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IWD - COMPONENT MANAGEMENT PROTOCOL

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History

Revision	Date	Adjustment
A	2005-05-02	Technically approved.
PB1	2005-10-05	Added instance index to header.
PB2	2006-01-04	Corrections

1 INTRODUCTION

This Interwork Description describes the interface between the SNMP subagent and managed objects in NTF.

2 INTERFACE

2.1 GENERAL

The interface between the SNMP subagent and the managed objects in NTF (see Fig 1) will be filled with attributes pertaining to the following management information: configuration data, performance, utilization, and status.

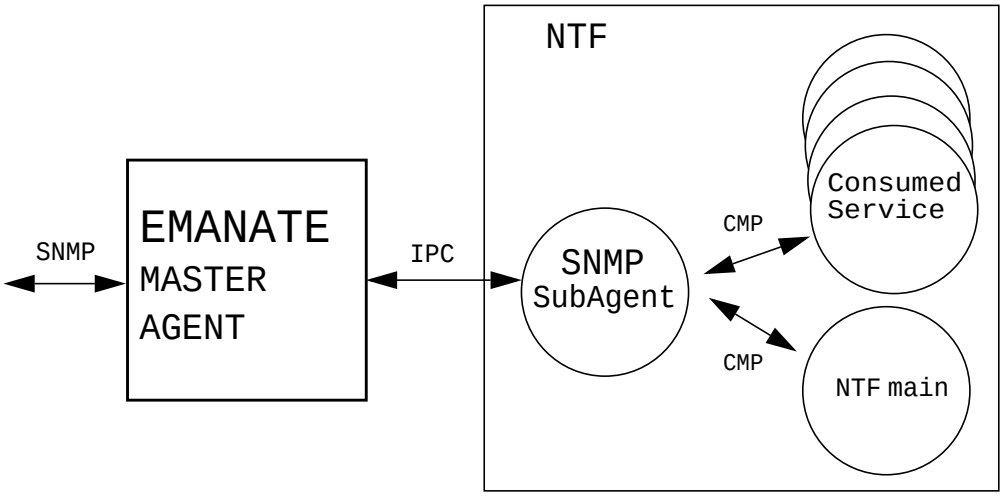
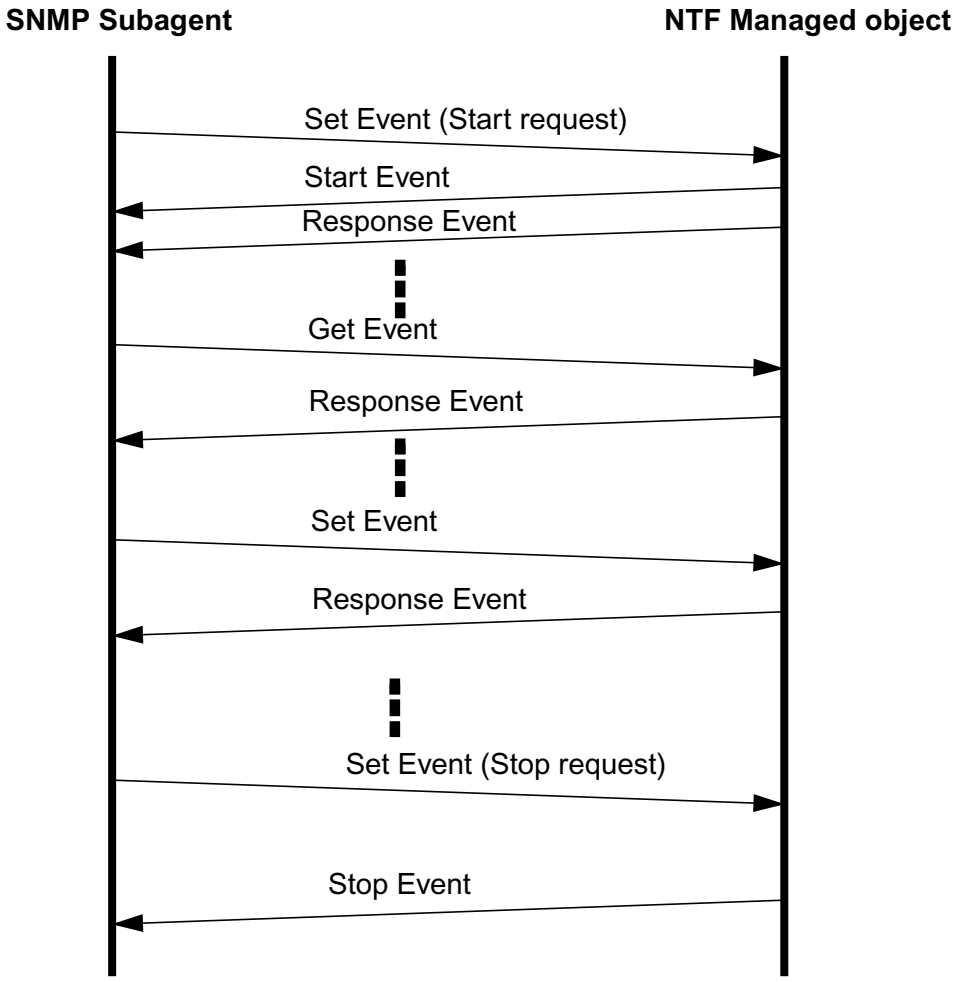


