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MNC Probe 2.6

Parameters and Metrics

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1 Introduction

Mobile Network Connectivity Probe (MNC Probe) comprises a set of six individual probes especially designed for mobile networks:

MNC Probe	OVIS standard probe counterpart
ICMP Ping	ICMP (Internet Control Message Protocol—Ping)
UDP Ping	No counterpart
TCP Connect	No counterpart
FTP Get	FTP probe (File Transfer Protocol)
HTTP Get	HTTP probe (Hypertext Transfer Protocol)
WAP Get	WAP probe (Wireless Application Protocol)

This document describes briefly the parameters and metrics of these probes. For a more detailed description please refer to the MNC Probe Administration and Reference Guide.

2 ICMP Ping

2.1 Parameters

ICMP Ping supports the following set of parameters:

Target Host IP-Address or IP name of the IP host to be probed. It is recommended to use IP addresses instead of IP names to independent of DNS services.

Port This is an OVIS default parameter for custom probes. With the MNC ICMP-PING Probe it is not used.

apn This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.

csd_msisdn This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS. It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".

username Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.

password Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.

configfile This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the probe.

test_repetitions ICMP ping is a non reliable protocol. PDUs generated can get lost. Therefore it is common to send more than one ping request to determine whether a target can be reached via ICMP ping. With the parameter "test_repetitions" the user can specify the number of ICMP requests being send out.

2.2 Metrics

Metrics returned by ICMP Ping are:

- Overall end to end **service availability**[1]
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service response time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible
- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- "**Service response time first**" reports the duration of the first TCP/IP transaction[2]
- "**Service response time average**" reports the average duration of TCP/IP transactions
- The parameter "**Transfer throughput**" (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

The size created by this probe "on the wire" is 128 bytes.

3 UDP Ping

3.1 Parameters

UDP Ping supports the following set of parameters:

Target Host	IP-Address or IP name of the IP host to be probed. It is recommended to use IP addresses instead of IP names to independent of DNS services.
Port	This is an OVIS default parameter for custom probes. With the MNC UDP-PING Probe it should be set to "7" in case the answering host provides the UDP echo service on port seven (default).
Apn	This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.
csd_msisdn	This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS. It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".
Username	Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.
Password	Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.

[1] Please also note that MNC Probe supports different reporting policies.
[2] The term "TCP/IP transaction" is used to describe a single operation like a single ICMP-PING, a single UDP-PING, a TCP-CONNECT, a single HTTP-GET or a single WAP-GET.

Configfile	This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the probe.
test_repetitions	UDP ping is a non reliable protocol. PDUs generated can get lost. Therefore it is common to send more than one ping request to determine whether a target can be reached via UDP ping. With the parameter “test_repetitions” the user can specify the number of UDP requests being send out.

3.2 Metrics

Metrics returned by UDP Ping are:

- Overall end to end **service availability**
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service resonse time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible
- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- “**Service response time first**” reports the duration of the first TCP/IP transaction
- “**Service response time average**” reports the average duration of TCP/IP transactions
- The parameter “**Transfer throughput**” (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

4 TCP Connect

4.1 Parameters

TCP Connect supports the following set of parameters:

Target Host	IP-Address or IP name of the IP host to be probed. It is recommended to use IP addresses instead of IP names to independent of DNS services.
Port	This is an OVIS default parameter for custom probes. With the MNC TCP Connect Probe it should be set to the target TCP service port number to be probed. For example use 80 in case of probing a HTTP server over the Internet APN or the port number of your TCP proxy in your MMS APN.
apn	This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.
csd_msisdn	This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS.

	It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".
username	Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.
password	Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.
configfile	This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc. The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the probe.
test_repetitions	With the parameter "test_repetitions" the user can specify the number of TCP connect transactions being carried out.

4.2 Metrics

Metrics returned by TCP Connect are:

- Overall end to end **service availability**
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service response time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible
- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- "**Service response time first**" reports the duration of the first TCP/IP transaction
- "**Service response time average**" reports the average duration of TCP/IP transactions
- The parameter "**Transfer throughput**" (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

5 FTP Get

5.1 Parameters

FTP Get supports the following set of parameters:

Target Host	IP-Address or IP name of the IP host to be probed.
Port	This is an OVIS default parameter for custom probes. With the MNC FTP Get Probe it should be set to the target TCP service port number to be probed. In most cases it will be 21. Other ports can be specified – if necessary.

filename	This parameter describes file to be retrieved via FTP. For example "/index.html" will retrieve the file "/index.html" from the server.
ftp_username	Username to be used for authentication purposes towards the FTP-Server.
ftp_password	Password to be used for authentication purposes towards the FTP-Server.
apn	This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.
csd_msisdn	This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS. It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".
username	Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.
password	Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.
configfile	This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc. The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the probe.
test_repetitions	With the parameter "test_repetitions" the user can specify the number of FTP get operations being carried out.

