

NetOp School 3.01



The “Subnet Assistant” feature

The “Subnet Assistant” is a feature designed to help in LAN / INTERNET / WAN environments, where groups of NetOp Student modules are located on TCP/IP subnets different from the subnet where the NetOp Teacher module is running. This feature provides the following benefits:

- **Easier handling of NetOp School connectivity.**
- **Better screen broadcast performance through bandwidth savings.**

Connectivity and efficiency in communication

When the Teacher and the Student modules are located on the **same** subnet, it is only necessary to send data once to reach all Students (a local TCP/IP broadcast). This makes communication and IP addressing very efficient.

If a group of Students (for example 20) is located on a subnet **different** from the Teacher each Student PC can be addressed individually by the Teacher. But this makes communication less efficient as the Teacher must send data to each individual Student PC. At the same time initial setup of connectivity is complicated, since the IP Broadcast List of all Students must contain the IP address of the Teacher.

The same applies to the Teacher, i.e. his IP Broadcast List should contain Student addresses. This would be close to impossible to maintain, especially since many today use DHCP.

The Subnet Assistant feature provides a more efficient method

A standard Student module on a subnet can be defined to act as a “Subnet Assistant” (SA) - handling communication between the Students on the SA subnet and the Teacher on the other subnet.

The Teacher communicates directly and only with the “Subnet Assistant”, that in turn broadcasts the data to the rest of the Students located on the subnet (using a local TCP/IP broadcast).

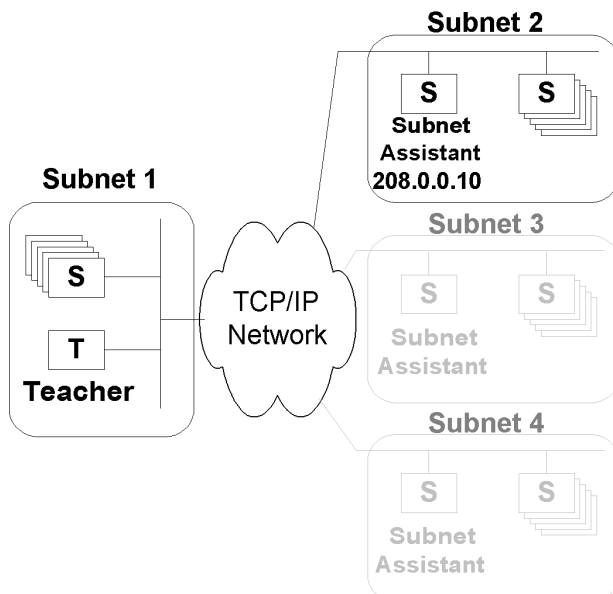
Thus the Teacher only needs to send one set of data to a subnet, not e.g. 20 sets of data.

This dramatically increases the speed especially when bandwidth between the Teacher module and the Student groups is limited.

Furthermore, the Teacher module does not need to know the IP address of each Student PC. It only needs to know the IP address (or DNS name) of the “Subnet Assistant”. This makes it a lot easier to setup the Teacher and Student modules for communication.

It is possible to have groups of Students on multiple subnets, each subnet having a “Subnet Assistant” defined.

Example



The Teacher sends one set of data to address all Students on its local subnet (Subnet 1).

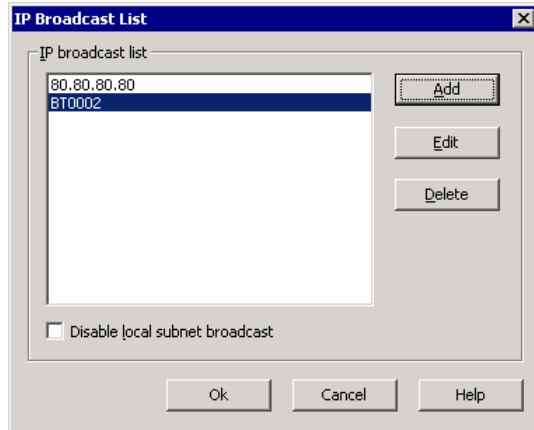
On each of the other subnets one Student is assigned as a Subnet Assistant, that handles the communication between the subnet and the Teacher. The Subnet Assistant receives the data from the Teacher and broadcasts it to all Students on its own subnet. Thus data is only sent once to subnet 2, subnet 3, etc.

Copenhagen, March 2004

Configuration guide:

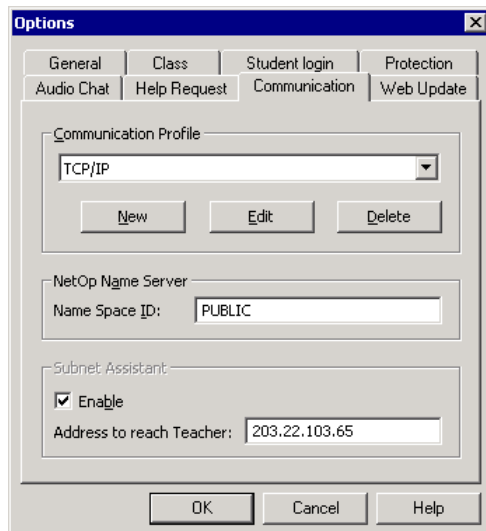
Teacher:

1. Use any class name.
2. Add each of the Subnet Assistants' IP addresses (or DNS names) to the TCP/IP broadcast list (Communication profile/Edit)



Subnet Assistant (one student only on each subnet different from Teacher's subnet):

1. Use the class name of the Teacher.
2. Enable Subnet Assistant
3. Enter the address to reach the Teacher. It is necessary to know the IP address on which the Teacher module can be reached, e.g. the public IP address if a Teacher module is residing behind a Firewall/Router. A NAT entry must take care of routing correctly to the Teacher module. The NetOp Name Server cannot yet be used for connecting a Teacher and a Subnet Assistant!
4. The TCP/IP broadcast list should be **empty**.



Other Students:

1. Use the class name of the Teacher.
2. The TCP/IP broadcast list should be **empty**.