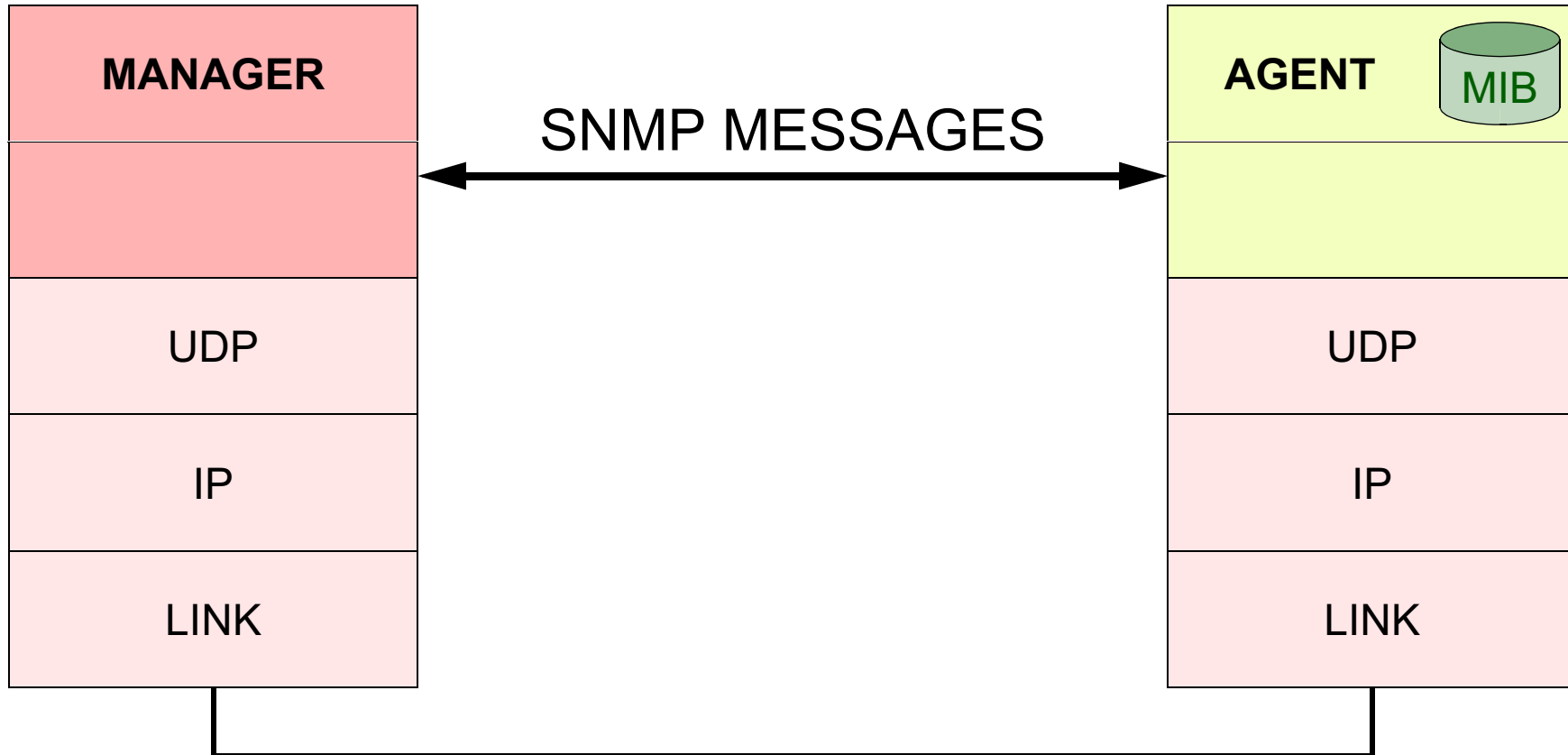
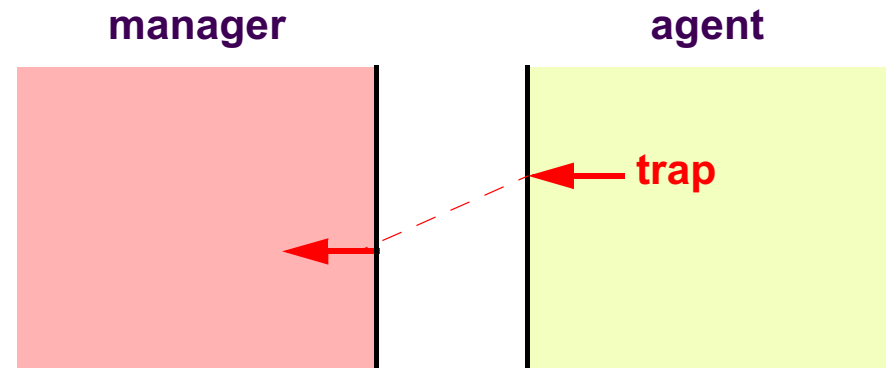
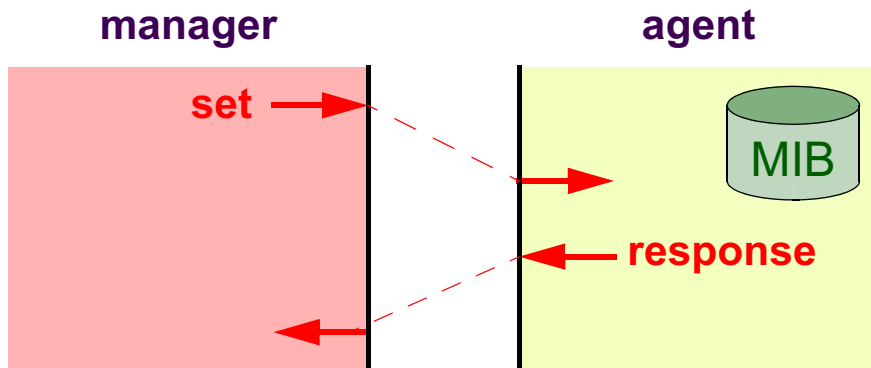
