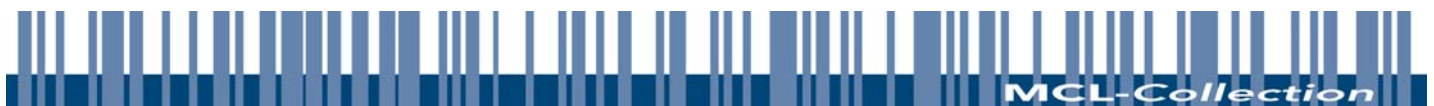




Getting started with GPRS

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1. Introduction- Getting Started with GPRS and MCL

This document is designed to guide you step by step through the set up requirements of MCL Projects that involve GPRS terminals.

1.1 Scope

This document will outline the features and functions required to make the MCL toolkit GPRS enabled. This document does not outline design aspects of your GPRS application. The components covered in this document are as follows.

- MCL-Client for GPRS enabled devices
- MCL-Net (V3)
- MCL-Designer (V3)

Please note that no 3rd party GPRS modem add-in cards are listed in this document. Also the possibility of using GPRS modems connected via Bluetooth, serial cables, etc is not included. A vast number of possible combinations of hardware exist and we do not have the facilities or time to test them. Please be aware that your chosen combination of hardware may not work in an MCL environment.

1.2 What is GPRS?

GPRS stands for General Packet Radio Service. GPRS is a non-voice (data) service that allows information to be sent and received across a mobile telephone network.

To use GPRS, users specifically need:

- A terminal that supports GPRS (and with a MCL Client available).
- A subscription to a mobile telephone network that offers GPRS.
- Use of GPRS must be enabled for that user. Automatic access to the GPRS may be allowed by some mobile network operators, others will require a specific opt-in.
- APName and if required login/password.
- Knowledge of how to send and/or receive GPRS information using their specific terminal.
- A destination (remote server) to send or receive information through GPRS this is likely to be an Internet address.
- A destination that must be permanently connected to the Internet.

2. MCL Clients

MCL-Client must be DHCP enabled. Therefore a version 3 Client is required. Please use release 11 or greater. (i.e. version 3.11 or greater) downloadable from <http://www.mcl-collection.com/>
(In previous versions GPRS is not supported)

The terminal connects to the Internet using the AP name and PIN code provided by the GPRS Service provider, which are set-up within MCL-Designer. Once connected to the Internet, the terminal reaches its destination (i.e. remote server or host) by specifying the IP address of the host. Therefore, the destination (remote server or host) must have a permanent IP address.

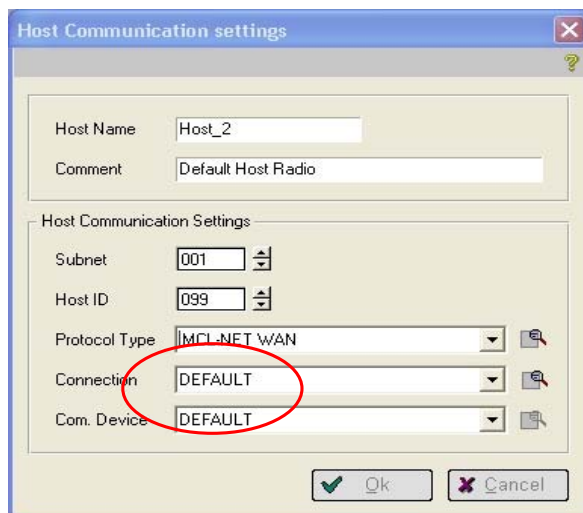
GPRS providers can duplicate IP addresses to different devices. The provider in this case will change the port, mapping it to a different port number. The MCL-Client must be able to handle this and have a static inbound and outbound communication port, also known as single port addressing. The client is automatically set to this mode of communications by the Designer when you select a host communication protocol type of "MCL-Net WAN".

