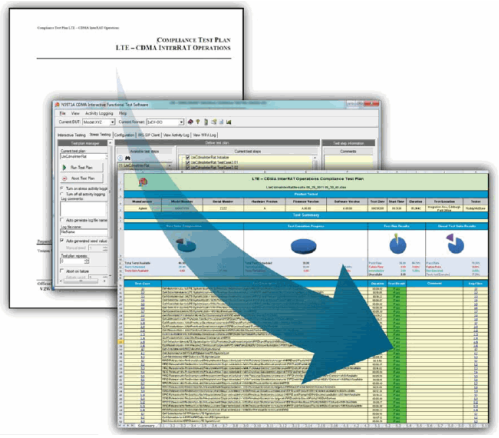
Agilent IFT Scripts for TD-LTE Terminal NS-IOT (N5978A-1FP)



Installation Guide

Agilent Technologies

Notices

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Statement of Compliance

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

Manual Part Number

N5978-90001

Edition

December 2013
Software Version 1.0.0.0

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CAUTION

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Where to Find the Latest Information

Documentation is updated periodically. For the latest information about the Agilent Technologies N5978A-1FP IFT product, consult the following website: www.agilent.com/find/N5978A.

For the latest information about the Agilent Technologies E6621A PXT product, including operation and application information and product and accessory information, see the following website: www.agilent.com/find/pxt.

Is Your Product Software Up-to-Date?

Periodically, Agilent releases software updates to incorporate product enhancements, and fix known defects.

All N5978A software revisions are available from www.agilent.com/find/softwaremanager, and require a valid N5978AS Software and Technical Support Contract (STSC).

NOTE	In general, all Agilent E6621A PXT software products are available for download from www.agilent.com/find/softwaremanager.

IMPORTANT	To obtain the most current software for the products listed, you must also have: • Agilent Software and Technical Support Contract (STSC) for the Agilent E6621A • Agilent Software and Technical Support Contract (STSC) for the Agilent N5978A

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1 Introduction

Welcome to the ***Agilent N5978A-1FP IFT Scripts for TD-LTE Terminal NS-IOT Installation Guide.*** The purpose of this guide is to provide you with installation and licensing instructions for the Agilent N5978A-1FP.

In this book, you'll find:

Overview of System Configuration and Components

Installation

Licensing

Error! Reference source not found.

Setting up the System

Service and Support

2 Overview of System Configuration and Components

This section provides an overview of the components required to install and use the Agilent N5978A-1FP software.

Wireless test set and PC requirements

Refer to the N5978A-1FP release notes located here: www.agilent.com/find/N5978A.