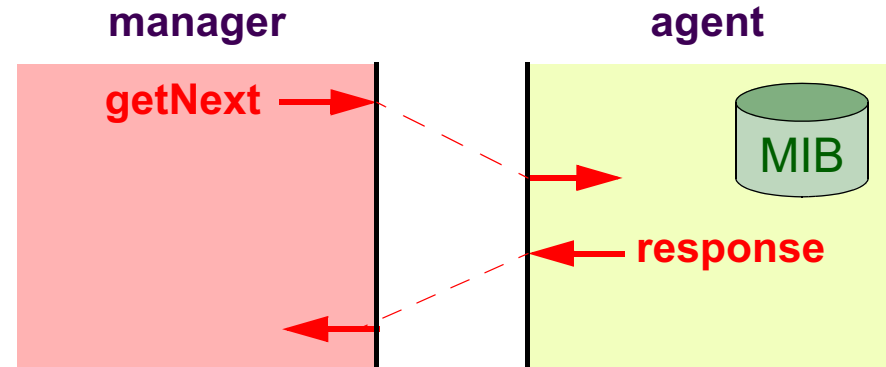
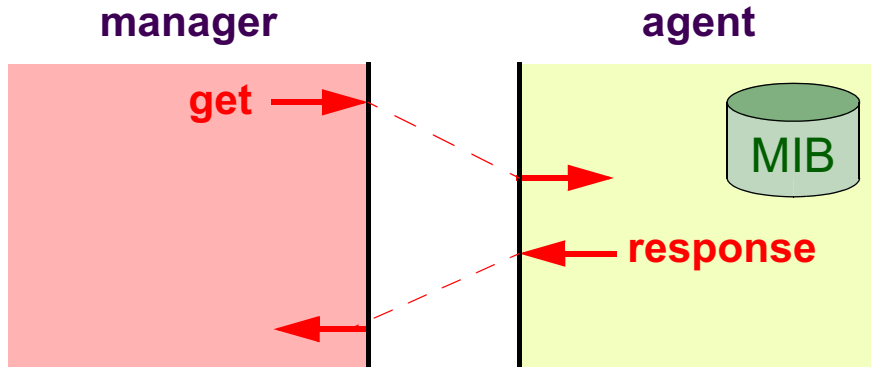