MCL-Clients exist for a number of GPRS enabled devices. The number of devices will change as and when GPRS capable devices become factory installed mainstream devices for the various manufacturers. Please check the **supported devices** document on our website under [Support - Supported Devices - V3 Supported Devices](#) section.

Setting within the terminals for the following options should be considered.

Host IP address: This may have been defined in the Project within MCL-Designer in which case this need not be set. However, this may have been set to 0.0.0.0 in the Project. This means that the terminal will refer to the terminal's own System Menu settings to find the IP address of the MCL-Net PC. If this is the case then this should be the public one assigned to your MCL-Net PC that will host the terminal. See diagram in section 5 for pictorial representation.

In PocketPC or Windows CE environment it is of course possible to establish GPRS connections, outside of the MCL Client (details beyond the scope of this document). With this connection established MCL-Clients can take advantage of this even though MCL did not instigate it. This is achieved by selecting the "Default" configuration under Host Communication Setting, [see insert](#).



The screenshot shows a dialog box titled "Host Communication settings". It contains several fields and dropdown menus. The "Host Name" field is set to "Host_2" and the "Comment" field is set to "Default Host Radio". Under the "Host Communication Settings" section, the "Subnet" is "001", "Host ID" is "099", "Protocol Type" is "MCL-NET WAN", "Connection" is "DEFAULT" (circled in red), and "Com. Device" is "DEFAULT". There are "Ok" and "Cancel" buttons at the bottom.

You still need to specify the IP address of the MCL-Net PC that you wish to communicate with, since the connection is simply to the remote network.

By using "Default" the MCL-Client will consider that there is a connection available at the time MCL needs to receive or send packages/data. If this connection has been lost in the meantime and is therefore not available MCL will NOT re-make the connection.... It will return a communications error to be handled in the normal way.

3. MCL-Net (V3)

3.1 MCL-Net DHCP with 'public' IP address

For MCL-Net to be able to communicate with GPRS enabled devices it must be able to handle DHCP IP addressing for the devices and work behind a firewall.

Therefore, MCL-Net Version 3 is required (NetS24 is not suitable).

The MCL-Net PC should be configured with its own "public" IP address.

3.2 MCL-Net Single Port configuration set-up

There is only one special set-up required for MCL-Net to run as a GPRS Host. This is because GPRS Systems employ address or port redirection. The GPRS provider in this case may issue duplicate IP addresses to devices but then change the port, mapping it to a different port number to avoid a conflict. This conflicts with the way MCL-Net normally works.

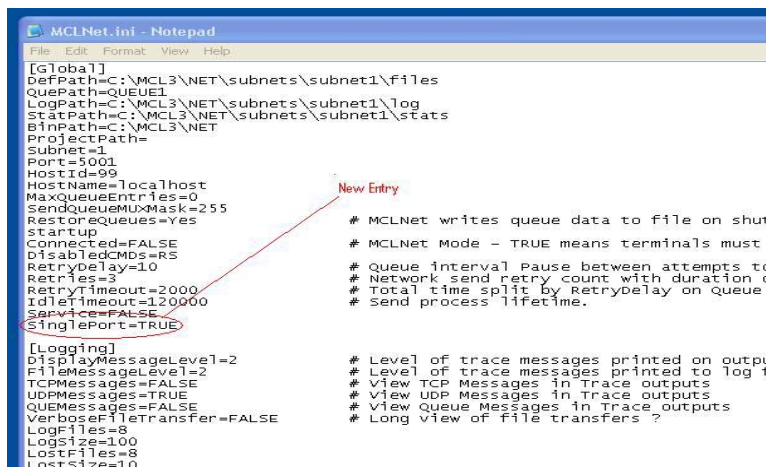
In order to avoid the issue, a change to the MCL-Net initiation file can be made. This will force MCL-Net to adopt a static inbound and outbound communication port. In other words a single port only will be used such that MCL-Net will send and receive communication from the same port address. This change cannot be made to take effect unless you are running version MCL-Net 3.08 04 or above.