Fig.1. Management Interface for NTF

2.1.1 BasicFlow

Figure 4 summarizes the dialog flow for a connection between the SNMP subagent and an NTF managed object with the CMP (Component Management Protocol) protocol.

Fig.2. Dialog Flow Diagram



The communication between the SNMP subagent and the NTF managed objects starts when the SNMP subagent server starts up and sends a start request. The SNMP agent keep sending start requests until the NTF managed objects starts up and sends a Start event. Once the Start event is received, the managed object within NTF is registered in the SNMP subagent managed object list.

When an SNMP Get Request is received by the SNMP subagent from the SNMP port (161), it sends a Get event to the registered managed objects. NTF answers with a Response event with attributes whose values have changed since the last get.

When an SNMP Set Request is received by the SNMP subagent from the SNMP port (161), it sends a Set event to the adressed object. NTF answers with a Response Event with attributes whose values have changed since the last get.

A Set event with a stop request can be sent by the SNMP Subagent or an external process. When the Set event is received by the NTF Managed object, the managed object sends a Stop event to the SNMP subagent which unregister the managed object from the managed object list.

3 CMP PROTOCOL

The CMP (Component Management Protocol) protocol is used for the communications between the SNMP subagent and NTF managed objects. The CMP protocol is line oriented and have predefined event types sent within UDP packages. Each Event ends with a line feed character. The CMP event types are Start, Stop, Get, Set and Response. Events can occur for either a managed object, or an instance of a managed object. The events are defined as follows:

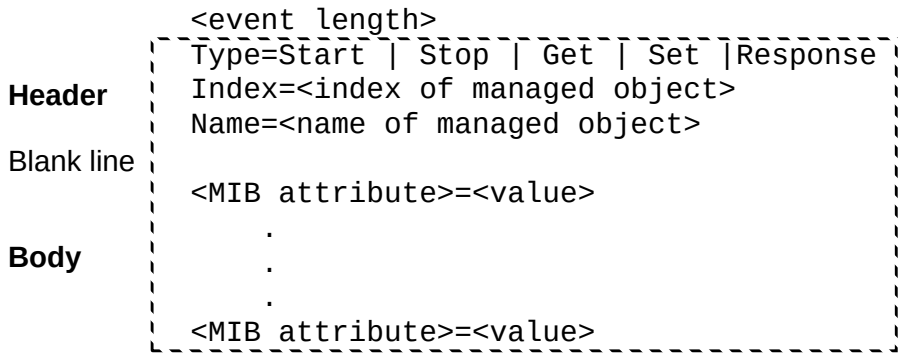


Fig.3. Managed Object Event

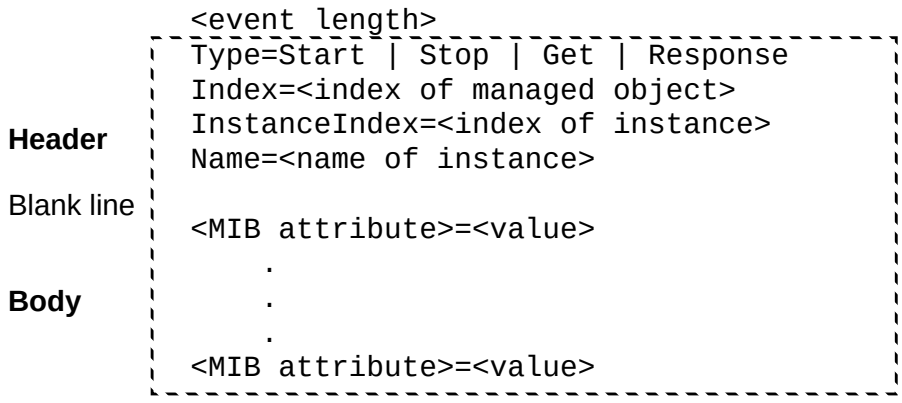


Fig.4. Managed Object Instance Event

where <event length> is the total lenth of the event header and body including the blank line between the header and body. Type shall be equal to Start, Stop, Get, Set or Response. Index shall be equal to an unsigned integer for the index of the managed object. InstanceIndex shall be equal to an unsigned integer for the index of the instance of the managed object. Name shall be equal to the name of the managed object or object instance. <MIB attribute> can be one of the attributes in section 3.5.1 on page 6 or in section 3.5.2 on page 8. <value> is the corresponding value for the <attribute>.

3.1 Start event

Example of Start events.

```
33
Type=Start
Index=0
Name=ntfmain
\n
```

```
55
Type=Start
Index=9
InstanceIndex=1
Name=ShortMessage_1
\n
```

3.2 Stop event

Example of a Stop event

```
32
Type=Stop
Index=0
Name=ntfmain
\n
```

3.3 Get event

Example of a Get(1) event.

```
10
Type=Get
\n
```

(1) A Get event doesn't need `Index` and `Name` specified in the event header.

3.4 Set event

Example of a Set event.

```
56
Type=Set
Index=0
Name=ntfmain
\n
ntfAdministrativeState=2
\n
```

3.5 Response event

Example of a Response event.

```
218
Type=Response
Index=1
Name=smsc
\n
ntfConsumedServiceIndex=1
ntfConsumedServiceName=Shortmessages
ntfConsumedServiceStatus=2
ntfConsumedServiceTime=1
ntfConsumedServiceNumNotifSent=1
ntfConsumedServiceNumNotifFailures=2
\n
```

3.5.1 MIB Attributes

The following tables contains the MIB attributes that can be sent in a Set or a Response event.

Attribute Name	Description	Data Type	Range	Example / Sample value
ntfName	Contains the component name of the NTF component	String	N/A	"ntf@host.com"
ntfVersion	Contains the version of the NTF component	String	N/A	“R10C”
ntfOperationalState	Contains the operational state of the NTF component. Operational state is enabled if mailboxPollerStatus is active and NTF can send out any type of notification.	Integer	1=enabled 2=disabled	1
ntfAdministrativeState	Contains the administrative state of the NTF component	Integer	1=unlocked 2=locked 3=shutdown	1
ntfInstallDate	Contains the installation date of the NTF component	DateTime	YY YY MM DD HH MM SS ms ms [See appendix 6.1]. (UTC is not implemented)	07 d0 08 19 08 37 22 00
ntfCurrentUpTime	Contains the current time the NTF is running in 1/100 seconds	TimeStamp	"unix time ticks"	"163872500"
ntfAccumulated-UpTime	Contains the accumulated time the NTF is running in 1/100 seconds	TimeStamp	"unix time ticks"	"163872500"
ntfNotifInQueue	Contains the total number of notifications that are queued to be handled in the NTF component.	Integer	0..2147483647	0
ntfNotifForRetry	Contains the total number of notifications in queue that are stored for retry in the NTF component.	Integer	0..2147483647	0
ntfInternalQueues	The total number of internal notifications that are stored in lists. The notifications in the lists are copies of already handled notifications. The copies are used for e.g. slam down notifications, IWR to SMS notifications etc.	Integer	0..2147483647	0
ntfLoadConfig	If this variable is set to active(1), NTF configuration file is reloaded. After the reload is done, the value is set to inactive(2).	Integer	1=active 2=inactive	1
ntfLogLevel	If this variable is set to off(0, logging is turned off. If variable is set to error(1), only error messages are logged. If variable is set to warning(2), error and warning messages are logged. If variable is set to verbose(3), error, warning and verbose messages are logged.	Integer	0=off 1=error 2=warning 3=verbose (Percistence config level doesn’t change when ntfLogLevel is changed)	1
ntfMailboxPollerStatus	Report status on mailbox pollers. If the status is active NTF can read new notifications.	Integer	1=active 2=inactive	1