SNMPv1 PROTOCOL



OVERVIEW OF PDUs



MESSAGE & PDU STRUCTURE

variable bindings:

NAME 1	VALUE 1	NAME 2	VALUE 2	NAME n	VALUE n
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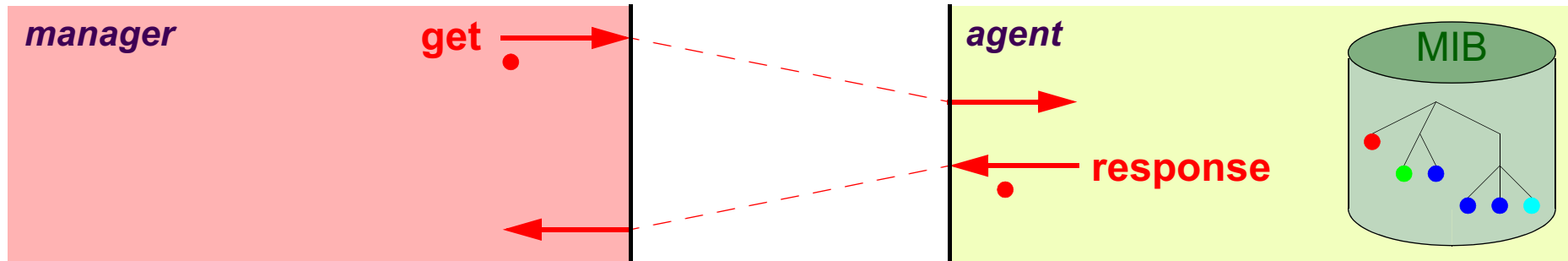
SNMP PDU:

PDU TYPE*	REQUEST ID	ERROR STATUS	ERROR INDEX	VARIABLE BINDINGS
-----------	------------	--------------	-------------	-------------------

SNMP message:

VERSION	COMMUNITY	SNMP PDU
---------	-----------	----------

GET

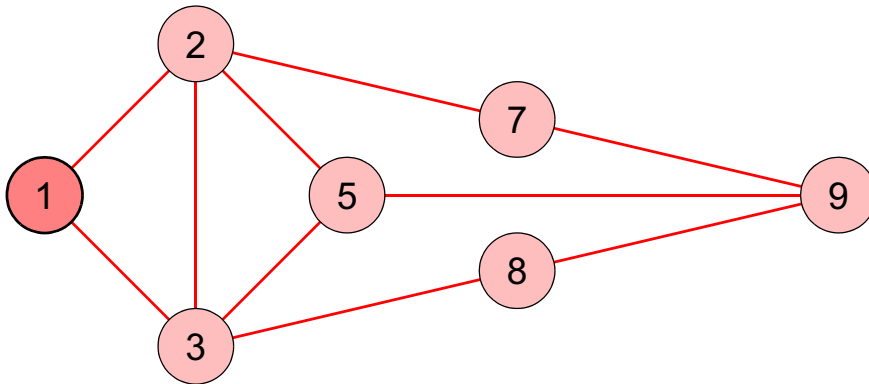
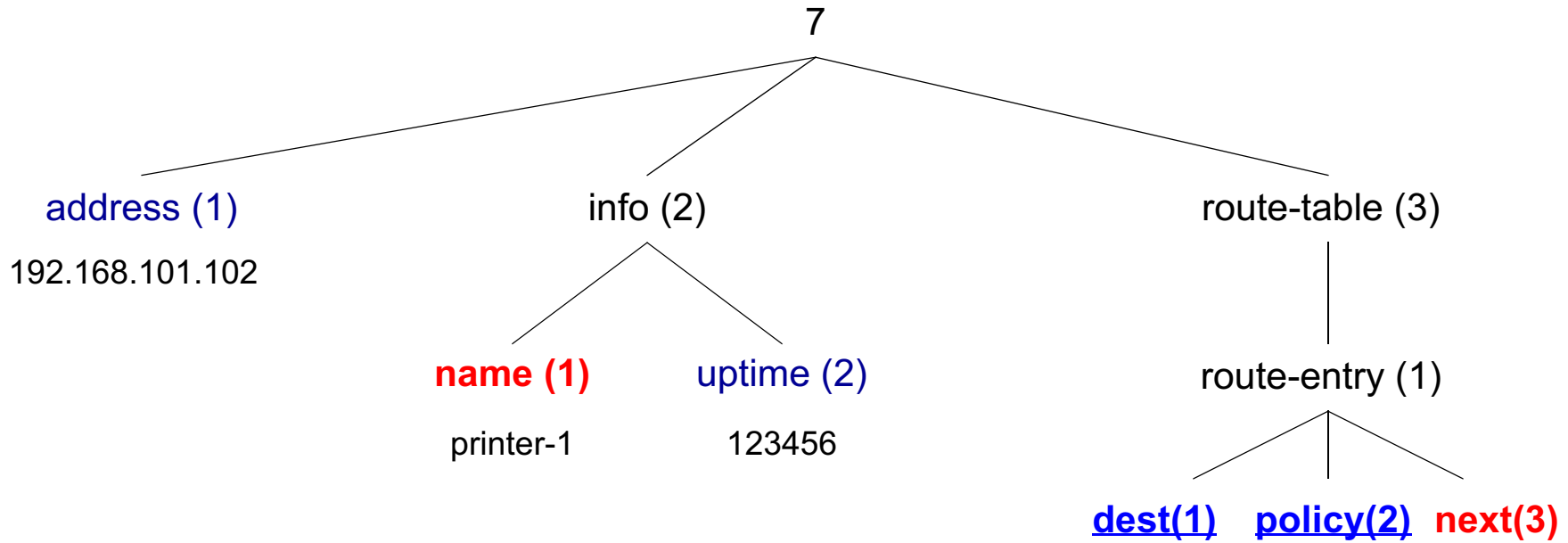