To do this you should edit the MCLNet.ini file:

Open the file with a text editor package such as Notepad and create a new entry in the [Global] section as follows.

SinglePort=TRUE

TRUE indicates that MCL-Net will communicate with all clients through a single UDP port on the PC, usually 5001 for subnet 1. This is for Data Packets going to and from a device and MCL-Net. If the entry doesn't exist it defaults to FALSE. Now save your changes and restart MCL-Net.



```
MCLNet.ini - Notepad
File Edit Format View Help
[Global]
DefPath=C:\MCL3\NET\subnets\subnet1\files
QuePath=QUEUE1
LogPath=C:\MCL3\NET\subnets\subnet1\log
StatPath=C:\MCL3\NET\subnets\subnet1\stats
BinPath=C:\MCL3\NET
ProjectPath=
Subnet=1
Port=5001
HostId=99
HostName=localhost
MaxQueueEntries=0
SendQueueMutexMask=255
RestoreQueues=Yes
Startup
Connected=FALSE
DisabledCMDs=RS
RetryDelay=10
Retries=3
RetryTimeout=2000
IdleTimeout=120000
SaveTrace=FALSE
SinglePort=TRUE

[Logging]
DisplayMessageLevel=2
FileMessageLevel=2
TCPMessages=FALSE
UDPMessages=TRUE
QueueMessages=FALSE
VerboseFileTransfer=FALSE
LogFiles=8
LogSize=100
LostFiles=8
LostSize=100

# MCLNet writes queue data to file on shut
# MCLNet Mode - TRUE means terminals must
# Queue interval Pause between attempts to
# Network send retry count with duration t
# Total time split by RetryDelay on queue
# Send process lifetime.
# Level of trace messages printed on outpu
# Level of trace messages printed to log f
# View TCP Messages in Trace outputs
# View UDP Messages in Trace outputs
# view Queue Messages in Trace outputs
# Long view of file transfers ?
```

It is important to make sure that your terminals also communicate in this single port mode, but this is taken care of by MCL-Designer when you select a Protocol type of "MCL-Net WAN".

4. MCL-Designer (V3)

If the terminal selected is GPRS enabled, the following are available in the Host Connectivity options.

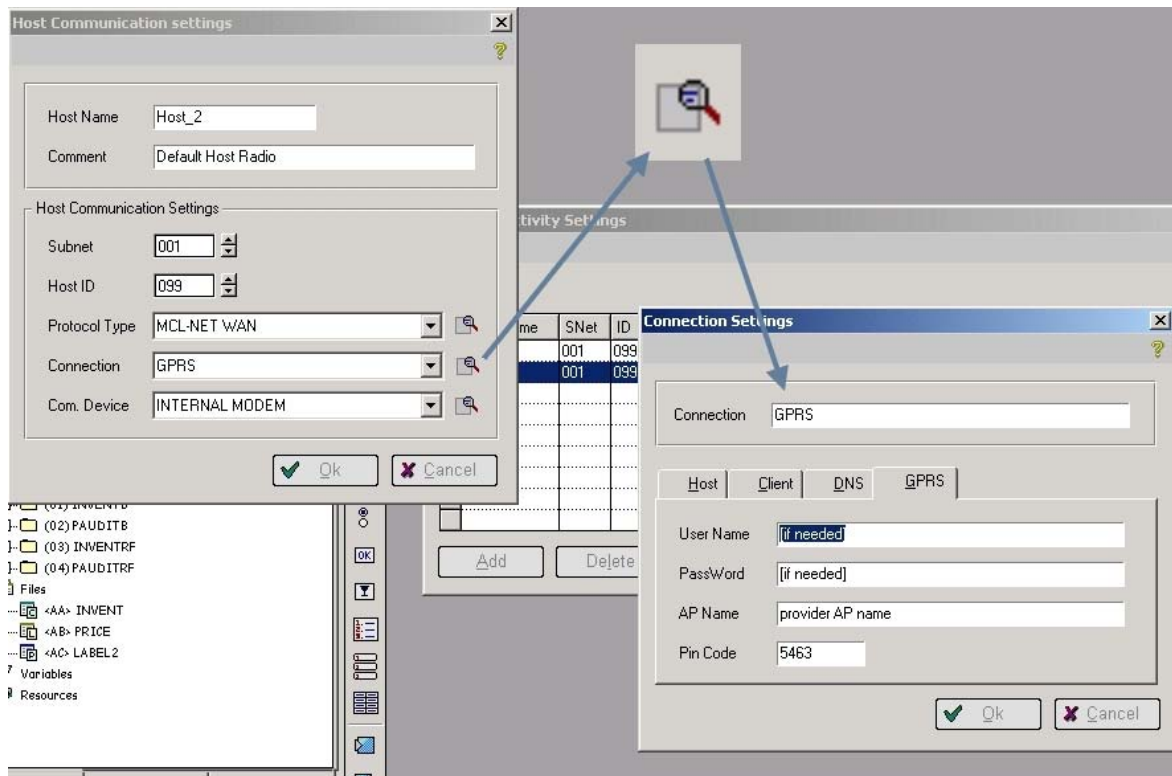
- A Connection type of “GPRS”.
- The set-up of the “GPRS” connection type includes input for :
 - Access Point name (APName).
 - Pin code for the GPRS Sim card.
 - User Name and Password (Some providers require these and some do not).

