ZTE CDMA Gateway
User Guide

Gateway Release: 3.4.0

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Contents

References

Name	Description
Gateway Framework User Guide	This user guide describes in detail the functionality of the Gateway Framework, and the standard suite of tools available.
ZXC10 BSSB (V8.0.1.9)	ZXC10 BSSB EV-DO Performance Management Index Description
ZXPDSS cdma2000 (V3.5.02)	ZXPDSS cdma2000 Packet Data Switching System Performance Monitoring

Glossary

PIF   Parser Intermediate Format

LIF   Loader Input Format

EVDO   Evolution Data Only

PDSN   Packet Data Switching Network

Preface

About this Guide

This guide details the Vendor specific information on the Gateway release for Nortel CDMA. It contains the following information:

- *Chapter 1. Overview.* This chapter gives a brief description of the Vendor Gateway and the raw data format it parses.

- *Chapter 2: Engine Rules and Configuration.* This chapter details the vendor specific rules for parsing the raw data and their configuration.

- *Chapter 3: Post Parser Rules and Configuration.* This chapter describes any vendor specific Post Parser rules and their configuration.

- *Chapter 4: Tech Pack Support.* This chapter describes any standard support for Tech Packs included with the Gateway.

- *Chapter 4: Installation specific information.* This chapter contains the customer installation specific information.

Conventions

The following conventions are used in this guide:

`fixed width`   Highlights a block of example code, a configuration entry, or a command line instruction

1. Overview

1.1 The Gateway Framework

The Nortel CDMA Gateway, referred to as the Vendor Gateway, uses the Gateway Framework as a container for the execution of its engine and post parser stages. The Gateway Framework and Vendor Gateway are decoupled into two separate installations. The Gateway Framework consists of a library of Perl modules that provide functionality such as:

- a container for the execution of the Vendor Engine and Post Parser rules for data transformation

- Intermediate (PIF) and output data (LIF) storage and management

- logging utilities

- cleanup and crash recovery

- statistics gathering

The Vendor Gateway plugs into the Gateway Framework and extends this functionality to provide the final Gateway that parses the vendor data.

More information on the standard Gateway configuration is contained in the Gateway Framework User Guide.

Only vendor specific configuration details will be described in this document.

1.2 ZTE CDMA Gateway Overview

1.2.1 Network Details

The ZTE CDMA performance and configurations are obtained for the following network elements:

- ZTE OMC

1.2.2 BSSB EV-DO Performance Management

ZXC10 BSSB (V8.0.1.9) DO Performance Management Index Description details the DO performance management indexes of the ZXC10 BSSB (V8.0.1.9) in terms of the objects and attributes of DO services, flow charts and statistical points of all the attributes, and index calculation methods.

1.2.2.1 Performance Data Layout

The performance data is known as data collection files. Currently the vendor gateway only supports collection of one file per MSC per period from the SDM.

 Below is a sample of performance data:

```
<ZTE_BSSB_OMC_Header>
      NEType:BSSB
      NodeId:100138
      StartTime:2007-08-27 04:30:00 EndTime:2007-08-27 05:00:00
```

```
     Ver:SN:6.912.10 V8.0(3.08.19.02)
<BSSB_Counters>
PONname=DO: Global Session Setup And Connection
     ServerId    BssId ModuleId    ActiveSessionNum  DormantSessionNum
     ActiveConnectionNum
     100138      0     1     87.0  49.0  66.0
     100138      0     2     89.0  15.0  38.0
     100138      0     3     37.0  94.0  4.0
     100138      0     4     22.0  83.0  2.0
     100138      0     5     37.0  97.0  20.0
     100138      0     6     2.0   73.0  40.0
     100138      0     7     79.0  93.0  7.0
     100138      0     8     91.0  45.0  47.0
     100138      0     9     4.0   19.0  68.0
     100138      0     10    74.0  28.0  97.0
PONname=DO: Global Virtual Handoff
     ServerId    BssId CarrierId    SFT_HoSNum   SFT_HoFNum   SFR_HoSNum
     SFR_HoFNum  IFR_HoSNum  IFR_HoFNum
     100138      0     26    2.0   65.0  81.0  97.0  81.0  74.0
```

Example 1

In Example 1, the values exist for the file header, column-head and data fields. The values for the header fields are described in Table 1.

Header Field	Value	Meaning
NEType	BSSB	Network Element Type
NodeId	100138	Node ID
Start_Date	2007-08-27	Start Date
Start_Time	04:30:00	Start Time
End_Date	2007-08-27	End Date
End_Time	05:00:00	End Time
Ver	SN:6.912.10 V8.0(3.08.19.02)	Version

Table 1 Header Fields

Each performance object in the file begins with the "`PONname=`"

Each performance object (PONname) will map to one or two LIF block. The PONname will map to two LIF blocks when aggregation is performed on the performance object to aggregate the values up to a higher level object, e.g. from Cell to BTS, from BTS to BSSB. If no aggregation is required, the PONname will map to one LIF block.

Each text line after the line containing "PONname =" contains the object identifier and the list of counters names associated with the performance object. E.g

```
ServerId    BssId ModuleId    ActiveSessionNum  DormantSessionNum
     ActiveConnectionNum
```

In this example, the object identifier is derived from a combination of `ServerId`, `BssId`, `ModuleId`. The counter names for this performance object, i.e. `DO: Global`

```
Session Setup And Connection are ActiveSessionNum, DormantSessionNum,
ActiveConnectionNum
```

1.2.2.2 File naming specification

File names are in the format **<Server_Id>_BSSB_YYYYMMDDHHMM.txt**

where

- <Server_Id> is the OMC id in integer format

- YYYY is the start year in four digit notation,

- MM is the start month in two digit notation (01 .. 12),

- DD is the start day in two digit notation (01 .. 31).

