# Ethernet II – IP V4 – ARP

Exercise #1:
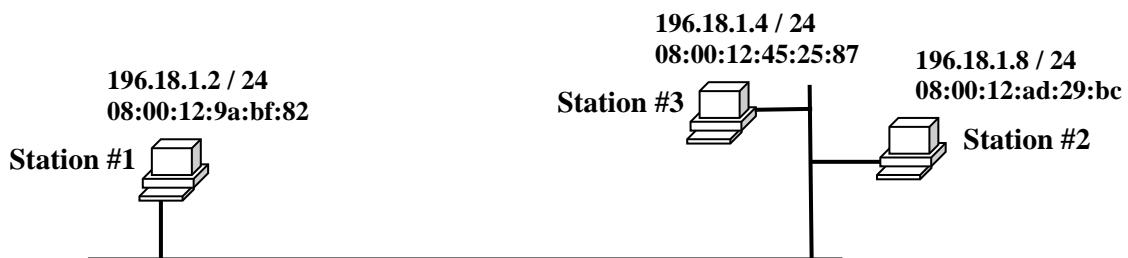
Objectives:

- Understand the role of an ARP table
- Know how to complete an Ethernet, IP and ARP frame
- Know how to implement the ARP protocol

Statement and questions:

Following the various exchanges between the stations, it is considered that their ARP table is already filled in.

1) Fill in the ARP table for each station

196.18.1.4 / 24
08:00:12:45:25:87

196.18.1.2 / 24
08:00:12:9a:bf:82

196.18.1.8 / 24
08:00:12:ad:29:bc

Station #3
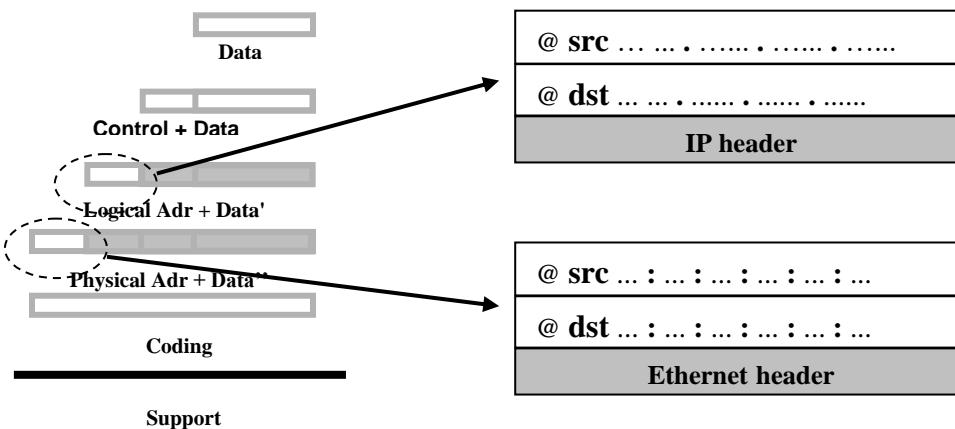
Station #2

Station #1
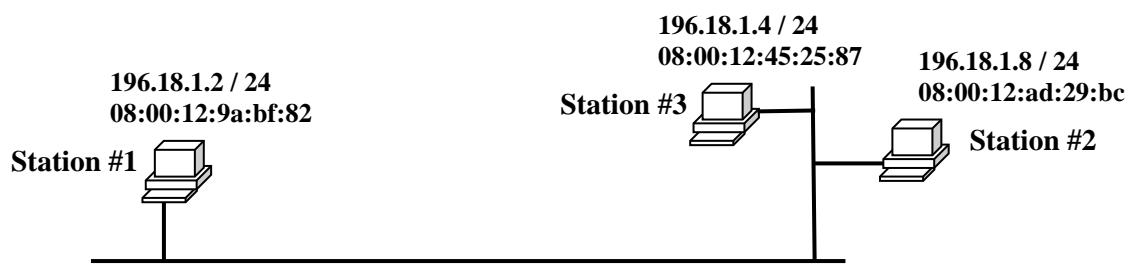
Station #1		Station #2		Station #3	
IP	**Ethernet**	**IP**	**Ethernet**	**IP**	**Ethernet**
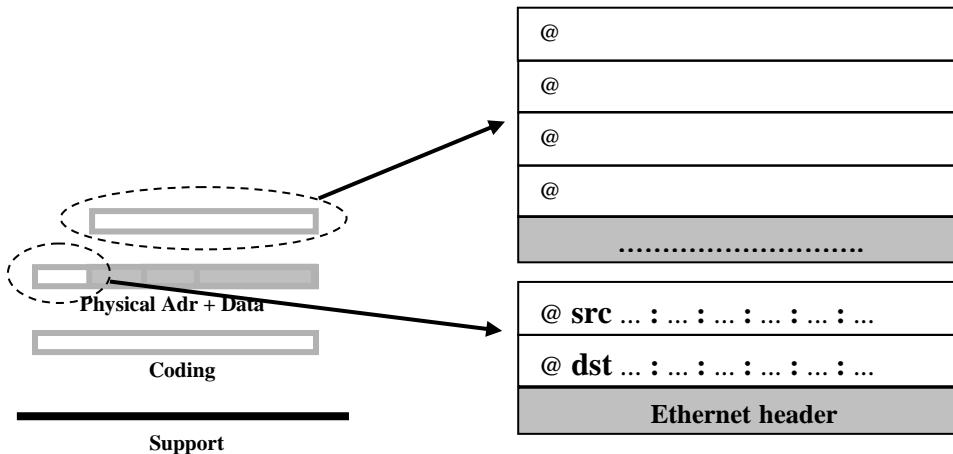
2) Station #1 sends a datagram to station #2. Indicate the information that makes up the headers of each exchange phase.

