. Press OK. The display shows:

    ```
    Recorded
    ```

 Note: When you are using an M7100 or an M7208 telephone, press [#] for OK and [*] for BKSP.

An Account code can be entered at any time during a call. However, you cannot enter the account code when a call is on hold or when an Administration session is in progress.

Programming an Account feature code memory button

You can program a memory button on your Norstar telephone to activate the SMDR6 Account feature code. For more information about memory buttons, refer to your *Norstar Telephone User Card*.

To program a memory button:

1. Press ⌈Feature⌉ ⌊*⌋ ⌊3⌋.
2. Press a programmable Norstar button.
3. Press ⌈Feature⌉.
4. Enter the three digit SMDR6 Account feature code.
5. Using the paper labels supplied with the Norstar telephone, label the button Account feature code.

Programming an Account code autodial button

Frequently dialed Account codes can be programmed on M7310 dual memory buttons. These are called Account code buttons.

To program an Account code button:

1. Press ⌈Feature⌉ ⌊*⌋ ⌊1⌋.
2. Press a dual memory button.
3. Using the dial pad enter the Account code.
4. Press OK.

SMDR6 Extended main menu

To allow more flexibility in SMDR6 reports, the SMDR6 Main menu is extended to include administering the market specific parameters. To access the extended SMDR6 Main menu:

1. Press $\boxed{\text{Feature}}$ $\boxed{9}$ $\boxed{*}$ $\boxed{2}$. The display shows:

    ```
    SMDR6 Admin
    NEXT    QUIT
    ```

2. Press the password: $\boxed{2}$ $\boxed{3}$ $\boxed{6}$ $\boxed{4}$ $\boxed{6}$.

The above procedure enables the Extended menu which appears after the original main menu.

The extended Main menu allows the configuration of the following parameters:

*   **N.A. Template/U.K.Template**: To select the appropriate default market profile parameter values. Changing the template automatically reset parameters below to their default value.
*   **Date format:** To select printing the date in MM/DD/YY, DD/MM/YY, or YY/MM/DD format.
*   **Header format**: To select print the header line in LINE followed by the STN or originator followed by terminator.
*   **CLID Name**: To select if the CLID name information is available from the trunk.
*   **Long CLID**: To select if the CLID number from the trunk has 11 or 15 digits.
*   **Call Type**: To select if Call Type information is available from the trunk.
*   **Call Charge**: To select if call charge information is available from the trunk.
*   **Report DNIS**: To enable or disable the DNIS report feature.
*   **Connect Char**: To enable or disable the call connected digit separator feature.
*   **Hospitality**: To enable or disable the Hospitality room occupancy status feature.
*   **Supervision**: To select if the trunk supports answer supervision.

- **Filter time**: If the trunks do not support answer supervision, select the desired time interval to filter unanswered outgoing calls.
- **Access code**: To enable or disable the access code feature.
- **Language preference**: To select to print report using North America English or U.K. English and to enable or disable the support of other languages in SMDR6 report.

Note: Some of the above parameters are market specific. It the parameter value doesn't match the trunk property, the SMDR6 can produce incorrect reports. If you are using a Call Accounting package to process the SMDR6 report, consult your software vendor before you make any changes.

The Extended Main menu structure is shown below.

```
┌──────────────────────┐           ┌──────────────────────┐
│ N.A. Template        │           │ Report DNIS: On      │
│ NEXT    CHANGE       │       ┌──▶ │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Date Format: MDY     │       │   │ Connect Char:Off     │
│ NEXT    CHANGE       │       │   │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Header:Line-Stnx     │       │   │ Hospitality:Off      │
│ NEXT    CHANGE       │       │   │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Name CLID: Yes       │       │   │ Supervision: No      │
│ NEXT    CHANGE       │       │   │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Long CLID: No        │       │   │ Filter time:  2      │
│ NEXT    CHANGE       │       │   │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Call Type: Yes       │       │   │ English: N.Amer      │
│ NEXT    CHANGE       │       │   │ NEXT    CHANGE       │
└──────────────────────┘       │   └──────────────────────┘
          │                    │             │
          ▼                    │             ▼
┌──────────────────────┐       │   ┌──────────────────────┐
│ Call Charge: No      │       │   │ French : Yes         │
│ NEXT    CHANGE       │───────┘   │ NEXT    CHANGE       │
└──────────────────────┘           └──────────────────────┘
                                             │
                                             ▼
                                   ┌──────────────────────┐
                                   │ Spanish: No          │
                                   │ NEXT    CHANGE       │
                                   └──────────────────────┘
```

Note: SMDR6 does not support Spanish report.

AT Commands

Introduction

To facilitate the SMDR6 Administration and to support multiple SMDR6s connected to the KSU, a set of ATtention (AT) Commands is created to change the SMDR6 programmable parameters using a personal computer (PC).

To use the AT commands, the SMDR6 must be connected to a PC through the RS232 interface. The PC must have a terminal program running to communicate with the SMDR6. The default communication parameters of SMDR6 are:

- 1200 baud
- None parity
- 8 data bit
- 1 stop bit
- hardware flow control (CTS/RTS)

System registers

System parameters are represented using registers. There are four different kinds of register.