IFT TD-LTE terminal NS-IOT test configuration

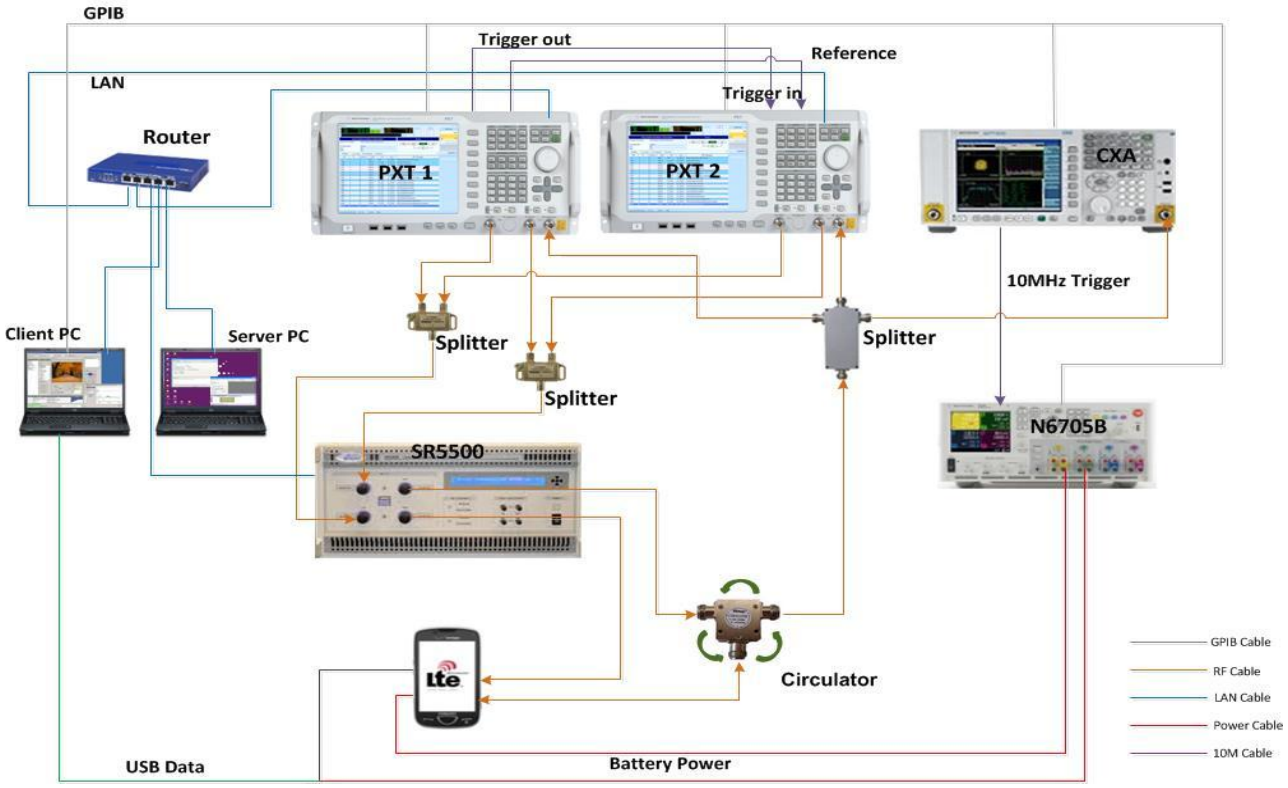


Figure 2-1. IFT TD-LTE terminal NS-IOT test system

3 Installation

File locations

Location of User Data

For Server PC:

Windows 7: C:\Program Files (x86)\Agilent\N597X\

Windows XP: C:\Program Files \Agilent\N597X\

For Client PC:

Windows XP: C:\Users\Public\Documents\Agilent\N5972A\TestData\N5978A

NOTE	Since the above directory paths are different, this document will reference these "User Data" locations like this: <OS Public Agilent>. Rename the six User Data files separately as ULThroughput1.dat, ULThroughput2.dat.....ULThroughput6.dat.

Hardware and Software Configuration

All hardware and software applications required for this product are available for download from these locations shown below. For "Instrument Software Requirements", see Table 4-1 on page 10.

Table 3-1: Hardware and software application requirements

System Component	Software Model and License	Description	Version or later	Download Location
Client PC	N5978A-1FP	IFT automation scripts for TD-LTE terminal NS-IOT test plans (1FP = software license)	1.0	www.agilent.com/find/N5978A
	N5972A	IFT software	1.2	www.agilent.com/find/N5972A
	N6061A Protocol Logging	LTE protocol logging and analysis	6.4.1.0	www.agilent.com/find/softwaremanager
	N6062A (LTE Message Editor)	LTE message editor	6.4.1.0	
	E6584A (WPA)	Wireless protocol advisor (software)	A.10.01	www.agilent.com/find/E6584A
	Agilent IO	Instrument control	16.0	www.agilent.com/find/iosuite

	Libraries	(software)		
	MS Office Excel	Spreadsheet software	2007	www.microsoft.com
Server PC	N597X	PC server (software)	9.0	8960 Series 10 Software Downloads
	E6966A-1FP	IMS-SIP server emulator	3.1	www.agilent.com/find/E6966A
	E6966A-2FP	IMS-SIP client emulator	3.0	