Data

Control + Data

Logical Adr + Data'

Physical Adr + Data''

Coding

Support

@ **src** … ... . …... . …... . …...
@ **dst** ... ...
IP header

@ **src** ... : ... : ... : ... : ... : ...
@ **dst** ... : ... : ... : ... : ... : ...
Ethernet header
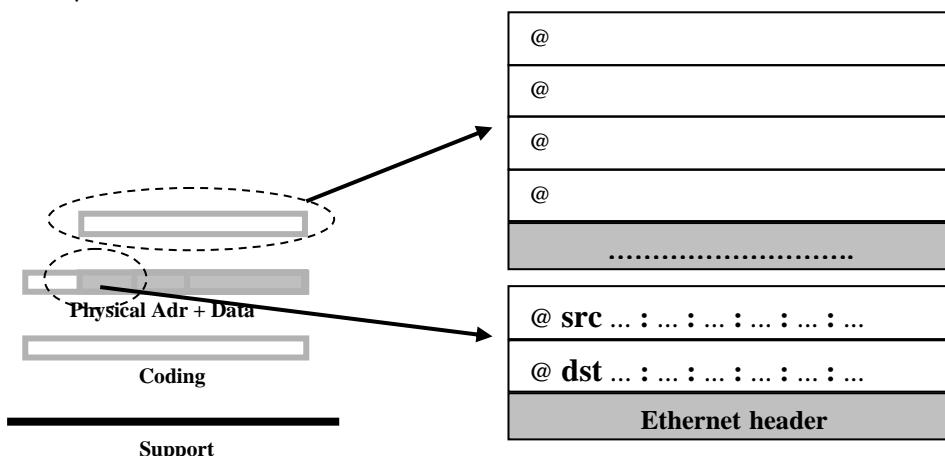
3) Do the same if the ARP table of the stations is **not filled in**.

196.18.1.4 / 24
08:00:12:45:25:87

196.18.1.2 / 24
08:00:12:9a:bf:82

Station #3

196.18.1.8 / 24
08:00:12:ad:29:bc

Station #1

Station #2

Step #1: ....

@

@

@

@

....

@ **src** ... : ... : ... : ... : ... : ...

@ **dst** ... : ... : ... : ... : ... : ...

Ethernet header

Physical Adr + Data

Coding

Support

Step #2: ....

@

@

@

@

....

@ **src** ... : ... : ... : ... : ... : ...

@ **dst** ... : ... : ... : ... : ... : ...

Ethernet header

Physical Adr + Data

Coding

Support

Step #3: ....

Data

Control + Data

@

@

....

@ **src** ... : ... : ... : ... : ... : ...

@ **dst** ... : ... : ... : ... : ... : ...

Ethernet header

Logical Adr + Data'

Physical Adr + Data''

Coding

Support

Ethernet II – IP V4 – ARP
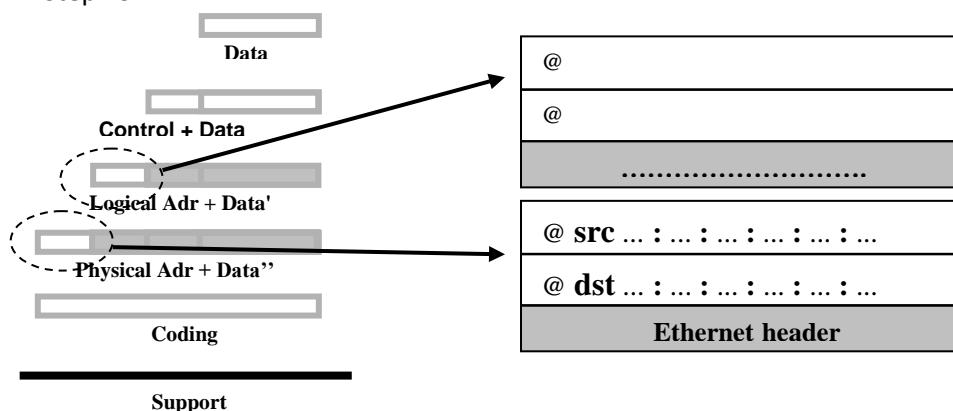
4) Fill in the ARP table of each station after the exchanges of question #3 have taken place

Station #1		Station #2		Station #3	
IP	**Ethernet**	**IP**	**Ethernet**	**IP**	**Ethernet**