Registers with prefix "R" are general registers representing system and market-specific parameters. The following registers are defined in SMDR6 (the default settings are shown in **bold**):

AT Command	Description	Values
R00	Default template	**1 = N.A. Template** 2 = U.K. Template
R01	Printer speed	**2 = 1200** 3 = 2400 4 = 4800 5 = 9600 6 = 19200 7 = 38400 8 = 57600 9 = 115200
R02	Report format	**0 = SL-1** 1 = Norstar

R03	Report type	**0 = Standard** 1 = CLID 2 = Real Time 3 = All
R04	Report filter	**0 = All** 1 = Outgoing 2 = A/C Code 3 = Prefix.
R05	Report language	**0 = English** 1 = French
R06	Master/Slave mode	**0 = Master** 1 = Slave
R07	Reserved	
R08	Date format	**0 = MM/DD/YY** 1 = DD/MM/YY 2 = YY/MM/DD
R09	Header format	**0 = Line/Station Set** 1 = Originator/Terminator
R10	Answer supervision	**0 = Not Supported** 1 = Support
R11	CLID Name	0 = Not Supported **1 = Supported**
R12	Long CLID	**0 = Not Supported** 1 = Supported
R13	Call type	0 = Not Supported **1 = Supported**
R14	Call charge	**0 = Not Supported** 1 = Supported
R15	Access code	0 = Not Supported **1 = Supported**
R16	Call duration filter	Outgoing call filter duration in seconds (default = 2 s)
R17	DNIS	0 = Not Supported **1 = Supported**
R18	Connected Character	**0 = Not Supported** 1 = Supported
R19	Hospitality	**0 = Not Supported** 1 = Supported

Register R0 is defaulted to use the North American Template with North America market-specific parameters.

Register R1 to R5 are system parameters accessible also from the SMDR6 Main menu using a Norstar station set.

Register R8 to R19 are market-specific parameters. The default values of market-specific parameters are determined by the value of the default template register (R0).

Note: Be careful when you are changing the value of market-specific parameters. It the parameter value doesn't match the trunk property, the SMDR6 can produce incorrect reports. If you are using a Call Accounting package to process the SMDR6 report, consult your software vendor before you make any changes.

Register R6 is used to change the operating mode (master/slave) of SMDR6 to support multiple SMDR6s per KSU.

Registers for Long distance prefix strings are represented using the prefix "P." Eight Long distance prefix registers (P0 to P7) are allocated.

Registers for Access Codes and Suppress digits are represented using the prefix "A" and "S" respectively. Five Access code registers (A0 to A4) and five Suppress digit registers (S0 to S4) are allocated.

Registers for Languages supported are represented using the prefix "L". Five language registers (L0 to L4) are allocated. SMDR6 supports two languages. L0 is used to define the type of English (North America English or U.K. English) to be used for the reports if English is selected as the report language. L1 is used to enable/disable French support of SMDR6. If L1 is set to 0, the prompt to select the report language does not appear in the SMDR6 Main menu.

Basic AT Command set

Basic AT Command set contains commands to facilitate serial communication between the SMDR6 and the connected PC. It also provides information on the SMDR6 hardware and firmware. The following basic AT Commands are available:

AT command	Description
AT	Query system sanity. Return with <u>OK</u>.
ATI	Query firmware version. Return boot code firmware ID, download code firmware ID and hardware ID.
AT&P2=<baud>	Set serial baud rate to <baud>.
ATY=<password>	Command to start firmware upgrade.
AT&V	Display system and market profile parameters.
AT&V0	Display system parameter values.
AT&V1	Display market profile values.
AT&V2	Display long distance prefix bin content.
AT&V3	Display access bin content.
AT&V4	Display language set up.

Extended AT command set

Extended AT command set contains command to modify SMDR6 system parameters and market-specific parameters. To use the extended AT command set, you must enter the command 'AT**admin' in the PC terminal. This command toggles the on/off of the extended AT command set. The default for Extended AT command set is off.

To change the system parameters or the market specific parameters, enter 'AT**admin' in the PC terminal. The SMDR6 responses with 'OK' to the PC terminal.

To read a particular register value, enter 'AT$<reg number>?'. The SMDR6 responses with the value of the register.

To change a particular register value, enter 'AT$<reg num>=<val>'. The SMDR6 changes the register value to <val>.

Note: The effect of changing the register value is temporary. It is not saved unless the command 'AT$W' is entered to save the register values to permanent memory.

Remember to enter 'AT**admin' again to turn off the Extended AT Command Set after you complete the SMDR6 Administration function.

The following summarizes the extended AT Commands available:

AT command	Description
AT**admin	Toggle extended admin mode (turn on/off AT$ commands).
AT$Rnn?	Read Register nn.
AT$Rnn=x	Write Register nn with x.
AT$Pn?	Read long distance prefix n.
AT$Pn=xxxx	Write long distance prefix n=xxxx.
AT$An?	Read access bin n.
AT$An=xxx	Write access bin n=xxx.
AT$Sn?	Read suppression bin n.
AT$Sn=xx	Write suppression bin n=xx.
AT$Ln?	Read language n setting.
AT$Ln=x	Write language n=x.
AT$W	Save profile to permanent memory.
AT$Yn	Change market profile template (with save).
AT$Z	Reset profile to default using market template.

Configure Master/Slave

To support multiple SMDR6s per KSU, one and only one of the SMDR6s can be configured as the Master. The remaining SMDR6s must be configured as Slaves.

