
System Resource Data Collection Interface

INTERFACE DESCRIPTION



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1 INTRODUCTION



Note! This document describes the interface and protocol to collect data regarding various devices for maintenance or supervision in the ASP113 01 system (MX-ONE).

The system data collection interface extract data in XML format intended for external devices. It is done via commands over the maintenance interface. ***It is only possible to extract data from the system.***

1.1 READING INSTRUCTIONS, LIMITATION OF DOCUMENT SCOPE



Note! Important information.

This IWD is not complete in that it does not describe all functions in detail. It contains the complete interface. However the full interpretation of all combinations of different items is beyond the scope of this document.

2 CONVENTIONS AND TERMINOLOGY

The keyword **MANDATORY** means, this item will always appear within an object.

The keyword **OPTIONAL** means, this item will only appear if it is relevant to the object.

3 DEFINITIONS

3.1 GLOSSARY

Analogue terminal	<i>Remote terminal</i> is used to refer to old standard legacy analogue telephone sets.
Dect terminal	<i>Dect terminal</i> is used to refer to terminals connected to an MX-ONE dect network.
Digital terminal	<i>Digital terminal</i> is used to refer to MX-ONE proprietary digital terminals.
EDN terminal	<i>EDN terminal</i> is used to refer to terminals that can <i>only</i> be used as an EDN on other SIP terminals.
Generic user	The new generation of extension user numbers which supports multi terminals.
H.323 terminal	<i>H.323 terminal</i> is used to refer to any H.323-compliant terminal attached to the IP network.
Legacy user	The old generation of extension user numbers which supports TDM terminals.
Marooned	Marooned is used to refer as the state SIP or H.323 terminals enter when they fail to maintain registration. This state is normally considered as an error situation.
Pilot user	Pilot user is used to refer to a number belonging to a group (Hunt group, ACD/CTI-group, Common Bell group).
Recorder terminal	<i>Recorder terminal</i> is used to refer to user numbers used for recording voice messages when using legacy magazines.
Remote terminal	<i>Remote terminal</i> is used to refer to an external connection over ISDN that represents a terminal in MX-ONE.
SIP remote terminal	<i>SIP remote terminal</i> is used to refer to an external connection over SIP that represents a terminal in MX-ONE.
SIP terminal	<i>SIP terminal</i> is used to refer to any SIP-compliant terminal attached to the IP network.
Undefined terminal	<i>Undefined terminal</i> is used to refer to a user number which is not yet defined to be used for anything.
Virtual terminal	<i>Virtual terminal</i> is used to refer to a user number which can be used as a pilot number for call lists and free seating. SIP terminals and H.323 terminals may not register to a virtual terminal.

3.2 ACRONYMS

ADN	Additional Directory Number (for DTS)
DECT	Digital Enhanced Cordless Telecommunications
DTS	Digital Telephone Set
EDN	Extra Directory Number (for SIP)
HLR	Home Location Register
ISDN	Integrated Service Digital network
IWD	Inter Working Description
ODN	Own Directory Number (for DTS)
SAAS	Software as A Service
TDM	Time Division Multiplex
ULR	User Location Register
UTF8	Unicode Transformation format 8-bit
XML	Extensible Markup Language

4 COMMUNICATION PROTOCOL

The communication consists of a command issued by a user or an external device. The command is processed and if accepted it will continue to collect data to return back in XML format.

See Operation & Maintenance, command “**resource_status**” for detailed description.

Depending on the command there are different type of responses will be given depending of the grade of success.

The XML response has following generic format:

```
<Response>
  <Requested object>
    ...
  </Requested object>
  <Requested object>
    ...
  </Requested object>
  ...
  <Result>...</Result> //Mandatory
  <Reason>...</Reason> //Optional
</Response>
```

The available object and format are listed in this document.

The **Result is always appearing last in the response** and Result is only appearing if the response is not OK.

Possible results:

- **Ok**, Data collection successful and all data is contained in response.
- **Nok**, Data collection failed, some or all data is missing from response.

Possible reasons:

- The reasons are presented as a text string.