System Component	Software Model and License	Description	Version or later	Download Location
PXT (LTE)	E6621A	PXT wireless communication test set (hardware and software)	N/A	www.agilent.com/find/softwaremanager
	N6050A-8FP	LTE TDD base station emulation software (8FP = software license)	6.3	
	N6052A-1FP	LTE enhanced BSE and IP data test (1FP = software license)	6.3	
	EPC Restart Server[2]	Evolved packet core restart server (software)	N/A	<OS Public Agilent>\ N5972A\TestData\N5978A\Docs\EPCRestartServer
N6705B (DC power analyzer)	N6705B	DC power analyzer	1.0.0.2	www.agilent.com/find/N6705B
CXA	N9000A	Signal analyzer		
SR5500		Radio channel simulator	1.7	
USIM		Universal subscriber identification module (SIM)	N/A	Contact Agilent
Router		Router x1		
GPIB cards		GPIB card x2		
GPIB serial cables		GPIB serial cable x2		

Table footnotes:

1. An active E6621A software and technical support contract (STSC) are required to access the software manager website (displayed above), together with the login credentials registered by you or your company for activation. See the section on licensing in the ***Agilent PXT Wireless Communications Test Set Getting Started Guide*** for instructions to activate your STSC.

2. EPC Restart Server can be installed as follows:
   a. Copy files from IFT Client PC EPC Restart Server directory to PXT desktop
   b. Create a shortcut to the EPC Restart Server.exe in C:\Documents and Settings\All Users\Start\Programs\Startup
   c. Reboot or manually start the EPC Restart Server.exe program

Back-up previous IFT files

IMPORTANT	If an IFT Server or IFT Client PCs are already setup for use with other products, it is advisable to back up any files you wish to keep, before proceeding. See "Location of User Data" section above to locate the files you need to back-up.