The mode register (R06: Master or Slave mode) controls whether the SMDR6 is a Master or Slave. A value of 0 implies the SMDR6 is the Master. A value of 1 implies the SMDR6 is the Slave. The default value of the mode register is 0 for Master. To change the SMDR6 to Slave, use the Extended AT command to change the register (R06) value to 1. The following illustrates a sample session to configure the SMDR6 in Slave mode:

```
AT
OK              Query sanity
AT**admin
OK              Toggle Extended AT commands ON
AT$R06=1
OK              Change SMDR6 to Slave mode
AT$W
OK              Write to permanent memory
AT**admin
OK              Toggle Extended AT commands OFF
```

When in Slave mode, the SMDR6 will not be accessible using the SMDR6 Main menu. The AT Command Set must be used to configure Slave SMDR6s. Similar procedures should be used to change the system parameter values of Slave SMDR6s.

Note: Remember to clearly mark each SMDR6 as master or slave and label the configured serial baud of all slave SMDR6 units. The system parameters of slave SMDR6 can be modified only using the PC. It is important for the slave SMDR6 to use the correct serial baud to communicate properly with the PC.

SL-1 format

Introduction

The SL-1 record is used when the output is supplied to legacy commercial accounting package or equipment. SL-1 records are in the form of one or two lines in ASCII characters.

This section describes the SL-1 record format. It explains how to interpret the reports.

SL-1 record format

The SMDR6 supports two different SL-1 record format:

• SL-1 Standard record format
• SL-1 CLID record format

The SL-1 CLID format is similar to the SL-1 Standard format with the addition of CLID information. For lines that do not support CLID or when no CLID information is delivered from the KSU, calls are reported as an SL-1 Standard record format.

SL-1 record field definitions

The field definitions for lines 1 and 2 SL-1 Records are summarized below:.

Line 1:

Column	Name	Format	Definition
1	RecType	Y	Record type
2	Blank		Blank space
3-5	RecNo	XXX	Record seq number
6	Blank		Blank space
7-8	CustNo	00	Customer number
9	Blank		Blank space
10-16	OrigID	TXXXXXX	Line number
		DNXXXX	STN number
		CF00001	Conference number
17	Blank		Blank space
18-24	TerID	TXXXXXX	Line number
		DNXXXX	STN number
25-37	Blank		Blank space
38-48	TimeStamp	MM/DD HH:MM	Time stamp
49	Blank		Blank space
50-57	Duration	HH:MM:SS	Call duration
58	Blank		Blank space
59-90	Digits	XXX...X	Dialed digits
50-61	AccCode	XXX...X	Account code (C record)

Line 2:

Column	Name	Format	Definition
3-18	CLID	XXX...X	CLID number

SL-1 Record types

SMDR6 generates the following SL-1 record types:

Letter code	Record type
I	Initialization Record
N	Normal Record
S	Start Record
E	End Record
A	Authorization Record
C	Charge Record
M	Conference Charge Record

The I record contains only the record type and time stamp. The S, E, M and C records do not contain the duration field. The E records do not contain any dialed digits.

Note: The I record does not contain Call Information number; all other record types will contain the Call Information number (if delivered).

SL-1 Standard record format

Using the field definition and record types describes above, an example of an outgoing call on line 52 that is placed by station set 7425 is shown below.

```
N 027 00 DN7425  T052000              04/04 14:03 00:01:32 5551212
```

An example of an incoming call on line 47 that is answered by station set 2221 is shown below.

```
N 028 00 T047000 DN2221              04/04 14:22 00:12:04
```

An example of an outgoing call on line 38 is placed by station set 7447 and transferred to station set 2221 is shown below.

```
S 029 00 DN7447  T038000              04/04 15:02        8761344
E 030 00 T038000 DN2221              04/04 15:07
```

An example of a two line conference call with two outgoing calls is shown below.

```
S 000 01 DN6545  T038000              04/04 12:23        9369552
E 001 01 CF0001  T038000              04/04 12:27
S 002 01 DN6789  T047000              04/04 12:23        8082635
E 003 01 CF0001  T047000              04/04 12:27
```

SL-1 CLID format records

The SL-1 CLID format record consists of two lines. The CLID information, if available, is presented in the third character position of the second line.

The CLID number is always 16 digits. Any missing numbers are represented by an "x." If there is no CLID Information available then no CLID Information record is delivered.

Some examples of SL-1 CLID format records are shown below:

An incoming call on line 38 is answered by station set 2221 with CLID enabled and the CLID number available is 4032919000.

```
 N 034 00 T038000 DN2221              04/04 15:32 00:10:24
   4032919000xxxxxx
```

An incoming call on line 37 is answered by station set 2211 with Call Information enabled, and the CLID number is not available.

```
 N 035 00 T037000 DN2211              04/04 14:22 00:12:04
```

Note: The record is the same as the SL-1 Standard format record.

An incoming call on line 38 is answered by station set 7447 and transferred to station set 2223. Call Information is enabled and the Call Information number available is 4032919001 as shown below.

```
 S 029 00 T038000 DN7447              04/04 15:02
   4032919001xxxxxx
 E 030 00 T038000 DN2223              04/04 15:07
   4032919001xxxxxx
```

If you need CLID information in slave SMDR6, the master SMDR6 must be configured to receive CLID information. The master SMDR6 must be configured to print SL-1 CLID record format or Norstar CLID record format (or Norstar real time format or Norstar all format).

SL-1 Target line/Physical lines

When target lines are used on digital trunks, records show both the target line number and the physical line number.

An example of an incoming call on target line 103 is shown below. The physical line is 37 and is transferred to another station set.

```
 S 029 00 T037103 DN7499              04/04  15:02
 E 030 00 T037103 DN7370              04/04  15:07
```

Norstar format

Introduction

The Norstar format records are used when the SMDR6 output is connected to a printer or Call Accounting packages designed to use the Norstar format.