TO REQUEST THE VALUE OF 1 OR MORE VARIABLES

POSSIBLE ERRORS:

- **noSuchName** ⇒ Object does not exist / Object is not a leaf
- **tooBig** ⇒ Result does not fit in **response** PDU
- **genErr** ⇒ All other causes

EXAMPLE MIB



<u>dest(1)</u>	<u>policy(2)</u>	<u>next(3)</u>
2	1	2
3	1	3
5	1	2
5	2	3
7	1	2
8	1	3
9	1	2

GET EXAMPLES

```
get(7.1.0)  
response(7.1.0 => 192.168.101.102)
```

```
get(7.2.0)  
response(error-status = noSuchName)
```

```
get(7.1)  
response(error-status = noSuchName)
```

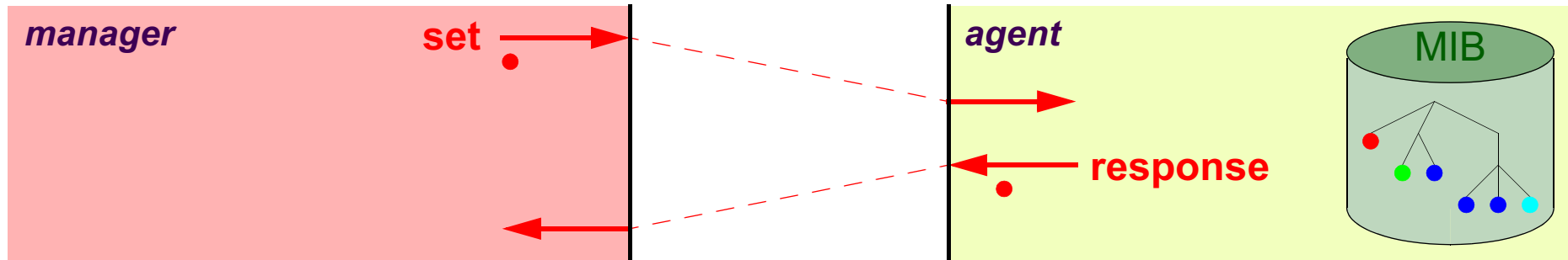
```
get(7.1.0; 7.2.2.0)  
response(7.1.0 => 192.168.101.102; 7.2.2.0 => 123456)
```

```
get(7.3.1.3.5.1)  
response(7.3.1.3.5.1 => 2)
```

```
get(7.3.1.1.5.1)  
response(7.3.1.1.5.1 => 5)
```

```
get(7.3.1.1.5.1, 7.3.1.2.5.1, 7.3.1.3.5.1)  
response(7.3.1.1.5.1 => 5, 7.3.1.2.5.1 => 1, 7.3.1.3.5.1 => 2)
```

SET



TO ASSIGN A VALUE TO AN EXISTING OBJECT INSTANCE

TO CREATE NEW INSTANCES

- TABLE ROWS

THE SET REQUEST IS ATOMIC

POSSIBLE ERRORS:

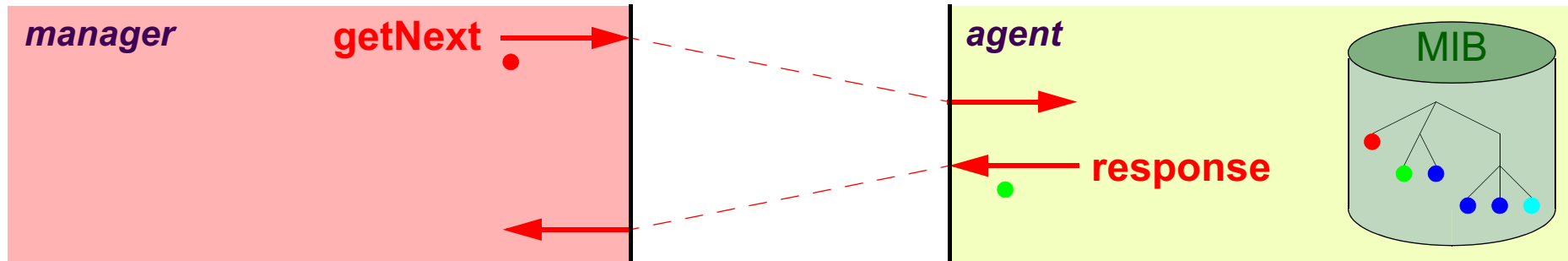
- noSuchName
- badValue
 - tooBig
 - genErr