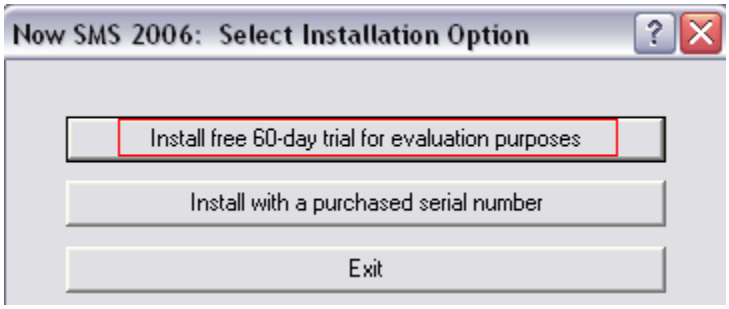
IFT server PC

Install

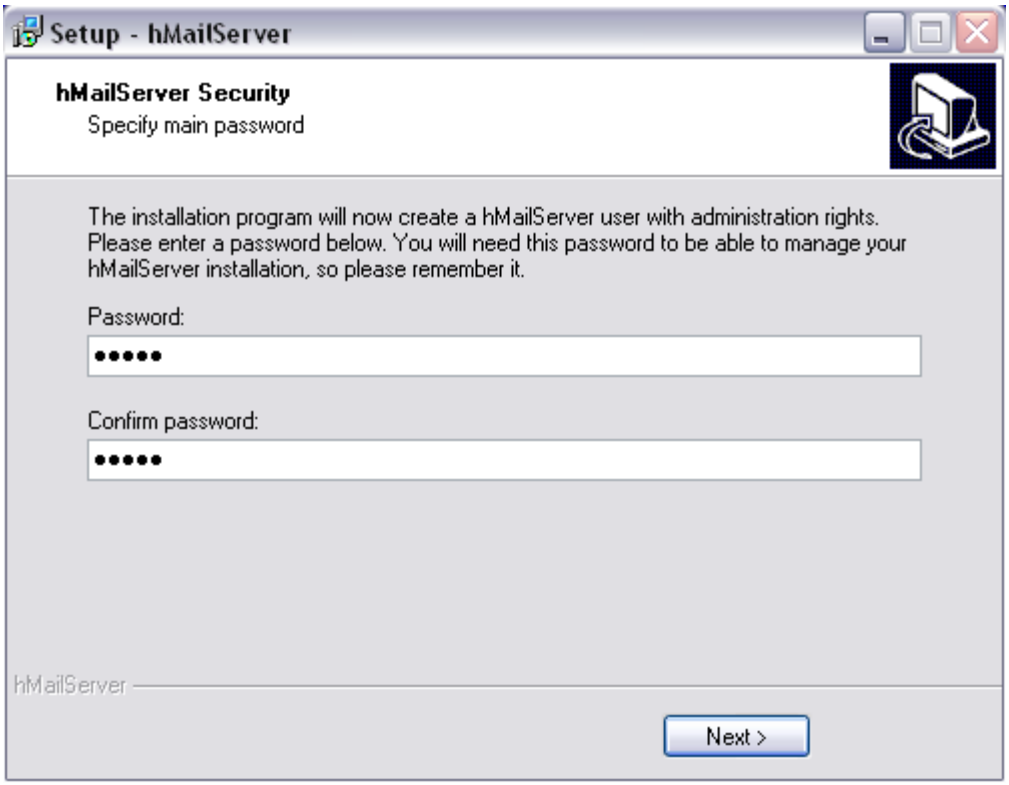
1. N597X ≥ version A.09.00
2. E6966A-1FP IMS-SIP server ≥ version 3.1
3. E6966A-2FP IMS-SIP client ≥ version 3.0

   After running the N597X_Setup.exe installation program, you can follow the normal installation process to install N597X. But, there are several issues for you to note during the process.

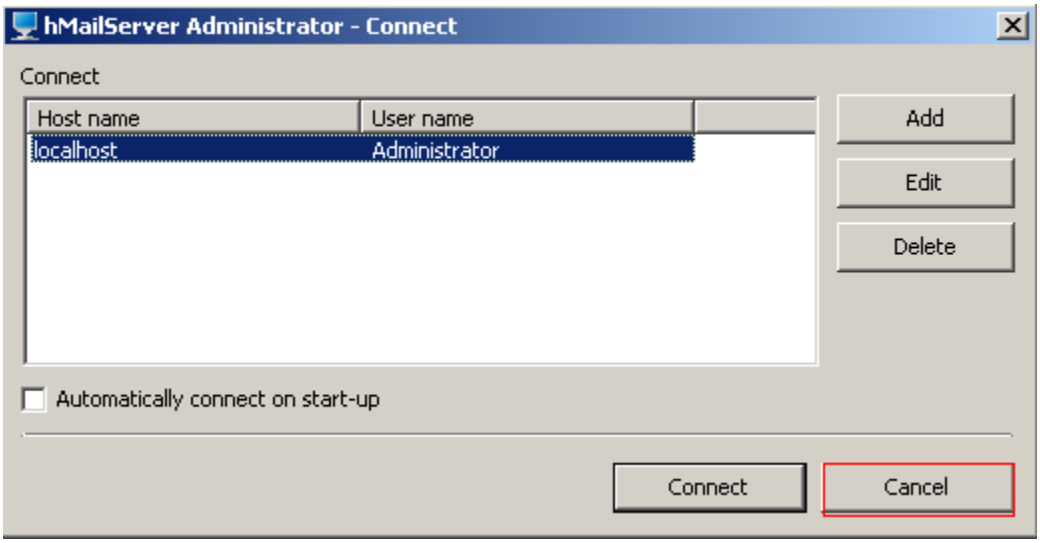
   1) Select ***Install free 60-day trial for evaluation purposes*** when ***Now SMS 2006*** window appears.