This section describes the Norstar record format. It explains how to interpret the reports.

Norstar record format

The SMDR6 supports four different Norstar record formats:

- Norstar Standard record format
- Norstar CLID record format
- Norstar Real Time record format
- Norstar All record format

Norstar Standard record format

Norstar Standard format records always start with a header line indicating the date (MM/DD/YY) time (HH/MM/SS); LINE field and STN field. The records have at least one event line showing an event and time stamp.

An example of an Outgoing call in Standard format appears below.

```
--------    04/04/98   11:39:43   LINE = 0003   STN = 7425
00:00:00   OUTGOING CALL
           DIGITS DIALED    5551212
00:00:37   ACCOUNT CODE     87
00:12:59   CALL RELEASED
```

An example of an Incoming Call in Standard format appears below.

```
--------   04/04/98   12:00:01   LINE = 0083   STN = 7726
00:00:00   INCOMING CALL    RINGING 0:32
00:00:39   HOLD
00:01:12   UNHOLD
00:02:47   CALL RELEASED
```

Norstar Call Information record format

When this option is selected, CLID Information received from the KSU for an incoming call prints between the record header and the event lines. There is one occurrence of CLID Information per call. If no CLID information is received, no CLID field appears in the record.

If you need CLID information in slave SMDR6, the master SMDR6 must be configured to receive CLID information. The master SMDR6 must be configured to print SL-1 CLID record format or Norstar CLID record format (or Norstar real time format or Norstar all format).

Note: SMDR6 reports CLID information only for lines which are capable of delivering CLID. The Norstar KSU must be properly configured to enable delivering CLID Information.

Call Information record field definitions

The first Call Information line after the header line is the CALLING NUMBER:

- maximum of 11 characters
- if the number is truncated, the 11 digits received are preceded by "/"
- if only partial CLID number was received, the digits are followed by an "x"
- UNKNOWN (if no data is received in the number field)

The second Call Information line is the NAME:

- Name (maximum 15 characters)
- UNKNOWN (if no name is received in the name field)

The third Call Information line is the call type indicating if the call is a long distance call or otherwise:

- LONG DISTANCE
- UNKNOWN (if no call type information is received)

An example of an incoming call in the CLID format appears below.

```
--------    04/04/98   11:12:01   LINE = 0013   STN = 7465
            CALLING NUMBER   4032919123
            NAME             UNKNOWN
            UNKNOWN
            BC = SPEECH
00:00:00    INCOMING CALL    RINGING 0:32
00:00:39    HOLD
00:01:12    UNHOLD
00:02:47    CALL RELEASED
```

An example of an abandoned (no answer) incoming call in CLID format appears below.

```
--------    04/04/98   20:30:00   LINE = 0035
            CALLING NUMBER   4032919123
            NAME             UNKNOWN
            UNKNOWN
            BC = SPEECH
00:00:00    NO ANSWER        RINGING 3:15
```

An example of a call record with CLID number truncated is shown below.

```
--------    04/04/98   11:12:01   LINE = 0013   STN = 7465
            CALLING NUMBER   /12345678901
            NAME             UNKNOWN
            UNKNOWN
            BC = SPEECH
00:00:00    INCOMING CALL    RINGING 0:32
00:00:39    HOLD
00:01:12    UNHOLD
00:02:47    CALL RELEASED
```

An example of a call record with only partial CLID number is shown below.

```
--------     04/04/98   11:12:01   LINE = 0013   STN = 7465
             CALLING NUMBER   1234567890x
             NAME             UNKNOWN
             UNKNOWN
             BC = SPEECH
00:00:00     INCOMING CALL    RINGING 0:32
00:00:39     HOLD
00:01:12     UNHOLD
00:02:47     CALL RELEASED
```

Standard Hospitality record format

This Hospitality record represents four states of room occupancy: vacant, basic, mid and full. Room number lengths range from one to five digits.

Note: To print the Hospitality records this feature must be configured to on. For more information, refer to *CLI Extended main menu*, earlier in this guide.

An example of a Standard Hospitality record showing room 12345 status set to vacant appears below.

```
--------   23/01/98   23:49:00   EXT = 12345
           HOSPITALITY VACANT
```

An example of a Standard Hospitality record showing room 7324 status set to vacant appears below.

```
--------   23/01/98   23:49:00   EXT = 7324
           HOSPITALITY VACANT
```

An example of a Standard Hospitality record showing room 732 status set to basic appears below.

```
--------   23/01/98   23:49:00   EXT = 732
           HOSPITALITY BASIC
```

An example of a Standard Hospitality record showing room 73 status set to mid appears below.

```
--------   23/01/98   23:49:00   EXT = 73
           HOSPITALITY MID
```

An example of a Standard Hospitality record showing room 7 status set to full appears below.

```
--------   23/01/98   23:49:00   EXT = 7
           HOSPITALITY FULL
```

Norstar Real Time record format

Real Time call records are one line long. All Real Time records begin with an asterisk (*) to differentiate them from non-Real Time call records. Real Time records are generated only when CLID Information is available. Records are generated only for the following five call states and four Hospitality record types:

- Ringing is represented by the letter "G"
- Dialed Number Identification Service (DNIS) is represented by the letter "D"
- Answered is represented by the letter "A"
- No Answer is represented by the letter "N"
- Transfer is represented by the letter "T"
- Released is represented by the letter "R"
- Hospitality vacant is represented by the letters "H V"
- Hospitality basic is represented by the letters "H B"
- Hospitality mid is represented by the letters "H M"
- Hospitality full is represented by the letters "H F"

The RINGING call state is unique to Real Time records because it indicates a ringing line as soon as SMDR6 received the CLID Information.