(Note that you have to click on the Magnifying Glass behind your GPRS Host selection to define these settings (see screenshot).

- A Protocol type of “MCL-Net WAN”.

This option must be selected when using GPRS, since this sets your device to “single port” addressing to correspond to MCL-Net’s recommended setting in a GPRS environment.

Some GPRS terminals are also equipped with WLAN features so it might be that the same GPRS enabled terminal might also need to communicate on a local Wireless LAN in which case the MCL-NET setting should be chosen for that communication.



The MCL-Client for these devices and platforms will process “Host Communications”, ODBC calls and ERP Bridge Calls through the GPRS functionality of the devices. These include :

Host Communication Commands	ODBC Commands	ERP Bridge Calls
Send/Receive Packet	Insert Records	R/3 Execute Script
Send/Receive File	Select Records	R/3 Call RFC
Host Lookup	Update Records	R/3 Call BAPI
Connect/Disconnect	Delete Records	BaaN Execute Script
Remote File Check	Import File into Database	
Remote File Operation	Export File from Database	
Start EXE on Host	Update Database from File	
Check Connection	Free SQL Command	

Using the standard MCL communication commands like send/receive or all the ODBC command will force the GPRS modem to establish a connection. Once connected, MCL-Net will execute all these commands.

BE AWARE that GPRS is NOT the quickest network and sometimes you need to increase MCL's time-outs in order to receive all acknowledgement packets. Sometimes you will even see that packets are lost/dropped by the network. Throughput depends on many factors (time of day, load on network, weather conditions etc) all of which are outside the sphere of influence of MCL...but by the very nature of MCL-Net, you can be assured that it will automatically execute retries in order to get the packet to the terminal.

The following screen shots show some typical suitable values for GPRS network setup.

MCL-Net Setup - [Server:localhost:5001]

