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**Police digital trunking communication system - Technical
specifications for network management**

警用数字集群（PDT）通信系统 网管技术规范

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Police digital trunking communication system - Technical specifications for network management

1 Scope

This standard specifies the system composition, functions and technical requirements of the police digital trunking communication system network management, as well as the ministry-province interface and the province-city interface.

This standard applies to the planning, design, construction of the police digital trunking communication system network management.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 18030 Information technology - Chinese coded character set

GA/T 1056 Police digital trunking communication system - General technical specifications

GA/T 1059 Police digital trunking communication system - Security technical specifications

GA/T 1364 Police digital trunking communication system - Technical specifications for interconnection

IETF RFC2616 Hypertext transfer protocol

IETF RFC2818 Hypertext transfer protocol over transport layer security protocol

IETF RFC4627 Json media type for JavaScript object notation

W3C Recommendation: SOAP1.2 version - Part 1: Messaging framework

W3C Recommendation: Web services description language 2.0 version - Part 1: Core language

WS-I Profile: Basic profile 1.2 version

Network management interfaces are divided into the following two types:

- Ministry-province interface, which is the interface between the ministry-level network management center and the province network management center;
- Province-city interface, which is the interface between the province network management center and the city network management center.

5 Functions of network management center

5.1 Functional description

5.1.1 User management

User management shall include the following contents of management and configuration of user rights to use system resources:

- a) Account management:
 - 1) Mobile station, dispatch station account opening/cancellation;
 - 2) Mobile station remote stun, resurrection, remote killing;
 - 3) Talk group member management;
 - 4) Dynamic reorganization.
- b) Call authority management;
- c) Roaming authority management:
 - 1) Talk group effective area management;
 - 2) Mobile station roaming authority management.
- d) User real-name data management.

5.1.2 Device management

Device management shall include the following contents of information statistics, parameter configuration, data maintenance of the device in the system:

- a) Configuration management:
 - 1) System device parameter configuration;
 - 2) Storage, comparison, recovery of system device configuration files.

- Statistics of the proportion of time subject to interference.

5.1.3 Performance management

The network management center shall provide a basis for system optimization, through statistics and analysis of the following performance data:

- a) Traffic statistics and analysis. Supports the following single and multiple combinations of statistical analysis:
 - 1) Traffic statistics by base station;
 - 2) Traffic statistics by time period;
 - 3) Traffic statistics by talk group;
 - 4) Traffic statistics by call type (single call, group call, data).
- b) Call loss statistics and analysis. Supports the following single and multiple combinations of statistical analysis:
 - 1) Call loss statistics by base station;
 - 2) Call loss statistics by time period;
 - 3) Call loss statistics by talk group;
 - 4) Call loss statistics by call type (single call, group call, data).
- c) Online user number statistics and analysis.

5.1.4 Alarm management

Alarm management shall include the following contents: monitoring operation status, collecting alarm information, assisting in fault location, ensuring the normal operation of the system:

- a) Operation status monitoring:
 - 1) Operation status monitoring of base station device and switching center device:
 - Online status;
 - Alarm status.
 - 2) Monitoring of base station channel occupancy ratio;
 - 3) Monitoring of the online status of the switching center;

4) Link quality monitoring:

- Jitter;
- Delay;
- Packet loss rate.

b) Notification and processing of alarms:

- 1) Alarm notification;
- 2) Alarm location;
- 3) Alarm display;
- 4) Alarm clearing.

c) Recording and query of alarm data:

- 1) Alarm information recording;
- 2) Alarm information statistics;
- 3) Alarm information query.

d) Alarm analysis.

5.1.5 Security management

To ensure the security of the network management system, the following measures shall be taken for security management:

a) Database backup:

- 1) Backup storage of user database;
- 2) Backup storage of device configuration database.

b) Account management of network management personnel;

c) Log management:

- 1) Real-time storage of network operation log data;
- 2) Statistics of network operation log data;
- 3) Real-time storage of network management operation log data;
- 4) Statistics of network management operation log data.

6.2 Interface requirements

6.2.1 Interface protocol requirements

6.2.1.1 Protocol version requirements

The network management interface shall use the following protocol versions:

- Compatible with WSDL V2.0, see W3C Recommendation: Web Service Description Language Version 2.0 - Part 1: Core Language;
- Compatible with SOAP V1.2, see W3C Recommendation: SOAP1.2 - Part 1: Message Passing Framework;
- HTTP V1.1, see IETF RFC2616.

6.2.1.2 Security requirements

The network management interface shall support the HTTPS protocol and provide authentication and encrypted communication functions, see IETF RFC2818.

6.2.1.3 Encoding requirements

The character encoding of HTTP and its attachments shall comply with GB 18030.

6.2.1.4 Message format requirements

The interface message shall be in JSON format, see IETF RFC4627.

6.2.2 Interface service requirements

6.2.2.1 Namespace

The namespace shall be "http://[domain name]/[service name]", or "https://[domain name]/[service name]" where there are security requirements.

Note: The content in [] will be replaced by the specific name in the actual call.

6.2.2.2 Calling method

When calling the interface service, the URL shall be "[namespace]/[interface operation name]".

Note: The content in [] will be replaced by the specific name in the actual call.

Example:

A city-level network management center in Inner Mongolia Autonomous Region calls the "alarm statistics reporting operation" (almStatReport) of the "alarm reporting service"

(AlmReportService) of the province network management center. The service call URL is: "http://nm.pdt.org.cn/AlmReportService/almStatReport".

6.2.2.3 Custom parameter requirements

The custom parameter settings of the interface service shall meet the following requirements:

- a) Integer type (int) is 32 bits;
- b) String type (string), no more than 256 bytes;
- c) Long string type (longstring), no more than 1024 bytes;
- d) Time data type (time), a string in the format of "YYYY-MM-DD hh:mm:ss", where "YYYY" is a four-digit year, "MM" is a two-digit month, "DD" is a two-digit date, "hh" is a two-digit hour, "mm" is a two-digit minute, "ss" is a two-digit second;
- e) The parameter value of the string (Value) shall have a JSON tag and can be empty ("").

6.2.2.4 Parameter attribute description

The parameters of the interface service include the following 3 attributes:

- M means mandatory (Mandatory);
- O means optional (Optional);
- C means conditional (Conditional).

6.2.2.5 Interface service definition

The provisions of the ministry-province interface services are shown in Appendix A.

The provisions of the province-city interface services are shown in Appendix B.

6.2.3 Call of interface service

6.2.3.1 Call process description

The parameter setting requirements during the interface service call process are shown in Appendix C.

The operation process of the interface service call is described by a message sequence diagram. For the description of the message sequence diagram, see Appendix D.

6.2.3.2 Call test operation process

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