The Dialed Number Identification Service (DNIS) record is reported only if the line delivers the DNIS information. If present, it follows right after the RINGING record.

An example of a call, ringing with DNIS, answered and released appears below.

```
*030198 154615 0019          6137635114     John Doe        U G

*030198 154615 0019          6137635114     4037352000      U D

*030198 154623 0019    7832  6137635114     John Doe        U A

*030198 154831 0019    7832  6137635114     John Doe        U R
```

An example of a transferred call appears below.

```
*041197 094105 0003           2919000      Alan Smith     U G

*041197 094105 0003           2919000      7305432        U D

*041197 094111 0003    7344   2919000      Alan Smith     U A

*041197 094156 0003    7440   2919000      Alan Smith     U T

*041197 094414 0003    7440   2919000      Alan Smith     U R
```

Real time records are printed when the events occur. The record information can be used to drive external PC database applications. One such application is to locate customer information stored in the database by extracting the CLID information from the Real time records.

Real Time Hospitality record format

This Hospitality record represents four states of room occupancy: vacant, basic, mid and full. Room number lengths range from one to five digits.

Note: To print the Hospitality records this feature must be configured to on. For more information, refer to *CLI Extended main menu*, earlier in this guide.

An example of a Real Time Hospitality record showing room 12345 status set to vacant appears below.

```
*012398 234900       12345                          H V
```

An example of a Real Time Hospitality record showing room 7324 status set to vacant appears below.

```
*012398 234900       7324                           H V
```

An example of a Real Time Hospitality record showing room 732 status set to basic appears below.

```
*012398 234900       732                            H B
```

An example of a Real Time Hospitality record showing room 73 status set to mid appears below.

```
*012398 234900       73                             H M
```

An example of a Real Time Hospitality record showing room 7 status set to full appears below.

```
*012398 234900       7                              H F
```

Norstar All record format

When this option is selected, Standard, CLID Information and Real Time records are provided.

An example of a call record when **All** is selected appears below. The RINGING records show the time when the call is received with CLID Information, not the time when it started alerting. The call is answered 15 seconds after the ringing began. It is transferred 25 seconds after it is answered and is released two minutes after it was transferred.

```
*030298 154920 0022            4032919000     UNKNOWN      D G

*030298 154920 0022            4032919000     8002349876   D D

*030298 154935 0022     7101   4032919000     UNKNOWN      D A

*030298 155000 0022     7169   4032919000     UNKNOWN      D T

*030298 155200 0022     7169   4032919000     UNKNOWN      D R

--------    03/02/98   15:49:20   LINE = 0022   STN = 7101
            CALLING NUMBER   4032919000
            NAME             UNKNOWN
            LONG DISTANCE
            DNIS NUMBER      8002349876
            BC = SPEECH
00:00:00    INCOMING CALL    RINGING 0:15
00:00:20    HOLD
00:00:25    TRANSFERRED

--------    03/02/98   15:50:00   LINE = 0022   STN = 7169
00:00:00    FROM TRANSFER
00:00:00    UNHOLD
00:02:00    CALL RELEASED
```

Target line/Physical lines

When target lines are being used on digital trunks, the SMDR6 records show both the target line and the physical line number.

An example of an Incoming call on a target line appears below. The target line number is 101 and the physical line number is 38. The call is answered by station set 7468.

```
--------   12/12/97   12:00:01   LINE = 0101   STN = 7468
00:00:00   INCOMING CALL
           LINE = 0038
00:28:33   CALL RELEASED
```

Busy Norstar records

The SMDR6 reports busy for the following calls.

Direct Inward Dial (DID) busy

This happens when a digital line is set up as a DID line requiring receive digits to route the call through the KSU via a target line. If all target line destinations are busy, and the KSU is programmed to return busy instead of routing the call to the prime station set, SMDR6 reports busy.

```
--------   03/02/98   15:09:32   LINE = 0235
00:00:00   BUSY
           LINE = 0035
```

Target line busy

This happens when a target line is involved with a call, and a second incoming call tries to use the same line. SMDR6 reports busy, but does not include the target line information.

```
--------   03/02/98   14:36:02   LINE = 0035
00:00:00   BUSY
```

Note: SMDR6 reports busy calls only if the KSU is programmed to provide busy treatment.

Bearer capability data

When the SMDR6 is set to report in Norstar CLID format, the SMDR6 supports the reporting of Bearer capability associated with the call as part of the CLID format record. An example of an incoming call with Bear capability data is shown below.

```
--------    12/03/98   14:36:00   LINE = 0035
            CALLING NUMBER    7355303
            NAME              UNKNOWN
            UNKNOWN
            BC = SPEECH
00:00:00    NO ANSWER         RINGING  0:02
```

Note: This is supported only if the KSU supports Bearer capabilities.