5.2 Metrics

Metrics returned by FTP Get are:

- Overall end to end **service availability**[3]
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service response time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible
- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- "**Service response time first**" reports the duration of the first TCP/IP transaction[4]
- "**Service response time average**" reports the average duration of TCP/IP transactions
- The parameter "**Transfer throughput**" (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

[3] Please also note that MNC Probe supports different reporting policies.
[4] The term "TCP/IP transaction" is used to describe a single operation like a single ICMP-PING, a single UDP-PING, a TCP-Connect, a single FTP GET, HTTP-GET or a single WAP-GET.

6 HTTP Get

6.1 Parameters

HTTP Get supports the following set of parameters:

Target Host	IP-Address or IP name of the IP host to be probed.
Port	This is an OVIS default parameter for custom probes. With the MNC HTTP Get Probe it should be set to the target TCP service port number to be probed. In most cases it will be 80. Other ports can be specified – if necessary.
url_path	This parameter describes the server side path to the contents. For example "/" will retrieve the default homepage of the server.
proxy	This optional parameter allows to define a HTTP proxy for HTTP get operations. The proxy is named in the well known syntax "host":"port". If the port part is omitted, the probe assumes 8080 as port.
apn	This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.
csd_msisdn	This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS. It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".
username	Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.
password	Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.
configfile	This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc. The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the probe.
test_repetitions	With the parameter "test_repetitions" the user can specify the number of HTTP get operations being carried out.
pattern	Optional pattern that must be contained in the HTTP page for the test to succeed. '?' means every single character, '*' means any number of characters. E.g. the pattern '*video*' means check for the string video anywhere in the page.

6.2 Metrics

Metrics returned by HTTP Get are:

- Overall end to end **service availability**[5]
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service response time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible

[5] Please also note that MNC Probe supports different reporting policies.

- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- "**Service response time first**" reports the duration of the first TCP/IP transaction[6]
- "**Service response time average**" reports the average duration of TCP/IP transactions
- The parameter "**Transfer throughput**" (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

7 WAP Get

7.1 Parameters

WAP Get supports the following set of parameters:

Target Host	IP-Address or IP name of the IP host to be probed.
Port	This is an OVIS default parameter for custom probes. With the MNC WAP Get Probe it should be set to the target TCP service port number to be probed. In most cases it will be 80. Other ports can be specified – if necessary.
uri_path	This parameter describes the server side path to the contents. For example "/" will retrieve the default homepage of the server.
wap_gateway	This parameter allows to define a WAP proxy for WAP get operations. The proxy is named in the well known syntax "host":"port". If the port part is omitted, the probe assumes 9201 as port. If the port is 9201, the probe will use WAP 1.x (WSP, WTP). If a port other than 9201 is specified, the probe will use WAP/2.0 (WHTTP).
apn	This parameter defines the GPRS or UMTS access point name to be used. It should be left empty if CSD (e.g. BS26) is used instead of GPRS.
csd_msisdn	This parameter names the dial in MSISDN and additional modem configuration parameters if using CSD as bearer instead of GPRS or UMTS. It should be left empty if GPRS or UMTS is used instead of CSD. The format of this parameter is "*MSISDN:Additional modem init commands*".
username	Username used for IP/PPP authentication. If not necessary, please leave this parameter empty.
password	Password used for IP/PPP authentication. If not necessary, please leave this parameter empty.
configfile	This parameter names the filename of the probe configuration file. This file is used to name license file, modem ports, to configure SIM MUX support etc. The filename given should be either an absolute path to the configuration file or a relative path from the current working directory of the

[6] The term "TCP/IP transaction" is used to describe a single operation like a single ICMP-PING, a single UDP-PING, a TCP-Connect, a single HTTP-GET or a single WAP-GET.

	probe.
test_repetitions	With the parameter “test_repetitions” the user can specify the number of WAP get operations being carried out.
pattern	Optional pattern that must be contained in the WAP page for the test to succeed. ‘?’ means every single character, ‘*’ means any number of characters. E.g. the pattern ‘*video*’ means check for the string video anywhere in the page.

7.2 Metrics

Metrics returned by WAP Get are:

- Overall end to end **service availability**[7]
- Overall **service response time** including network attach time, IP context activation time, TCP/IP service response time and IP context deactivation time
- Overall **setup time**: sum of network attach time and IP context activation time
- **Radio network availability** indicating whether radio network attach was possible
- **Radio network signal strength** reporting the radio network signal strength parameter measured by the GMS/UMTS modem
- The **radio network attach time** reports the time elapsed during network attach
- The flag **IP context availability** describes whether the IP context could be established
- The **IP context activation time** parameter reports the time necessary to establish an active IP context
- The **service availability** flag indicates whether the TCP/IP service to be measured was reachable or not
- “**Service response time first**” reports the duration of the first TCP/IP transaction[8]
- “**Service response time average**” reports the average duration of TCP/IP transactions
- The parameter “**Transfer throughput**” (TRANSFER_TPUT) reports the maximum achieved TCP/IP transmission rate.

[7] Please also note that MNC Probe supports different reporting policies.
[8] The term “TCP/IP transaction” is used to describe a single operation like a single ICMP-PING, a single UDP-PING, a TCP-Connect, a single HTTP-GET or a single WAP-GET.