MSNL Assigned Numbers

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1 Introduction

This document describes the assigned numbers of the MSNL Internet. This includes Network Address allocations, Port allocations, and service definitions. It is therefore liable to change.

2 Presentation Conventions

MSNL service access points are made up from a four octet machine address and a four octet port allocation within that machine. Both of these fields are printed using internet standard dotted notation, that is four decimal fields separated by the "." character.

When an MSNL SAP is being specified in full the host part and the port part should be separated by the ":" character.

When a range of host addresses is being specified using a mask then the mask is also formatted using dotted notation and the mask should follow the host range and be separated from it by the "-" character.

3 Network Assignments

Table 1 displays the network assignments that have been made to date. Olivetti Research no longer collaborate with the University on ATM protocols but the MSNL addresses that were allocated for their use are listed for reference purposes.

Network	Class	Institution	Comments
128.232.x.x	B	CL	
192.5.239.x	C	ORL	
192.5.240.x	C	ORL	not valid for IP, pandora
158.124.x.x	B	ORL	
130.89.181.x	C	Twente	local restrictions exist
192.5.128.x	C	UCL	not valid for IP, switches
192.5.129.x	C	UCL	not valid for IP, pandoras

Table 1: Assigned Networks.

Requests for allocation of MSNL Network numbers should be made to the author. Allocation within an assigned Network number should be made to the appropriate person.

The subnetting of the Computer Lab MSNL network is given in table 2 as an example both of subnetting and of range specification. (The CFR has been decomissioned, the CBN has not yet been completely decomissioned). The current known status of subnetting at Twente (two ridiculously tiny networks) is shown in table 3.

Subnetwork	Purpose
128.232.48.0-255.255.240.0	The CBN
128.232.64.0-255.255.240.0	The Ethernet
128.232.128.0-255.255.240.0	The mesh of Fairisle switches

Table 2: Subnetworks in the Computer Laboratory.

Subnetwork	Purpose
130.89.181.192-255.255.255.224	The Ethernet
130.89.181.224-255.255.255.224	The mesh of Fairisle switches

Table 3: Subnetworks at Twente.

4 Port Assignments

Port assignments are for *services* which require their MSNL SAP to be publicly known ("Written on the wall") because they have no suitable means of publishing their MSNL SAPs. It is recommended that services should request a random port on their local system and publish their service on an object such as a "Trader" or "Portmapper". It is intended that public port numbers should have zero as the first three octets. The current set of known Port numbers is in table 4.

If any other publicly known port numbers are currently in use please inform the author. Requests for allocation of a publicly known port number should be made to the author.

5 Services

Two of the services outlined in table 4 are defined across all MSNL entities and their implementation is *Mandatory*.

5.1 Echo

The echo service exists to allow a client to reassure itself as to the aliveness or reachability of another (the server) machine. This is similar in some ways to both the "ping" and "echo" services on IP systems, except the description here is for a connection orientated environment.

Multiple clients (at least five if possible but at least two) should be supported. For a given connection the server should take no action except upon receiving a block of data. The block of data should be returned on the connection without modification or inspection. The server is free (as in all MSNL connections) to terminate the connection at any time, and it is recommended that idle connections be timed out after thirty seconds of inactivity.

5.2 Traceroute

The traceroute service exists to allow routeing to be investigated by authorised clients.

Port	Name	Comments
0.0.0.17	Echo	Echo (Ping) service.
0.0.0.19	Traceroute	Route debugging echo.
0.0.0.40	WRarpd	Reserved Wanda Promiscuous Liaison Socket.
0.0.0.48	Reset	Wanda Remote Reset request.
0.0.0.49	Remote Kmem	Wanda Remote Debugging service.
0.0.0.53	IP Tunnel	IP over MSNL Tunnel (ms3).
0.0.0.54	IP Tunnel	IP over MSNL Tunnel (ms2).
0.0.0.55	IP Tunnel	IP over MSNL Tunnel (ms1).
0.0.0.56	IP Tunnel	IP over MSNL Tunnel (ms0).
0.0.0.57	TCP Engine	Daemon servicing TCP requirements.
0.0.0.58	UDP Engine	Daemon servicing UDP requirements.
0.0.0.60	IPOOB	IP Out of band discussion experiments.
0.0.0.211	CacheBootservice	DAN CPU node Bootserver.
0.0.0.222	MSPortmapper	MSRPC Portmapper Service Port.
0.0.0.223	MSNL Name Service	MSNL Name Service for Unix / Wanda.
0.0.0.224	MS-AudioFile	MSNL Service point for audio file.
0.0.0.225	Network Console	Network console.
0.0.1.1	ATM Camera Raw	(protocol unknown)
0.0.1.2	ATM Camera Pandora	(protocol unknown)
0.0.1.3	Mouse	(protocol unknown)
0.0.1.4	Keyboard	(protocol unknown)
0.0.1.5	BBA	(protocol unknown)
0.0.1.6	Lofi	(protocol unknown)
0.0.42.248	Trader	Ansa Trader access.
0.0.46.224	Notify	Ansa Notification server access.
0.0.176.1	Bootservice	Wired into boot roms.
16.16.16.16	XNS Bridge	Will probably be reallocated.

Table 4: Assigned Port Numbers.

Server behaviour is the same as for the echo service except that the data shall be manipulated as follows. The format of the received data is described in table 5.

Octet	Description
0	Number of entries (say n (which could be zero))
1–3	Reserved
4–$(4*n)+3$	n addresses of machines through which the packet has passed

Table 5: Traceroute block format.

The server shall place its principal MSNL address at offset $4*n+4$ in the block (ie. at the logical end) and increment the value of the first octet. The block shall then be transmitted on the connection.

Routers perform special behaviour at connection setup time by noticing that the request is to the Traceroute port and do not initiate cell forwarding for the connection but instead initiate block forwarding through an appropriate daemon or thread. The router performs the same data manipulation as the server and forwards the data block on the way. Note that this special case for connection setup does not therefore add any checking code for this function in the data paths unlike the similar mechanism in IP.