Global | Dispatcher | Bridges | Logging

Local Host

Communications

Host ID: 099

Base Port: 5000

Subnet: 001

Listening Port: 5001

Protocol

Retry Timeout (mSec): 2000

Retry Count: 4

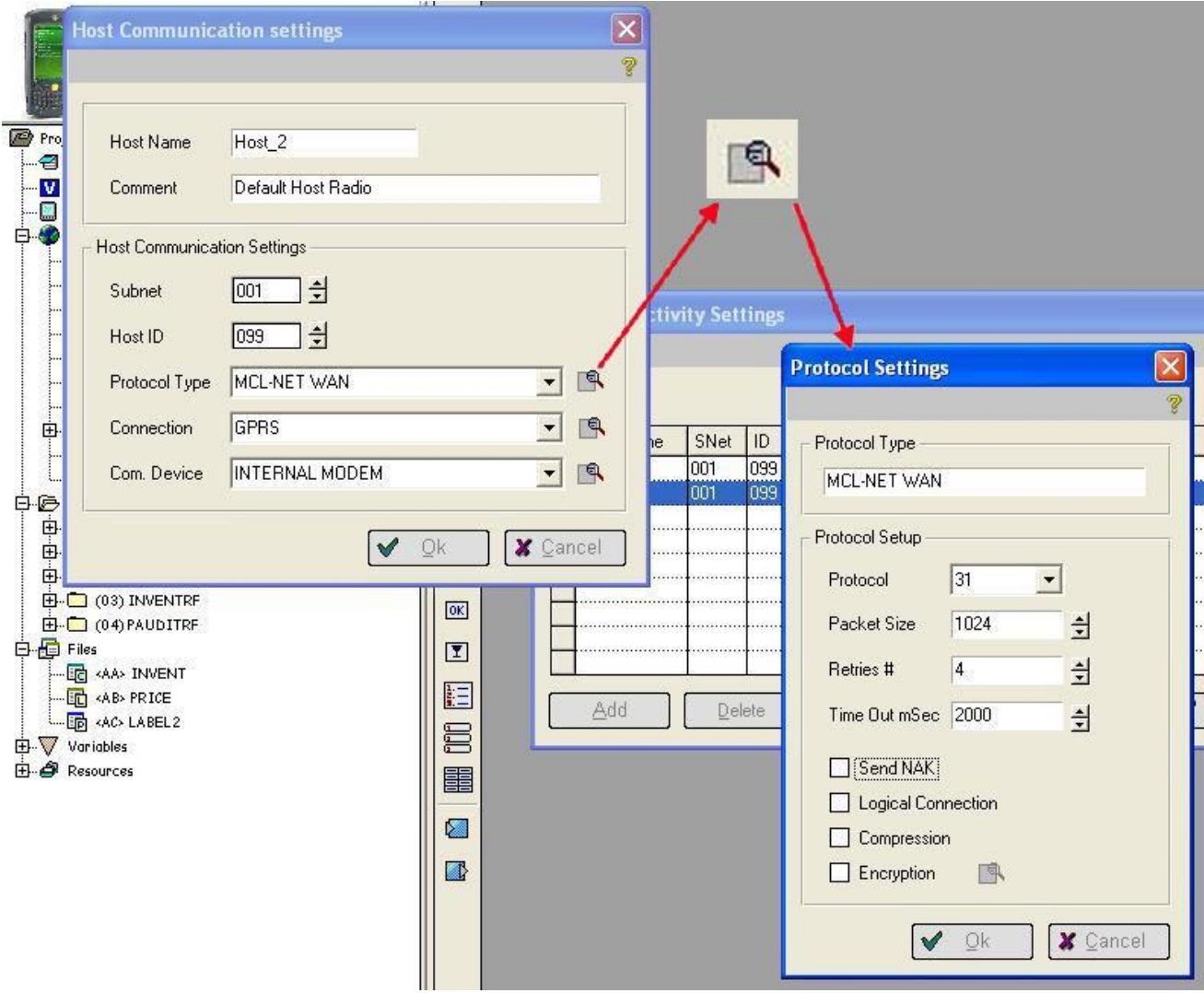
Idle Timeout (mSec): 120000

Block Size: 1024

Paths

Path for Data Files: C:\MCL3\NET\subnets\subnet1\files

Path for MCL Projects: C:\MCL3\Projects



5. GPRS Diagram

Below you will find a typical GPRS/WAN set-up. This is an example to identify the different components within the solution. Your specific environment might be different from the one displayed hereunder.

