ADTRAN

Configuration Guide

Configuring SMDR Reports in the NetVanta 7000 Series

This configuration guide outlines the use and configuration of station message detail record (SMDR) reporting in ADTRAN Operating System (AOS) products. The guide includes an overview of SMDRs, the SMDR reporting versions supported by AOS, and the steps necessary to configure SMDR reporting using the Web-based graphical user interface (GUI) or the command line interface (CLI).

This guide consists of the following sections:

SMDR Overview

SMDRs are used to log information about individual calls. The recorded information includes call timestamps, call lengths, participating parties, call origination and destination details, and other information related to calls made or received through the voice network system. Several programs are available that collect SMDR information in order to provide call accounting, find call trends, and supply network administrators with information about productivity.

SMDRs can be saved locally to the CompactFlash® (CFLASH) card on the AOS unit (as of AOS firmware release A5.01), or they can be exported by syslog, or to an external software collector package. External software collector packages can consolidate the information contained in these records and build graphical reports, if necessary. For details about ADTRAN Alliance Partners that support the collection of SMDRs, visit http://www.adtran.com.

As of AOS firmware release R10.4.0, there are two versions of SMDRs. Both versions provide SMDRs in a single line of output, that contain useful information about call activity. The first SMDR version (v1) provides the call date, time, and duration, billing and origination codes, call originating and destination slot/port, calling and called party name and number, conference call flags, and special handling flags. The second SMDR version (v2) provides a unique call ID for the call, the call date and start time, the call ring, hold, and billable time, the billing code, whether the call was internal or external, the originating and destination slot/port or trunk, calling and called party name and number, call destination name and ID, the dialed digits, the call status, and the SMDR version used to generate the call report. The output for all SMDR versions is outlined in the following section.

Understanding SMDR Output

The versions of SMDR supported by AOS differ slightly in the output contained in the record. These differences, and the meaning of each type of output, are outlined below.

V1 SMDR Output

In v1 SMDR, output appears in a single line, and is labeled as follows:

Figure 1. Output Items for SMDR v1

1. AOS Timestamp. Indicates the date (in YYYY.MM.DD format) and the time in HH:MM:SS format that the entry was created.

2. AOS Process. Indicates the AOS process for which the entry was created. For SMDRs, SMDR will always be the AOS process.

3. SMDR Timestamp. Indicates the date of the call (in mm/dd/yyyy format) and the time of the call termination (in hh:mm:ss format).

4. Call Duration. Indicates the length of the call in minutes, using the mmmmmm.m format. For example, a value of **0.1** indicates the call duration was .1 of a minute.

5. Billing Code. Indicates the code used for billing purposes.

6. Origination Code. Indicates whether the call originated internally (**I**) or externally (**E**).

7. Originating Slot/Port. Indicates the physical slot and port of the originating phone.

8. Calling Party Name. Indicates the name of the call originating party.

9. Calling Party Number. Indicates the number of the call originating party.

10. Destination Slot/Port. Indicates the physical slot and port of the called phone.

11. Called Party Name. Indicates the name of the called party.

12. Called Party Number. Indicates the number of the called party.

13. Conference Call Flag. Indicates whether the call was part of a conference (**C**) or not (**NC**).

14. Special Handling Flag. Indicates the type of call. Refer to *Table 1* for special handling flags.

Table 1. Call Special Handling Flags

Flag	Meaning
EM	Emergency Call
F	Forwarded Call
T	Transferred Call
PR	Park Return Call
GR	Group Ring Call
7E	G.711 Echo Call
7N	G.711 No Echo Call
7D	G.711 Echo Data Mode Call
R	Referred Call
RBA	Routeback Allowed Call
AA	Auto-answered Call
PRD	Predelivered Call
T38	T.38 Call
M	Media Gateway Control Protocol (MGCP) Call
PU	Call Pickup Call
GR	GR303 Call
QC	Queued Call

Table 1. Call Special Handling Flags

Flag	Meaning
N	None

V2 SMDR Output

In v2 SMDR, output appears in a single line, and is labeled as follows:

Figure 2. Output Items for SMDR v2

1. Call Identifier. A unique ID that persists across a single call. This field persists whether or not other fields change (such as, a TO/FROM change in a transferred call). Call IDs are a repeating sequence of numbers, from 1 to 999,999. These numbers are not sequential, however, they are unique to each call leg.

2. Date. Indicates the SMDR call log date, expressed in the MM/DD/YYYY format.

3. Call Start Time. Indicates the SMDR call log start time entry, expressed in a 24 hour HH:MM:SS format.

4. Ring Time. Indicates the amount of time before the call was answered, expressed in MM:SS format.

5. Hold Time. Indicates the total time the call was on hold, expressed in the format HH:MM:SS. All hold times for the call leg are added together, with the total for a single call leg expressed in this field. If the call is transferred, or any other event causing a new call leg occurs, then any future hold times are reported against the new call leg.