If an error occurs before the process has entered the XML engine, the response will be in text format.

4.1 SUCCESSFUL DATA COLLECTION

This is a typical response for a successful data collection:

```
<Response>
  ...
  <Result>Ok</Result>
</Response>
```


4.2 ERRONEOUS DATA COLLECTION

This is a typical response for an erroneous data collection where XML response can be given:

```
<Response>
...
<Result>Nok</Result>
<Reason>"Timeout receiving message:"</Reason>
</Response>
```

4.3 ERRONEOUS DATA COLLECTION BEFORE XML ENGINE

This is a typical response for a successful data collection, where XML response cannot be given:

Value '2' for switch -d is shorter than minimum length (2).

Command line parsing failed.

Try 'resource_status -?' or 'resource_status --help-complete'

5 AVAILABLE OBJECTS

5.1 USER OBJECT

This object consists of basic data to keep track of user number and registered terminals. It has the following format:

```
<UserObject>
  <UserType>...<UserType> //Mandatory
  <DirectoryNumber>...</DirectoryNumber> //Mandatory
  <HLRServer>...</HLRServer> //Mandatory
  <UserName>...</UserName> //Optional
  <Customer>...</Customer> //Optional
  <FeatureLevel>...</FeatureLevel> //Optional
  <TerminalData> //Mandatory
    <PermittedType>...</PermittedType> //Optional and multiple
    <MaxNoOfTerm>...</MaxNoOfTerm> //Optional
    ...
    <DetachStatus>...</DetachStatus> //Optional
    <TerminalObject> //Optional and multiple
      <TerminalType>...</TerminalType> //Mandatory
      <TerminalSubType>...</TerminalSubType> //Optional
      <TerminalODN>...</TerminalODN> //Optional
      <TerminalStatus>...</TerminalStatus> //Mandatory
      <TrafficStatus>...</TrafficStatus> //Optional,
      <ULRServer>...</ULRServer> //Optional,
      <TerminalId>...</TerminalId> //Optional,
      <IpAddress>...</IpAddress> //Optional,
      <HwAddress>...</HwAddress> //Optional,
      <VendorId>...</VendorId> //Optional,
      <Version>...</Version> //Optional,
      <TerminalPointer>...</TerminalPointer> //Optional
    </TerminalObject>
  </TerminalObject>
  ...
</TerminalData>
</UserObject>
```

5.1.1 DESCRIPTION OF ATTRIBUTES

- **UserType**
The type of user assigned to the number.

This attribute is MANDATORY. The attribute may have following values:
 - generic
This number belongs to a generic extension.
 - legacy
This number belongs to a legacy TDM extension
 - pilot
This number belongs to a group.
- **DirectoryNumber**
The directory number of the user.
This attribute is MANDATORY.
- **HLRServer**
The server or LIM number where the semi-permanent data regarding this user resides.
This attribute is MANDATORY

- **UserName**
The name associated with the directory user number in UTF8 format.
- **Customer**
The customer number associated with this user directory number.
- **FeatureLevel**
The feature level associated with this user. This attribute is only used in SaaS systems.
- **TerminalData**
This attribute contains data about terminals
This attribute is MANDATORY.
- **PermittedTypes**
The type of terminals allowed to register to this user directory number. For UserType: generic it is multiple and may have the following values:
 - **dect**
May be used by dect terminals.
 - **edn**
May be used as an extra directory number.
 - **h323**
May be used by H.323 terminals.
 - **remote**
May be used by remote terminals (mobile extensions).
 - **sip**
May be used by sip or sip-remote terminals.
 - **virtual**
May only be used as a virtual terminal.

For UserType: legacy it may have one of the following values:

- **analog**
Is used by analog terminals.
 - **digital**
Is used by digital terminals.
 - **isdn**
Is used by isdn terminals.
 - **Recorder**
Is used a recorder for announcements.
- **MaxNoOfTerm**
 - Maximal number of terminals permitted, 1-4.
 - **DetachStatus**
The method of detach executed by the last detaching terminal This attribute is only used for UserType: generic. The attribute may have the following values:
 - **no contact**
Terminal has suddenly lost contact.
 - **normal**
The terminal has performed a proper detach by un-registration.
 - **marooned**
The terminal has failed to renew registration before timeout.