Table 1. MIB Attributes

Attribute Name	Description	Data Type	Range	Example / Sample value
ntfConsumedServiceIndex	The index of the service	Integer	0..2147483647	9
ntfConsumedServiceName	The name of the service	String	N/A	ShortMessage
ntfConsumedServiceStatus	The Status for the service	Integer	1=up 2=down 3=impaired	1
ntfConsumedServiceTime	Time since the status was last updated in seconds.	TimeStamp	"unix time ticks"	"163872500"
ntfConsumedServiceNumSuccess	The number of successful requests sent on this service since last status change.	Integer	0..2147483647	230
ntfConsumedServiceNumFailures	The number of failed requests sent on this service since last status change.	Integer	0..2147483647	3

Table 2. ConsumedService Attributes

Attribute Name	Description	Data Type	Range	Example / Sample value
ntfConsumedServiceIndex	The index of the service	Integer	0..2147483647	9
ntfConsumedServiceInstanceIndex	The index of this instance. Different services can have the same instancesIndex.	Integer	0..2147483647	2
ntfConsumedServiceInstanceName	The name of the service	String	N/A	ShortMessage
ntfConsumedServiceInstanceStatus	The Status for this instance	Integer	1=up 2=down	2
ntfConsumedServiceInstanceHostname	The hostname for this instance taken from MCR.	String	N/A	volvo.lab.mobeon.com
ntfConsumedServiceInstancePort	The port of this instance taken from MCR.	Integer	0..2147483647	5016
ntfConsumedServiceInstanceZone	The logical zone for this instance taken from MCR.	String	N/A	ntflab

Table 3. ConsumedServiceInstance Attributes

3.5.2 Protocol Attribute

The following table contains attribute that are used in the protocol to manage start and stop of managed objects. The attributes must be sent in a Set event.

Attribute Name	Description	Data Type	Range	Example / Sample value
start	This attribute is used to signal for a start of the SNMP agent. The SNMP agent is ready to receive Start event.	String	true false (Case Sensitive)	true
stop	This attribute is used to signal to the managed object to stop executing. The SNMP agent expecting Stop event from the managed objects..	String	true false (Case Sensitive)	true

Table 4. Protocol Attributes

4 REFERENCES

This paragraph is intentionally left blank.

5 TERMINOLOGY

MIB	Management Information Base
NTF	Notification Component
SMS	Short Message Service
SNMP	Simple Network Management Protocol
CMP	Component Management Protocol

6 APPENDIX

6.1 Installdate format

As Installdate format, rfc 1903 is used, saying that it is on the format:

"2d-1d-1d,1d:1d:1d.1d,1a1d:1d"

field	octets	contents	range
1	1-2	year	0..65536
2	3	month	1..12
3	4	day	1..31

4	5	hour	0..23
5	6	minutes	0..59
6	7	seconds	0..60
(use 60 for leap-second)			
7	8	deci-seconds	0..9
8	9	direction from UTC	'+' / '-'
9	10	hours from UTC	0..11

Example:

Date to MIB:

2002-03-04 13:30:00:0

07d0 03 04 0d 1e 00 00

MIB to Date:

07 d0 = 2002, 08 = 08(aug), 19 = 25, 08= 08(hour), 37=55(minutes), 22= 34seconds, 00 = 00 deci-second.