6. Total Call Minutes/Billable Time. Indicates the total time the call was connected (from the time the call was connected to the system until the call-leg is terminated), expressed in D:HH:MM:SS format. The maximum value for this field is 6:23:59:59.

7. Billing Code. Indicates the billing code for the call.

8. Call Type. Indicates whether the call was originated internally (**I**) or externally (**E**).

9. Originating Trunk. Indicates the trunk number from which the call originated, expressed in TXX format. If the call originated internally, N/A is displayed in this field.

10. Originating Slot/Port. Indicates the physical slot and port from which the call originated. If the call originated from a trunk, the slot and port of the T1 is displayed, rather than the slot and port of the foreign exchange office (FXO).

11. Calling Party Name. Indicates the name of the call originating party.

12. Calling Party Number. Indicates the number from which the call originated.

13. Destination Slot/Port. Indicates the physical slot and port to which the call connected. If the call is connected to a trunk, the slot and port of the T1 is displayed.

14. Called Party Name. Indicates the name of the party to which the call is destined, and includes the called party or the party to which the call was transferred. If the call is an external call, N/A is displayed in this field.

15. Called Party Number. Indicates the number of party to which the call is destined. This value is determined by the number to which the call has been resolved by the system. For example, if the number dialed by the user is 256-555-2000, but the system sees that the call is destined for user 2000, 2000 is included in the SMDR report. This field displays either the called party number or the number to which the call was transferred.

16. Complete Indicator. This field indicates whether the current entry in the SMDR log is the last entry for the particular call, or if, due to a transfer or other event, there are more entries pertaining to this call. **Y** indicates this is the last entry for the call, **N** indicates there are more entries for this call.

17. Dialed Digits/Dialed Number Identification Service (DNIS). Indicates the digits dialed by the user, whether on an outgoing or incoming call. Only numbers dialed by the user to establish the call are reported.

18. Call Status Indicators. Indicates why the call was ended by including a specific code. Codes are outlined in *Table 2*.

Table 2. Call Status Indicators

Code	Indication
A	Abandoned
O	Overflow
T	Transferred
V	Voicemail
F	Forwarded
N	None

19. Version. Indicates the SMDR format version used to generate the log. For version 2, this field reads v2.

Hardware and Software Requirements and Limitations

SMDR v1 is available on the NetVanta 7000 Series products running AOS firmware A5.01 or later. SMDR v2 is available on the NetVanta 7000 Series products running AOS firmware R10.4.0 or later.

The exportation of SMDR reports to syslog is available on AOS products with the syslog functionality as outlined in the *AOS Feature Matrix*, available online at https://supportforums.adtran.com. To export SMDR reports to an external collector, refer to http://www.adtran.com/web/url/alliance for details about ADTRAN Alliance Partners that support this collection.
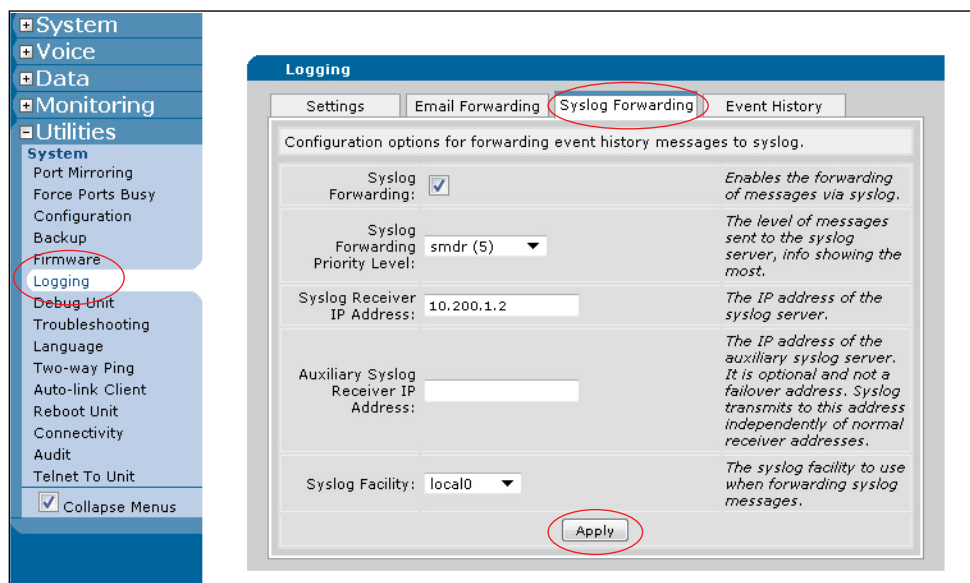
Configuring SMDR for Syslog Forwarding

By default, AOS is not configured to log SMDR information. You can configure the AOS device to log SMDR information using either the GUI or the CLI, and can configure AOS to export this information to syslog or another supported external collector.