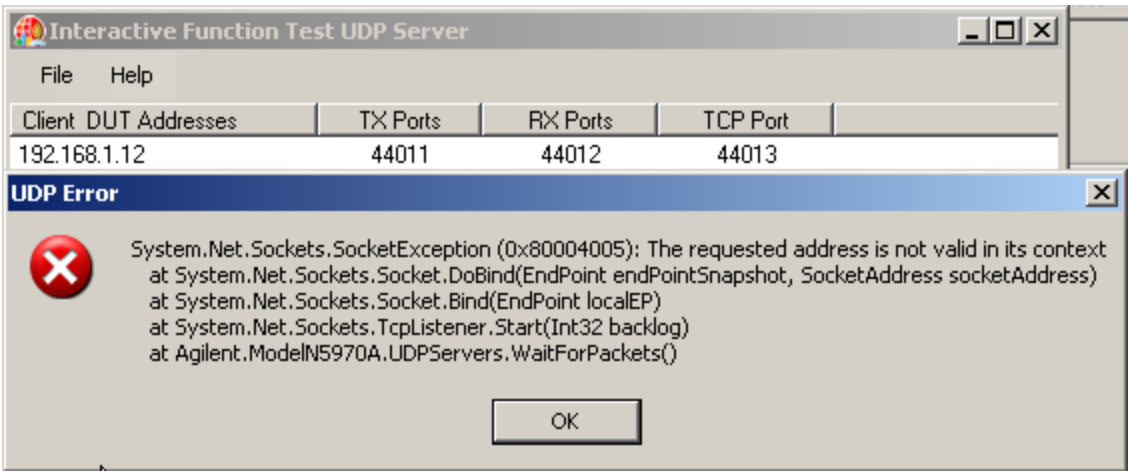
   2) Specify main password for hMailServer.



3) Select ***Cancel*** when ***hMailServer Administrator*** window appears.

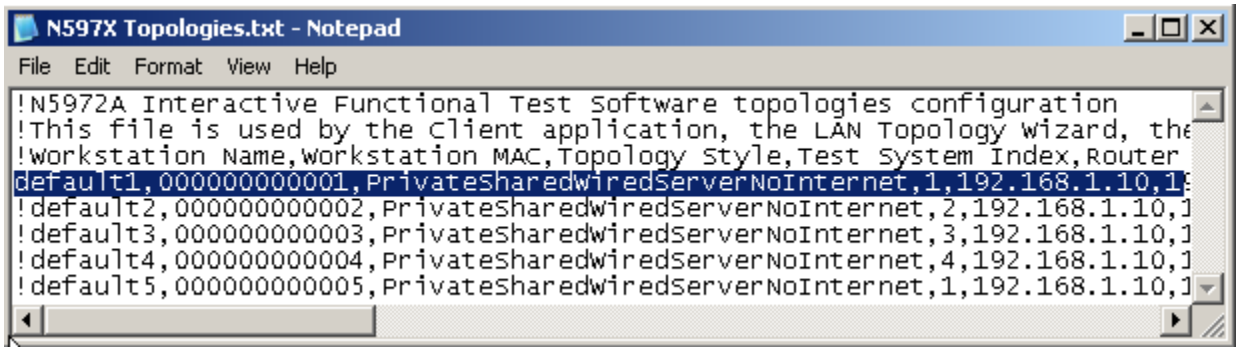


4) During the installation, an ***UDP Error*** window will appear,



Please follow the steps below to solve the UDP Error issue:

- Open the file N597X Topologies.txt from this location on the IFT Server C:\Program Files\Agilent\N597X\AppFiles



- Use "**!**" to disable the default 2, default 3, default 4, and default 5.
- Update the original configuration parameters of "Router IP, DUT IP, Test Set IP, Test Set IP Data" with the new value on the right of the arrow. See Table 3-2 for reference.

