

# Tutorial for Chapter 6

SNMP Network Management: SNMPv2

NET 311 – Computer Network Management

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## Problem 1

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Draw request-response messages, as shown in Figure 6.40 and Figure 6.41, to retrieve all columnar objects of the Address Translation group shown in the table below.

Assume that you know the number of rows in the table in making requests.

(a) get-next-request and response

(b) get-bulk-request and response

(c) Compare the results of (a) and (b)

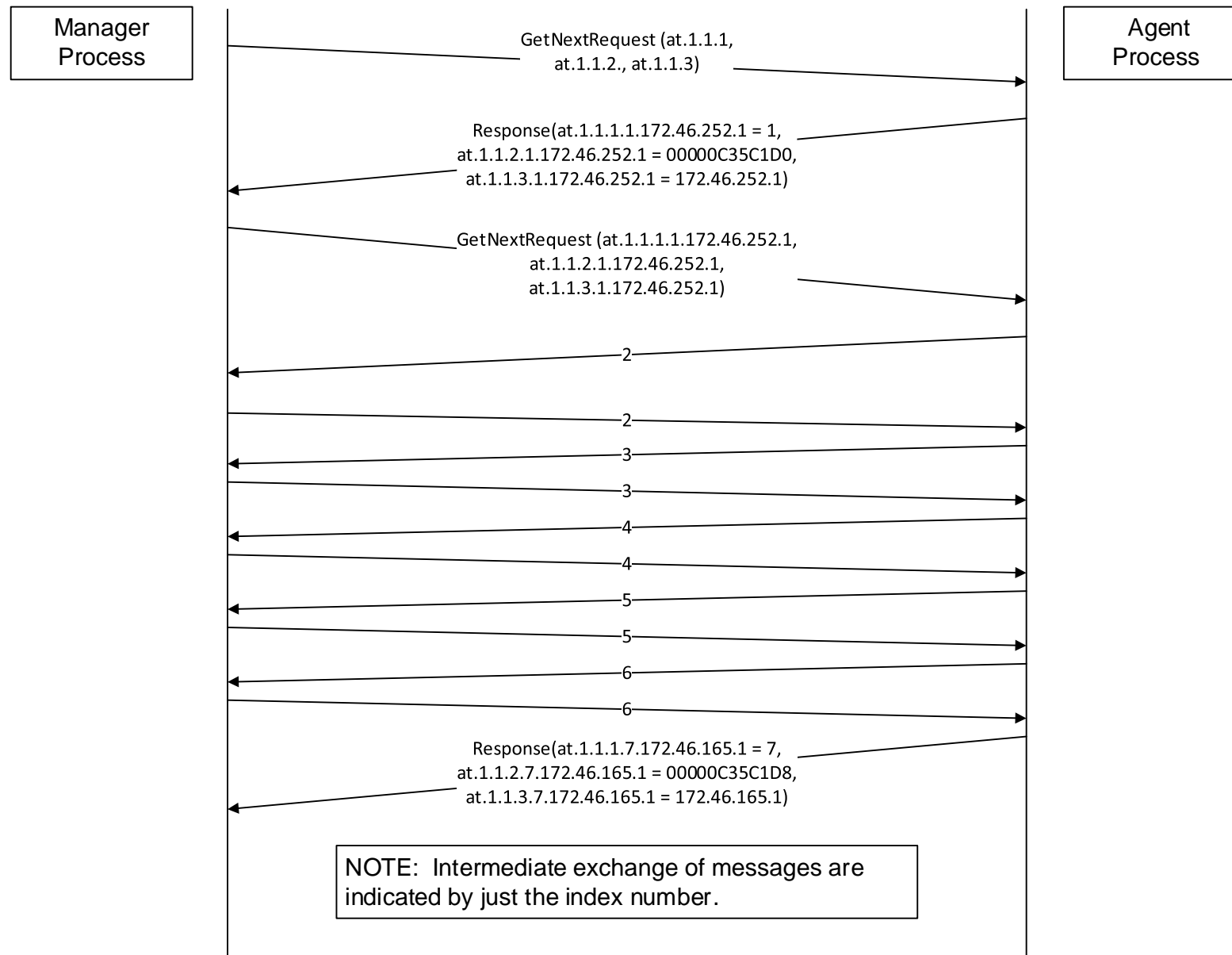
INDEX	IP ADDRESS	PHYSICAL ADDRESS
3	172.46.41.1	00:00:0c:35:C1:D2
4	172.46.42.1	00:00:0c:35:C1:D3
5	172.46.43.1	00:00:0c:35:C1:D4
6	172.46.44.1	00:00:0c:35:C1:D5
2	172.46.63.1	00:00:0c:35:C1:D1
7	172.46.165.1	00:00:0c:35:C1:D8
1	172.46.252.1	00:00:0c:35:C1:D0