SMDR for Syslog Forwarding Configuration Using the GUI

To configure SMDR for syslog forwarding using the GUI, follow these steps:

1. Connect to the AOS device's GUI and navigate to **Utilities** > **Logging**. In the **Syslog Forwarding** tab, enable syslog forwarding by selecting the **Syslog Forwarding** check box. Next, select **smdr (5)** from the **Syslog Forwarding Priority Level** drop-down menu, and enter the syslog receiver's IP address in the appropriate field. You can also optionally configure a secondary syslog server to receive the SMDR reports. If you are using another collection device, enter that collection device's address in the IP address field. Next, select **local0** from the **Syslog Facility** drop-down menu.

2. Select **Apply** to finish configuring SMDR to export to syslog.

Configuring SMDR for Syslog Forwarding Using the CLI

To configure syslog forwarding using the CLI, follow these steps:

1. Boot up the unit.
2. Telnet to the unit (**telnet** *<ip address>*), for example:

    telnet 10.10.10.1.

> **NOTE**   *If during the unit's setup process you have changed the default IP address (10.10.10.1), use the configured IP address.*

3. Enter your user name and password at the prompt.

> **NOTE**   *The AOS default user name is **admin** and the default password is **password**. If your product no longer has the default user name and password, contact your system administrator for the appropriate user name and password.*

4. Enable your unit by entering **enable** at the prompt as follows:

    >enable

5. If configured, enter your Enable mode password at the prompt.

6. Enter the unit's Global Configuration mode as follows:

    #configure terminal
    (config)#

7. From the Global Configuration mode, enable log forwarding using the **logging forwarding on** command. Enter the command as follows:

    (config)#**logging forwarding on**

8. Next, specify that SMDR information is sent to syslog using log forwarding by entering the **logging forwarding priority smdr** command from the Global Configuration mode. Enter the command as follows:

    (config)#**logging forwarding priority smdr**

9. Then specify the IP address of the syslog server by entering the **logging forwarding receiver** *<ipv4 address>* command from the Global Configuration mode. IPv4 addresses should be expressed in dotted decimal notation (for example, **10.10.1.2**). Enter the command as follows:

    (config)#**logging forwarding receiver 10.200.1.2**

10. Lastly, specify the syslog facility to use when forwarding syslog messages by entering the **logging facility local0** command from the Global Configuration mode. Enter the command as follows:

    (config)#**logging facility local0**

The SMDR reports to be exported to syslog are now configured. Save your configuration by entering **do write** from the Global Configuration mode prompt.

Configuring SMDR for Local SMDR Logging

Local SMDR logging is written to a file named **SMDR.txt**, in a folder named **Logging** on the CompactFlash card. This folder can be accessed using File Transfer Protocol (FTP). If configured, an email alert can be sent to an administrator when the SMDR log has reached 80 percent capacity (400,000 entries) or when the available free space on the CompactFlash card is less than 2 MB. Logs are not written to CompactFlash when the available free space on the card is less than 1 MB to preserve space for critical operations. When log capacity is near the maximum, a warning message is sent to the configured email address (refer to *Managing Local SMDR Logging on page 11* for details about these warning messages). The steps for configuring local SMDR logging are outlined below.

Configuring Local SMDR Logging Using the GUI

To configure local SMDR logging using the GUI, follow these steps:

1. Connect to the AOS device's GUI and navigate to **Voice** > **Reports** > **Logging**.

2. In the **SMDR Logging** menu, enable local SMDR logging by selecting the **Local SMDR Logging** check box. Then, select the appropriate SMDR logging version (v1 or v2) from the **Format Version** drop-down menu. Enter the email recipients for logging capacity alerts in the **Email Recipients** field.

> **NOTE** *For email alerts about the SMDR logging capacity to be sent, you must configure the email server.*

3. Select **Apply** to apply the local SMDR logging settings.

Configuring Local SMDR Logging Using the CLI

To configure local SMDR logging using the CLI, follow these steps:

1. Access the CLI and enter the Global Configuration mode.

2. Specify the email address(es) to which logging capacity alerts are sent by entering the **logging email smdr address-list** *<email address>* command from the Global Configuration mode. Enter the command as follows:

    (config)#**logging email smdr address-list admin@yourcompany.com**

> NOTE   *For email alerts about SMDR logging capacity to be sent, you must configure the email*
> *server.*

3. Enable SMDR local logging by entering the **voice logging smdr** command from the Global
    Configuration mode. Enter the command as follows:

    (config)#**voice logging smdr**

4. Optionally, specify the format of SMDR logs by entering the **voice logging smdr format [v1 | v2]**
    command from the Global Configuration mode. The **v1** parameter specifies that SMDR version 1 is
    used, and the **v2** parameter specifies that version 2 is used. By default, **v1** SMDR formats are used. To
    change the SMDR output format version, enter the command as follows:

    (config)#**voice logging smdr format v2**

SMDR Logging Configuration Examples

The example scenarios contained in this section are designed to enhance understanding of SMDR logging
configurations on AOS products. The examples describe some of the common real-world SMDR logging
configurations. All configurations provided in this section use the CLI.