PRI Call-by-call service

When the ISDN Primary Rate Interface (PRI) trunks is installed in the KSU, the SMDR6 supports the reporting of PRI Call-by-call service as part of the CLID call records in Norstar CLID format. Both the service type and service ID for incoming and outgoing calls are reported in the SMDR6 records. The following example illustrates an incoming call using the TIE service with service ID 0 and the corresponding outgoing call using the PUBLIC service

```
--------    01/01/98   01:38:00   LINE = 0001   STN = 221
            CALLING NUMBER   6135551212
            NAME             UNKNOWN
            UNKNOWN
            DNIS NUMBER      9772210
            BC = SPEECH
            PRI SERVICE      TIE 0
00:00:00    INCOMING CALL    RINGING 0:00
00:01:35    CALL RELEASED

--------    01/01/98   01:38:00   LINE = 0023   STN = 223
            BC = SPEECH
            PRI SERVICE      PUBLIC
00:00:00    OUTGOING CALL
            DIGITS DIALED    9772210
00:01:35    CALL RELEASED
```

Note: This is supported only if the necessary Norstar hardware is installed and the PRI trunks are configured properly to deliver PRI call-by-call service information.

Dialed number identification service

Certain trunk types (including ISDN PRI trunks) support the delivery of Dialed number identification service (DNIS). SMDR6 supports the reporting of DNIS as part of the CLID call records when the information is delivered. DNIS reporting is supported in both Norstar CLID format and Norstar Real Time format. An example of an incoming call with DNIS information is shown below

```
--------    01/01/98   01:38:00   LINE = 0001   STN = 221
            CALLING NUMBER   6135551212
            NAME             UNKNOWN
            UNKNOWN
            DNIS NUMBER      9772210
            BC = SPEECH
            PRI SERVICE      TIE 0
00:00:00    INCOMING CALL    RINGING 0:00
00:01:35    CALL RELEASED
```

Note: This is supported only if the necessary Norstar hardware is installed and the trunks supporting DNIS are configured properly to deliver DNIS information.

Call connected digit separator

Normally, SMDR6 reports all the digits the user dialed to connect the call. The digits may include digits responding to prompts from the Auto-attendants, extension transfer or voice mail service. To facilitate the identification of digits dialed to connect the call and digits dialed after the call is connected, an option is available to insert an "!" between them. An example of an outgoing call with call connected digit separator is shown below

```
--------   01/01/98   01:38:00   LINE = 0023   STN = 223
           BC = SPEECH
00:00:00   OUTGOING CALL
           DIGITS DIALED    9772210!0132
00:01:35   CALL RELEASED
```

This option can be enabled using the AT command or the SMDR6 Extended main menu. The default of this option is disabled.

Note: The SMDR6 cannot differentiate between required digits to connect the call and extra digits dialed before the call is connected. Not all KSUs support the delivery of call connected signal and this feature may not be available for some KSUs.

Norstar record field definitions

The following list shows all of the lines that can be printed by SMDR6 in the Norstar format.

Standard and CLID record formats

```
0         1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678 90

--------   MM/DD/YY   HH:MM:SS   LINE = XXXX   STN = XXXXXXX
--------   MM/DD/YY   HH:MM:SS   LINE = XXXX   LINE = XXXX
--------   MM/DD/YY   HH:MM:SS   LINE = XXXX
--------   MM/DD/DY   HH:MM:SS
           SMDR6 RESTART
00:00:00   INCOMING CALL    RINGING 0:00
00:00:00   OUTGOING CALL
00:00:00   NO ANSWER        RINGING 0:00
00:00:00   FROM TRANSFER
00:00:00   INVALID PASSWORD
00:00:00   HOLD
00:00:00   UNHOLD
00:00:00   ACCOUNT CODE     123
00:00:00   BUSY
           DIGITS DIALED    9369552
00:00:00   CONFERENCE       STN2 = 7425
00:00:00   CONFERENCE       LINE2 = 0052
00:00:00   CONFERENCE END
00:00:00   RESTRICTI0N PASSWORD 99
00:00:00   CALL RELEASED
00:00:00   TRANSFERRED
00:00:00   FROM TRANSFER
           RECORDS LOST
           LINE = 0015
           BC = SPEECH
           BC = UNRESTRICTED DIGITAL
           BC = RESTRICTED DIGITAL
           BC = 3.1 kHZ AUDIO
           BC = 7 kHZ AUDIO
           BC = VIDEO
           CALLING NUMBER   4032919123
           CALLING NUMBER   /12345678901
           CALLING NUMBER   4032919123x
           NAME             Peter Pan
           LONG DISTANCE
           UNKNOWN
           DNIS NUMBER      4032652300
           PRI SERVICE      PUBLIC
           PRI SERVICE      PRIVATE
           PRI SERVICE      TIE
           PRI SERVICE      FX
           PRI SERVICE      OUTWATS
           PRI SERVICE      SWITCHED DIGITAL
           PRI SERVICE      INWATS
           PRI SERVICE      INTL INWATS
           PRI SERVICE      900
           HOSPITALITY VACANT
           HOSPITALITY BASIC
           HOSPITALITY MID
           HOSPITALITY FULL
```

Real Time record format

```
0         1         2         3         4         5         6         7
1234567890123456789012345678901234567890123456789012345678901234567890
*MMDDYY HHMMSS LINE   STATION   CLID NUMBER     NAME/DNIS   TYPE EVENT
*030193 154615 0019             6137635122      Alan Smith    U  G
*030193 154615 0019             6137635122      4032632300    U  D
*030193 154615 0019     7343    6137635122      Alan Smith    U  A
*030193 154615 0019     7343    6137635114      Alan Smith    U  N
*030193 154615 0019     7343    6137635122      Alan Smith    U  T
*030193 154615 0019     7343    6137635114      Alan Smith    U  R
*012398 234900         12345                                  H  V
*012398 234900         12345                                  H  B
*012398 234900         12345                                  H  M
*012398 234900         12345                                  H  F
```

Norstar Standard and CLID record description

For non-Real Time records, each line has a maximum of three fields (except for the header line).