Table 3-2: Configuration parameters

Parameter	Value
Workstation Name	default1
Workstation MAC	000000000001
Topology Style	PrivateSharedWiredServerNoInternet
Test System Index	1
Router IP	192.168.1.10 → 192.168.1.1
Workstation IP	192.168.1.11
DUT IP	192.168.1.12 → 192.168.1.51

Test Set IP	192.168.1.13 → 192.168.1.60
Test Set IP Data	192.168.1.14 → 192.168.1.63
Bridge IP	192.168.1.19
Server IP	192.168.2.230
Server Bridge IP	192.168.1.239
MMS From DUT TCP Port	43594
MMS From DUT TO Address	1011
UDP TX Port	44011
UDP RX Port	44012
UDP TCP Port	44013

5) Be sure to select **Always connect** on FileZilla after completing the installation.

6) Find a file with the size larger than 2 GB and rename it as **throughput.dat.** Then copy 6 files to the directory C:\Program Files\Agilent\N597X\FTPFiles on the Server PC and rename the six User Data files separately as DLThroughput1.dat, DLThroughput2.dat.....DLThroughput6.dat

IMPORTANT	If you are going to upgrade N597X, uninstall the old version you've installed first: 1. Open the Control Panel from the Start Menu and select ***Add/Remove Programs***. 2. Locate ***Agilent N597X Server***, ***NowSMS/MMS Gateway***, ***Filezilla Server***, ***hMailServer 4.4.3-B285***, ***Apache HTTP Server 2.0.59*** from the ***Add/Remove Programs*** window and select ***Remove***, to uninstall Agilent N597X Server, NowSMS, Filezillam hMailServer, and Apache separately.

*IFT Client PC**

Install

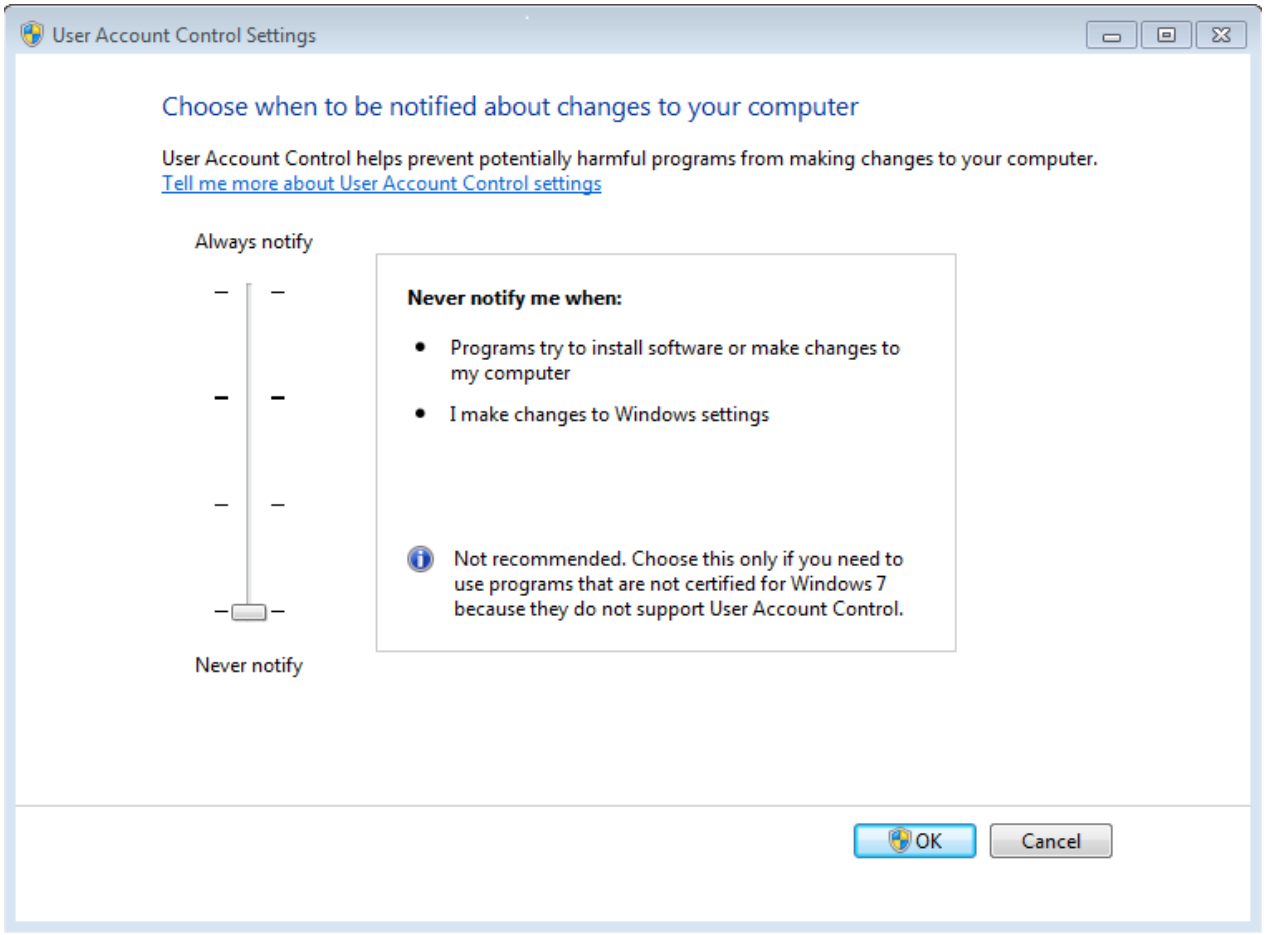
1. OS Windows XP system
2. MS Office Excel ≥ version 2007
3. WPA ≥ version A.10.01
4. Agilent IO Libraries ≥ version 16.0
5. N5972A ≥ version 1.2.1*
6. N5978A-1FP ≥ version 1.0.0.0
7. N5978AS STSCs
8. N6061A ≥version 6.4.1.0
9. N6062A ≥version 6.4.1.0.
10. Create big files for throughput test:

Find a file with the size larger than 1 GB and copy six files to the path"

C:\Users\Public\Documents\Agilent\N5972A\TestData\N5978A\Result\"

Rename the files separately as ULThroughput1.dat, ULThroughput2.dat, ULThroughput3.dat, ULThroughput4.dat, ULThroughput5.dat, and ULThroughput6.dat

11. Copy state folder to "My Documents/sa/state folder" of MXA/CXA12. Shut down firewall and antivirus. Turn down the User Account Control Settings when using windows7 OS.



13. Add a persistent route by the Command prompt of windows. Type "ROUTE –P ADD 192.168.1.60 MASK 255.255.255.255 192.168.1.11" and then press "enter". You can check the route by pressing command "ROUTE PRINT".

* When installing the N5972A on Client PCs using a Windows 7 (64 bit) operating system, verify that **Microsoft .NET Framework 3.5.1** feature is turned ON. For instructions to ensure this is set correctly, refer to **Error! Reference source not found.** on page Error! Bookmark not defined..

NOTE	During this installation, when you are instructed to select a LAN connection, choose "LAN" and ***NOT*** "WLAN".

4 Licensing

When you purchase the N5978A-1FP license, you receive a “License Entitlement Certificate”. Follow the instructions on this certificate to redeem your license keys for these products.

NOTE	N5978A-1FP is licensed using a soft-key installed on the Client PC. You do not need a license for the N5972A as this is automatically licensed by the presence of a valid N5978A license.

5 Setting up the System

Table 5-1: Instrument software application requirements

Cell	Product	Description	Version
E6621A PXT (LTE)	N6050A-8FP	LTE-TDD base station emulation	
	N6052A-1FP	LTE enhanced BSE and IP data test	
CXA	N9000A	Signal analyzer	
SR5500		Radio channel simulator	1.7
N6705B	N6705B	DC power Analyzer	1.0.0.2

Setup procedure

NOTE	When discussing E6621A PXT key paths within tables or text, instrument front-panel keys are represented in **bold;** softkeys appear in ***bold, italics***.