- **TerminalTypes (UserType: generic)**
The type of terminals that is currently registered to this user directory number.
This attribute is MANDATORY.
The attribute may have following values:
 - **dect**
May be used by dect terminals.
 - **h323**
May be used by H.323 terminals.
 - **remote**
May be used by remote terminals.
 - **sip**
May be used by SIP or SIP-remote terminals.
- **TerminalTypes (UserType: legacy)**
The type of terminals that is currently registered to this user directory number.
This attribute is MANDATORY.
The attribute may have following values:
 - **analog**
The user directory number is used by a legacy analogue terminal.
 - **digital**
The user directory number is used by a proprietary MX-ONE digital terminal.
 - **isdn**
The user directory number is used by a terminal connected to a basic rate ISDN S0 interface.
 - **recorder**
The user directory number used by a dial-up recorder user.
- **TerminalSubType (TerminalType: digital)**
This is used by legacy digital terminals and may have following values:
 - **ADN**
This terminal is an Additional Directory Number.
- **TerminalODN (TerminalType: digital)**
This is the owner Own Directory number of the AND above.
- **TerminalStatus (UserType: generic)**
The main status for the terminal
This attribute is MANDATORY.
The attribute may have following values:
 - **blocked**
The terminal is blocked for traffic.
 - **registered**
The terminal is registered for traffic.
- **TerminalStatus (UserType::legacy)**
The main status for the terminal:
This attribute is MANDATORY.
The attribute may have following values:
 - **blocked**
The terminal is blocked for traffic.
 - **busy**
The terminal is in use.
 - **free**
The terminal is not in use.

- **TrafficStatus**
The specific traffic status for this terminal. It is beyond the scope of this document to specify details for this attribute.
- **ULRServer**
The server or LIM number where the traffic execution data regarding this user resides.
- **TerminalId**
The id the terminal is using for communication over the network.
- **IpAddress**
The IP address of the terminal. Only for SIP and H.323 terminals.
- **HWAddress**
The type specific Hardware address for the terminal. For SIP and H.323 this is a MAC address. For legacy terminals it is the internal Equipment address in MX-ONE.
- **VendorId**
The vendor specific type and Id for a terminal.
A vendor Id of "remote sip" indicates that this terminal is used as a sip-remote.
- **Version**
The version of the terminal.
- **TerminalPointer**
A pointer to the XL program terminal owner.

5.1.2 USE CASE EXAMPLE

A typical UserObject with multiple terminals:

```
<Response>
<UserObject>
  <UserType>generic</UserType>
  <DirectoryNumber>1856811110</DirectoryNumber>
  <HLRServer>1</HLRServer>
  <TerminalData>
    <PermittedType>sip</PermittedType>
    <PermittedType>h323</PermittedType>
    <PermittedType>dect</PermittedType>
    <PermittedType>remote</PermittedType>
    <DetachStatus>normal</DetachStatus>
  <TerminalObject>
    <TerminalType>remote</TerminalType>
    <TerminalStatus>registered</TerminalStatus>
    <ULRServer>1</ULRServer>
  </TerminalObject>
  <TerminalObject>
    <TerminalType>sip</TerminalType>
    <TerminalStatus>registered</TerminalStatus>
    <ULRServer>2</ULRServer>
    <IpAddress>172.17.3.101</IpAddress>
    <HWAddress>00085D2E8875</HWAddress>
    <VendorId>6735i</VendorId>
    <Version>3.3.1.8146</Version>
  </TerminalObject>
  <TerminalObject>
    <TerminalType>dect</TerminalType>
```

```
<TerminalStatus>registered</TerminalStatus>  
  <ULRServer>3</ULRServer>  
</TerminalObject>  
</TerminalData>  
</UserObject>  
<Result>Ok</Result>  
</Response>
```