The header line has a maximum of five fields:

- the first field is always eight dashes
- the second field is the date the call originated
- the third field is the time the call originated
- the fourth field is the line being used
- the fifth field is either the line or station that is using the line in the fourth field

The SMDR6 reports calls based on events (change of call states). The first field is the time the associated event occurred. The time is an offset from the start time of the call indicated in the header. The second field describes the event associated with that call. Events can be either a call state like hold or transfer, or a user action like account code entry. The third field is data which further describes the action indicated in the second field.

Printable line descriptions

The line below is the Header line indicating the start of a call record, or the continuation of a call record after a transfer. This record can have three, four or five fields. The date and time reflects the date and time the call started. For incoming calls, this is when the call is answered. For outgoing calls it is the time the line is seized. The LINE field is fixed at four digits. The STN directory number (DN) can be from two to seven digits in length. For Outgoing tandem calls, both the fourth and the fifth field will be LINE.

```
 --------   MM/DD/YY   HH:MM:SS   LINE = XXXX   STN = XXXXXX
```

The line below is printed after the header line when SMDR6 or the KSU is restarted.

```
          SMDR6 RESTART
```

The line below is printed after the header line (with all five fields) or after the CLID Information. The time in the header line is when the call was actually answered. This time minus the ringing duration (the third field) is when the call actually started ringing.

```
 00:00:00   INCOMING CALL   RINGING 0:04
```

The line below is printed after the header line (with all five fields). The time in the header line field indicates when the call was initiated.

```
 00:00:00   OUTGOING CALL
```

The line below is printed after the header line when an incoming call is not answered.

```
 00:00:00   NO ANSWER      RINGING 0:22
```

The line below is printed when an incoming call receives busy treatment.

```
 00:00:00   BUSY
```

The lines below indicate when the call was put on hold or taken off hold.

```
00:00:04    HOLD
00:00:06    UNHOLD
```

The lines below are printed at the start and the end of a conference. The third party in the conference could be a second station set or a second line as indicated in the third field.

```
00:10:32    CONFERENCE        STN2 = 7425
00:12:12    CONFERENCE        LINE2 = 0052
00:12:45    CONFERENCE END
```

The line below is printed when a call has been transferred.

```
00:00:00    TRANSFERRED
```

The line below is printed after the header line when a call is transferred. It indicates the start of the call at the new station set that receives the transfer.

```
00:00:00    FROM TRANSFER
```

The line below is printed after the last state of a call. It is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call record.

```
00:00:00    CALL RELEASED
```

The line below is printed when digits dialed are displayed in Outgoing call records. A maximum of 32 digits/characters may appear. If the call connected digit separator option is enabled, an "!" is inserted between digits dialed before and after the call is connected.

```
         DIGITS DIALED    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
         DIGITS DIALED    123456789!1234
```

The line below is printed when the user or caller enters an invalid password.

```
00:00:00    INVALID PASSWORD
```

The line below is printed when an account code is entered. Account codes can be a maximum of 12 digits.

```
00:00:00   ACCOUNT CODE     XXXXXXXXXXXX
```

The line below is printed when a password is entered. The password ID can be a maximum of two digits (00-99). The record indicates the password override ID and not the password itself.

```
00:00:00   RESTRICTION PASSWORD XX
```

The line below is printed as the last line of a call record if the call states were missed or if a call was missed altogether. It is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call record.

```
          RECORDS LOST
```

The line below is printed identifying the physical line of an incoming call on a target line. The line number is fixed at four digits (with leading zeros).

```
          LINE = XXXX
```

The lines below are printed when CLID information is available. The calling number shown can be a maximum of 12 characters of which a maximum of eleven can be digits. If a number received by the KSU is longer than eleven digits, then a "/" is the first character, followed by the eleven least significant digits. The name can be a maximum of 15 characters. Each of the number and name can show "UNKNOWN". The third line is the call type. It shows either "LONG DISTANCE" or "UNKNOWN" if call type information is not available. The DNIS number, if available, appears after the call type. It is followed by the Bearer Capability. The last line is the PRI Call-by-call service. It appears only if the PRI service information is available.:

```
          CALLING NUMBER   XXXXXXXXXXX
          NAME             XXXXXXXXXXXXXXX
          UNKNOWN
          DNIS NUMBER      XXXXXXXXXX
          BC = SPEECH
          PRI SERVICE      TIE XXXXX
```

The lines below are printed when the room occupancy status of room 12345 changes to vacant.

```
--------   23/01/98   23:49:00   EXT = 12345
    HOSPITALITY VACANT
```

Norstar Real Time record description

The Real Time records are one line long begin with an asterisk (*) to differentiate them from other Norstar records. It contains eight fields:

- Date in MMDDYY format
- Time in HHMMSS format
- Line number associated with the call
- Station Set number associated with the call
- CLID number
- CLID name or DNIS number
- Call type
- Call state

The first field is the date field and is a fixed length of six digits (MMDDYY). The month, day or year may be preceded with a leading 0 to keep the field length fixed. For example, 010598 is January 5, 1998.

The second field is the time which is also a fixed field with six digits (HHMMSS). There are no separators between hour, minute and second.