> NOTE   *The configuration parameters entered in these examples are sample configurations only.*
> *These applications should be configured in a manner consistent with the needs of your*
> *particular network. CLI prompts have been removed from the configuration examples to*
> *provide a method of copying and pasting configurations directly from this configuration*
> *guide into the CLI. These configurations should not be copied without first making the*
> *necessary adjustments to ensure they will function properly in your network.*

In the following example, SMDR logs are exported to a syslog server at IP address **10.200.1.2**.

!
logging forwarding on
logging forwarding priority smdr
logging forwarding receiver 10.200.1.2
logging facility local0
!

In the following example, local SMDR logs in the version 2 format are enabled, with email notifications
sent to **admin@company.com**.

!
logging email smdr address-list admin@company.com
voice logging smdr
voice logging smdr format v2
!

SMDR Logging Configuration Command Summary

The CLI commands used to configure both local and syslog export SMDR logs are summarized in *Table 3*.

Table 3. SMDR Logging Configuration Commands

Prompt	Command	Description
(config)#	**[no] logging forwarding on**	Enables the forwarding of messages using syslog. Logging is disabled by default.
(config)#	**[no] logging forwarding priority smdr**	Specifies the level of messages sent to the syslog server is SMDR.
(config)#	**[no] logging forwarding receiver** *<ipv4 address>*	Specifies the IPv4 address of the syslog server.
(config)#	**[no] logging facility local0**	Specifies the syslog facility to use when forwarding syslog messages.
(config)#	**[no] logging email smdr address-list** *<email address>*	Specifies the email receiver of logging capacity alerts when using local SMDR logging.
(config)#	**[no] voice logging smdr**	Enables local SMDR logging. Logging is disabled by default.
(config)#	**[no] voice logging smdr format [v1| v2]**	Specifies the format version for SMDR logs. By default, **v1** is used.

Troubleshooting

There are several methods for troubleshooting and managing SMDR logging configurations. The first is by issuing the **show smdr** command from the Enable mode. This command displays the statistics for SMDR reporting, and includes each item from the configured SMDR output format. For example, enter the command as follows for SMDR reporting configured with v1 output format:

>**enable**
#**show smdr**
SMDR Formatting:
CallID[10]
Date(MM/DD/YYYY)[10]
Start Time(HH.MM.SS)[8]
Billable Mins[6]
Billable Dec[1]
Billing Code[4]
Call Type[2]
Originating Slot[2]
Originating Port[2]

Originating Name[15]
Originating Number[15]
Destination Slot[2]
Destination Port[2]
Destination Name[15]
Destination Number[15]
Conference ID[3]

> **NOTE** *The **show smdr** command is not available in AOS firmware versions A5.01 or earlier.*

Managing Local SMDR Logging

In addition to viewing SMDR statistics, local SMDR logging can be configured to send warning messages to administrators when logging capacity is reached (refer to *Configuring SMDR for Local SMDR Logging on page 7*). There are two kinds of warning messages that can be sent. The first tells the administrator that the SMDR log capacity is about to be reached. The maximum log capacity is 500,000 entries, and an email is generated when 80 percent of that capacity is reached (400,000 entries). When maximum capacity is reached, the log rolls over to the beginning of the file, erasing the old records. A second warning message is generated when the CompactFlash disk space is less than 2 MB.

Downloading SMDR Files

To save the most recent information prior to downloading the SMDR files from the system, you should force an SMDR update. The most recent 32 records are retained in memory before the file is written to CompactFlash. When an update is forced, these records in memory will immediately be written to CompactFlash. An update can be forced using either the GUI or the CLI.

To force an update using the GUI, connect to the GUI and navigate to **Voice** > **Reports** > **Logging**. In the **SMDR Logging** menu, select **Force Update**.

To force an update using the CLI, access the CLI and enter the **voice logging smdr force-update** command from the Global Configuration mode. Enter the command as follows:

(config)#**voice logging smdr force-update**

Clearing SMDR Logs

You can clear SMDR logs, removing all log entries, using either the GUI or the CLI.

To clear all SMDR log entries using the GUI, connect to the GUI and navigate to **Voice** > **Reports** > **Logging**. In the **SMDR Logging** menu, select **Clear**.

To clear all SMDR log entries using the CLI, access the CLI and enter the **clear voice logging smdr** command from the Enable mode. Enter the command as follows:

>**enable**
#**clear voice logging smdr**