- HH is the start two digit hour of the day, based on 24 hour clock (00 .. 23),

- MM is the start two digit minute of the hour, and are BRP aligned.

Example:

```
100138_BSSB_200708270430.txt
```

1.2.3 PDSN Performance Statistics Measurement

ZXPDSS cdma2000 Packet Data Switching System Performance Monitoring (V3.5.02) details the performance management indexes of the PDSN in terms of the system performance, and performance management functions.

1.2.3.1 Performance data layout

It is in ASCII format, with sample as below:

Below are sample Schema records:

```
<ZTE_PDSN_OMC_Header>
     NEType:PDSN
     NodeId:125002
     StartTime:2007-08-21 17:00:00 EndTime:2007-08-21 18:00:00
     Ver:2.5
<PDSN_Counters>
POName=Data Transmit Statistics
     BureauId    ModuleId    UnitID     MaxFwdPack   MaxRvsPack
     125002    1    5    0    0
POName=PPP Session Statistics
     BureauId    ModuleId    PPPConnections    pppMaxConnectPerSecond
     abilityPerSecond
     125002    3    568    1    50
     125002    4    0    0    50
POName=RPU CPU/MEM Statistics
     BureauId    ModuleId    MemMax      MemAvg      CpuMax      CpuAvg
     MEMBytesMax MEMBytesAvg
     125002    2    12    12    3    2    15409216    15406453
```

Example 2

From performance data:

POName denotes the OM Group supported with corresponding counters and values specified in the subsequent rows, with example of the Data Transmit Statistics OM group below:

```
POName=Data Transmit Statistics
      BureauId    ModuleId    UnitID      MaxFwdPack  MaxRvsPack
      125002      1           5           0           0
```

Counter Block	Counter	Value in counter
Data_Transmit_Statistics	BureauId	125002
Data_Transmit_Statistics	ModuleId	1
Data_Transmit_Statistics	UnitID	5
Data_Transmit_Statistics	MaxFwdPack	0
Data_Transmit_Statistics	MaxRvsPack	0

Table 2 Record Data

1.2.3.2 File names

The file naming convention for performance data is **configurable**.

• **Performance data:**

The recommended file naming convention for the performance data file is:-

> <PDSN_Id>_PDSN_yyyymmddhhmm.txt

Below are the known naming conventions for the performance data file:-

> Aircell – 125002_PDSN_200708211700.txt

1.2.4 Architectural extensions

No external tools were used to parse the Nortel performance data.

2. Engine Rules and Configuration

The ZTE CDMA Gateway consists of the following parser modules to parse raw performance and configuration data.

- ZTE_ASCII

2.1 ZTE_ASCII
This parser module parses ASCII raw data files from ZTE OMC into PIF format.

2.1.1 Rule Configuration
To evoke the ZTE_ASCII module the configuration option 'RULE_TYPE' must be set to 'ZTE_ASCII'. The configuration options 'RULE_TYPE', 'RULE_DESC', 'INPUT_FILE_DESCRIPTION', 'INPUT_DIR_DEPTH', 'FILENAME_HEADER_FIELDS' and 'DIRECTORY_HEADER_FIELDS' are common to all productised gateways and are fully described in Gateways Framework User Guide; all other configuration options listed are specific to the Nortel_EVDO module.

Mandatory configuration entries:

- DATA_ELEMENT_NAME: This is a mandatory string to locate the Performance Object name within the raw data.

```
DATA_ELEMENT_NAME => 'POName',
```

Optional components:

- HEADER_INFO_TO_KEY_PIF_FILENAME: A list of header info to construct the output file name.

```
HEADER_INFO_TO_KEY_PIF_FILENAME => [ 'NEType', 'NodeId',
'START_DATE', 'START_TIME' ],
```

- HEADER_DATA_RECORD_PROCESSING: This entry enables extra Perl code in the engine to do various manipulations to header and data records. This is the last process within the engine before the data is being output to the PIF files.

```
HEADER_DATA_RECORD_PROCESSING => sub {
   my ($blkname_ref, $h_ref, $d_ref) = @_;

   # Header record processing
   if ($h_ref->{TIME} =~ /(\d{4})(\d{2})(\d{2})(\d{2})(\d{2})/) {
      my $day = "$1\-$2\-$3";
      my $time = "$4\:$5";
      &GenUtils::convert_date_format(\$day);

      # TIME will be output as a key PIF filename
      # as defined in HEADER_COUNTERS_TO_KEY_PIF_FILENAME
      # It is used by the UNPEGGER during post parsing
      $h_ref->{TIME} = "$day\_$time";
   }

   return 0; # Return 0 if successful
},
```

2.1.2 PIF naming convention

The PIF will be output with a name in the following format where '-#-' is used as a delimiter:

```
<header_counters_to_key_pif_filename>-#-<value of block name>-#-
<counter>-#-I.pif
```

where <counter> will either be nonexistent (as in the case when the first file of <original filename> is processed) or it will be an integer (1,2,3,..) (as in the case where a file with same name has file already parsed and whose the resulting PIF still exists in the intermediate directory).

3. Post Parser Rules and Configuration

No customized post parser rules are provided with Nortel CDMA Gateway.

4. Configuration Support

Gateway Configurations listed below are available for the respective Tech Pack releases:

- ZTE EVDO
- ZTE PDSN