The third field is the line which is associated with the call being tracked. The line is fixed at four digits and may have leading zeros. For example, 0019 is line 19. Because the Real Time Hospitality record does not use the third field it does not contain any characters and appears blank.

The fourth field is the station set number of the station set associated with the call. Station Set numbers can be from two to seven digits long. If the number is less than seven digits there are no leading zeros because this field is not fixed. In the Real Time Hospitality record the fourth field shows the room number. Room numbers are one to five digits long.

The fifth field is the CLID Information field indicating the calling number. The number can be a maximum of 12 characters (11 digits maximum and the "/" and "x" character). There is always information in this field. If no number is available, either UNKNOWN or PRIVATE appears in this field. Because the Real Time Hospitality record does not use the fifth field it does not contain any characters and appears blank.

The sixth field is the CLID name or DNIS information. The name can have a maximum of 15 characters. If no name is available, UNKNOWN appears in this field. This field is replaced by the DNIS information in "D" records. The DNIS can have a maximum of 10 digits. In the Real Time Hospitality record the sixth field shows the room occupancy status indicator.

The seventh field is the CLID call type which is either long distance (D) or unknown (U).

The eight field indicates the call state of the Real Time record. This field always contains a call state indicator and is followed immediately by a carriage return and two line feeds.

Troubleshooting

Introduction

This section provides solutions to problems you might encounter while programming and maintaining the SMDR6 unit.

Problems are grouped into two categories: Printer Problems and Error Messages.

Printer problems
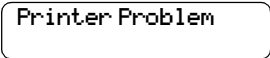
Problem: Records are not printing.

Solution: Ensure the printer:

- is connected to the SMDR6 unit
- is on-line
- is properly loaded with paper

Ensuring Records are printed

If the printer is off-line from SMDR6, the following message appears on the display for three seconds when you access SMDR6 Administration:

```
Printer Problem
```

If there is nothing wrong with the printer set up, then ensure SMDR6 is configured to the same speed as your printer. For more information about printer set up, refer to **Administering SMDR6**, earlier in this guide.

Problem: Only certain calls are being printed.

Solution: When a record is not printed, follow the steps below:

The Call Reporting option might be screening out calls that you want recorded. For example, if the Call Report is set for outgoing calls, then only outgoing calls are printed. For more information on Call Reports, refer to **Administering SMDR6**, earlier in this guide.

A user must press $\underline{OK}$ or $\boxed{\#}$ after entering an Account code for the record to be printed. For more information on Account codes refer to, **Administering SMDR6** for user training information.

The SMDR6 might have been restarted. It takes up to 60 seconds after the system is restarted before any calls are recorded. Calls made during this time are not recorded. The SMDR6 will start printing records after this 60 second period.

Error messages

The SMDR6 shows error messages on the telephone display, or on printed records.

Message:

> Inactive feature

This message appears if an unassigned Feature Code is entered.

Access the SMDR6 Administration to determine the correct Feature Code. Fore more information on SMDR6 Administration, refer to **Administering SMDR6**, earlier in this guide.

Message:

> Code in use

This message appears during SMDR6 Administration. The Account code Feature number entered already exists within the Norstar system.

Message:

> Feature in use

This message appears when two users try to access SMDR6 Administration simultaneously.

Message:

> No active line

This message is caused by inputting the Account feature code when an exchange line has not been selected, or is on hold.

Use an Account code on active outside lines.

Message:

```
System in use
```

This message means the Feature code for another application is being administered at this time.

The SMDR6 has internal event buffers that store all information relating to call records. If the system becomes overloaded because of excessively high call activity, records can be lost. This message appears in the printed call records:

```
                    RECORDS LOST
```

You might require a higher speed printer or an external print buffer device.

Glossary

Account feature code
A three-digit number that enables users to enter an SMDR6 account code from a Norstar telephone.

Baud
A variable unit of data transmission speed equal to one bit per second.

Call Accounting
An optional software program that can be used to analyze the data collected by SMDR6 and to organize it according to a company's needs.

Call record
A type of record created by SMDR6. This record includes information about a call's duration and number dialed.

Call report
A report that uses call record information collected by SMDR6 to itemize telephone activity.

CLASS
Custom Local Area Signalling Services is a collection of services from the local telephone company.

CLID
If available from the local telephone company, Calling Line Identification is when the calling number is shown on the Norstar display.

CMS
Call Management Services is a collection of services from the local telephone company. CMS is a part of CLASS.

Default
A value that SMDR6 assumes unless another one is specified.

ISDN
Integrated Services Digital Network is a worldwide digital communications network.

Hospitality record
A type of record created by SMDR 6 that provides the room occupancy status whether vacant, basic, mid or full.

KSU
Key Service Unit. The central hardware component in the Norstar system. The KSU has its own processor and memory, and provides a physical point for connection of various types of data terminals, telephones and expansion modules.

Norstar record format
An English language syntax organization of call records.

Physical line
The physical connection between the Norstar system and the outside world.

Prompt
A message appearing on the Norstar display instructing the user to perform a specific task.

Record
A unit of information consisting of several related data items pertaining to a call.

SL-1 record format
The organization of information that SMDR6 data must be translated into before the data it contains can be read by an SL-1 call accounting program.

SMDR6
Station Message Detail Recording 6 is a unit that is connected to your Norstar Key Service Unit to record call activity.

System Coordinator
The person responsible for installing, administrating and maintaining SMDR6 for a particular company.

Target line
A Target line is a virtual line, not a physical line. It is dedicated to receiving and routing incoming calls on DID or auto-answer trunks to a specific destination.

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