SET EXAMPLES

```
set(7.2.1.0 => my-printer)  
response(noError; 7.2.1.0 => my-printer)
```

```
set(7.2.1.0 => my-printer, 7.2.2.0 => 0)  
response(error-status = noSuchName; error-index = 2)
```


GET-NEXT



RETRIEVES THE INSTANCE NAME AND VALUE OF THE **NEXT** MIB ELEMENT

TO DISCOVER MIB STRUCTURES

TO RETRIEVE TABLE ROWS

POSSIBLE ERRORS:

- **noSuchName** (= END OF MIB)
 - **tooBig**
 - **genErr**

GET-NEXT EXAMPLES

getNext(7.1.0)
response(7.2.1.0 => *printer-1*)

getNext(7.2.1.0)
response(7.2.2.0 => 123456)

getNext(1)
response(7.1.0 => 192.168.101.102)

getNext(7.3.1.3.5.1)
response(7.3.1.3.5.2 => 3)

getNext(7.3.1.1; 7.3.1.2; 7.3.1.3)
response(7.3.1.1.2.1 => 2; 7.3.1.2.2.1 => 1; 7.3.1.3.2.1 => 2)

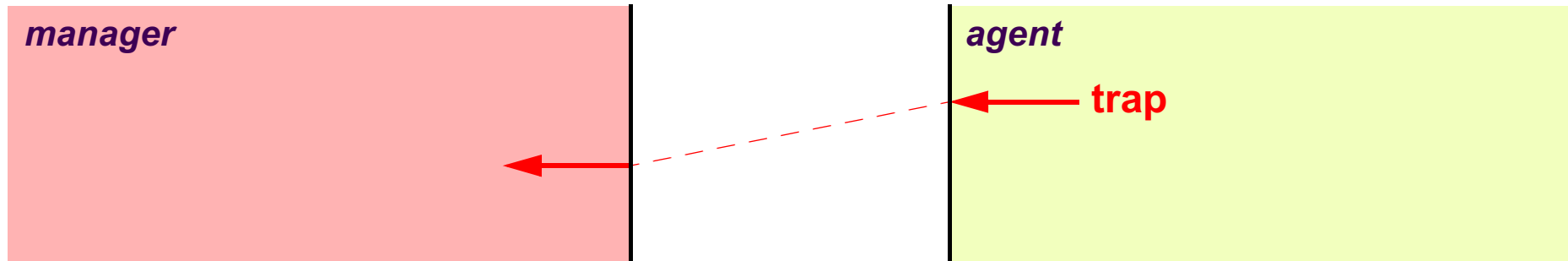
getNext(7.3.1.1.2.1; 7.3.1.2.2.1; 7.3.1.3.2.1)
response(7.3.1.1.3.1 => 3; 7.3.1.2.3.1 => 1; 7.3.1.3.3.1 => 3)

LEXICOGRAPHICAL ORDERING

THE MIB CAN BE CONSIDERED AS AN ORDERED LIST

INSTANCE ID	INSTANCE VALUE
7.1.0	192.168.101.102
7.2.1.0	printer-1
7.2.2.0	123456
7.3.1.1.2.1	2
7.3.1.1.3.1	3
7.3.1.1.5.1	5
...	...
7.3.1.1.9.1	9
7.3.1.2.2.1	1
7.3.1.2.3.1	1
...	...
7.3.1.2.9.1	1
7.3.1.3.2.1	2
7.3.1.3.3.1	3
7.3.1.3.5.1	2
7.3.1.3.5.2	3
7.3.1.3.7.1	2
...	...

TRAP



TO SIGNAL AN EVENT

TRAP RECEPTION IS NOT CONFIRMED
(THUS UNRELIABLE)

POLLING REMAINS NECESSARY

AGENTS MAY BE CONFIGURED SUCH THAT:

- NO TRAPS WILL BE TRANSMITTED
- TRAPS WILL BE TRANSMITTED TO CERTAIN MANAGERS

DEFINED TRAPS

- COLDSTART
- WARMSTART
- LINKDOWN
- LINKUP
- AUTHENTICATION FAILURE
- EGPNEIGHBOURLOSS
- ENTERPRISESPECIFICTRAP

TRAP - PDU FORMAT