## Solution

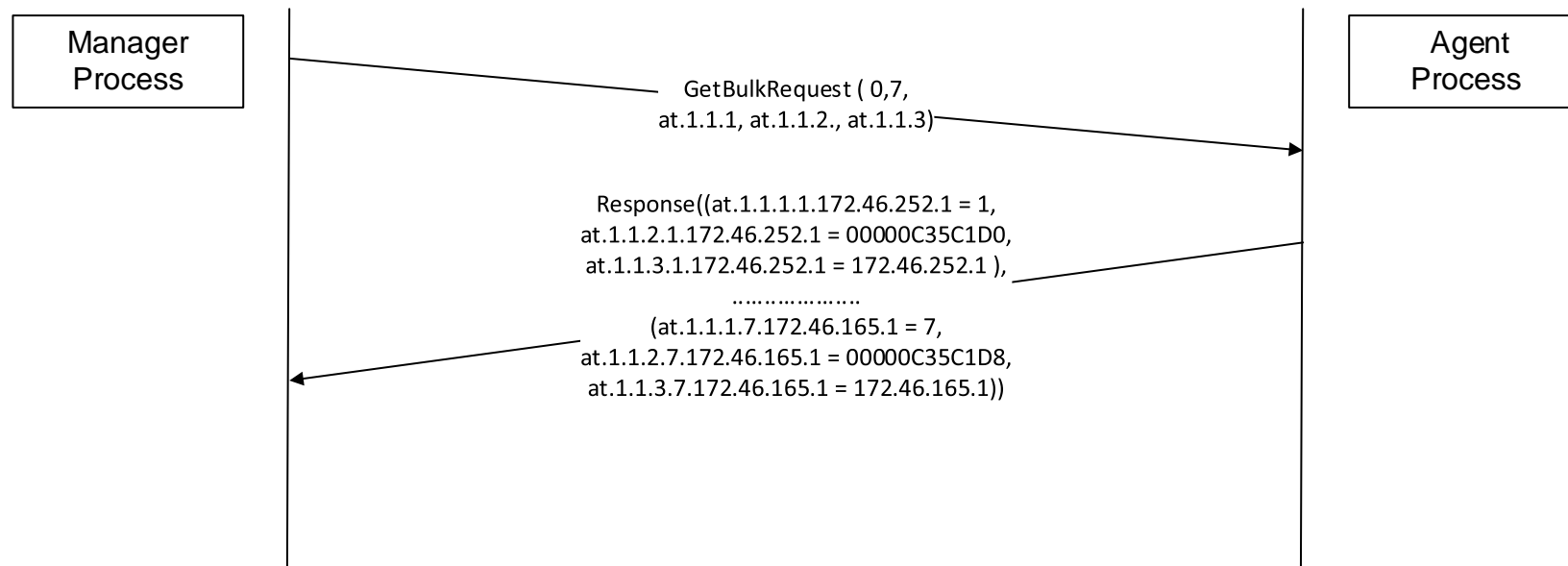
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(a) The rows will be retrieved in the lexicographic order based on the index field as shown below. The second lexicographic sorting based on IP address (Network address) does not matter in this case.

Index atIfIndex	Physical Address atPhysAddress	IP Address atNetAddress
1	00:00:0C:35:C1:D0	172.46.252.1
2	00:00:0C:35:C1:D1	172.46.63.1
3	00:00:0C:35:C1:D2	172.46.41.1
4	00:00:0C:35:C1:D3	172.46.42.1
5	00:00:0C:35:C1:D4	172.46.43.1
6	00:00:0C:35:C1:D5	172.46.44.1
7	00:00:0C:35:C1:D8	172.46.165.1



(b)



(c)

Since we know the number of rows in this exercise, we can retrieve all the data using one get-bulk-request and response. We need seven pairs of exchanges for the get-next-request.

## Problem 2

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Fill in the values for the SNMPv2 Trap PDU (Figure 6.43) for a message sent by the hub shown in the figure below, 2 seconds after it is reset following a failure. The included varBinds are: sysUpTime, snmpTrapOID and snmpTrapEnterprise.

Title: System Information : 172.16.46.2  
Name or IP Address: 172.16.46.2

System Name :  
System Description : 3Com LinkBuilder FMS, SW version:3.02  
System Contact :  
System Location :  
System Object ID : .iso.org.dod.internet.private.enterprises.43.1.8.5  
System Up Time : (2475380 437) 286 days, 12:03:24.37

## Solution

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PDU Type	7
Request ID	100
Error Status	0
Error Index	0
VarBind 1	.1.3.6.1.2.1.1.3
VarBind 1 value	200
VarBind 2	.1.3.6.1.6.3.1.1.4.1
VarBind 2 value	.1.3.6.1.6.3.1.1.5.1
VarBind 3	.1.3.6.1.6.3.1.1.4.3
VarBind 3 value	.1.3.6.1.4.1.43.1.8.5



## Appendix

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Some object identifier names and their numerical values

sysUpTime	.1.3.6.1.2.1.1.3
snmpTrapOID	.1.3.6.1.6.3.1.1.4.1
snmpTrapEnterprise	.1.3.6.1.6.3.1.1.4.3
snmpTraps	.1.3.6.1.6.3.1.1.5

### SNMPv2 Trap PDU

PDU	Request	Error	Error	VarBind1	VarBind1	VarBind2	VarBind2	...
Type	ID	Status	Index	sysUpTime	value	snmpTrapOID	value	