1. Connect all components as shown in Figure 2-1, ensuring all wireless test sets are loaded with the appropriate software described in Table 4-1.
2. Ensure all components are set to the IP/GPIB addresses shown in Table 4-2.
3. Set the PXT to TCP/IP for remote control by selecting **Config** > ***Network Setup*** > ***Remote Ctrl Setup*** > ***TCP/IP*** > ***Apply***.

Table 5-2: Component IP/GPIB addresses

Component	IP		Subnet Mask	Gateway	GPIB Address
IFT Client PC	192.168.1.11		255.255.255.0	192.168.1.1	
IFT Server PC	192.168.2.230		255.255.255.0	192.168.1.1	
PXT[1] (LTE)	192.168.1.60		255.255.255.0	192.168.1.1	9
PXT[2] (LTE)	192.168.1.63		255.255.255.0	192.168.1.1	10
CXA[2]	192.168.1.64		255.255.255.0	192.168.1.1	Interface : 0 Address : 18
SR5500	192.168.1.7		255.255.255.0	192.168.1.1	
N6705B[2]					Interface : 0 Address : 5
Router	WLAN IP	192.168.2.1	255.255.255.0	192.168.2.1	

	LAN IP	192.168.1.1		192.168.1.1	
E-EPC-E	See "**Setting the E-EPC-E IP Addresses**" on page 15 to configure these settings.				
UE	See "**Setting Up the UEs**" on page 15 to configure these settings.				

Table footnotes:

1. The actual setting is "IP" and is part of the ***TCP/IP Setup*** menu. Please select **Config > *Network Setup* > *IP Setup*** to access this menu. Make your changes and then select ***OK***.
2. Set the N6705B and CXA to GPIB Card to 0 via the GPIB cable.

4. Copy the E6621A PXT scenario files

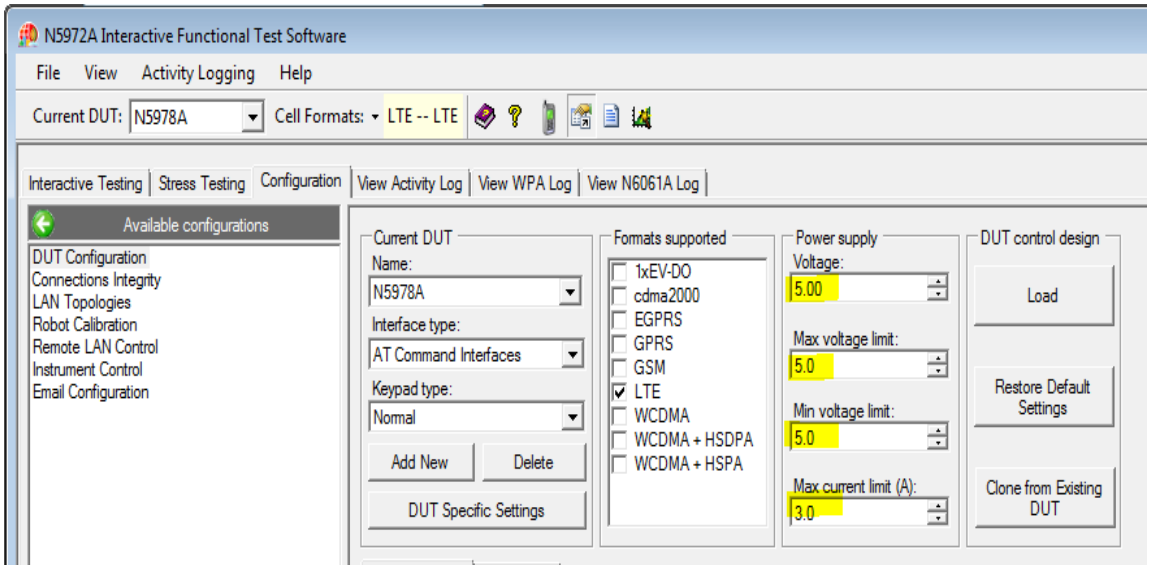
   from this location on the IFT Client PC:

   <OS Public Agilent>\N5972A\TestData\N5978A\Docs\Senariofiles

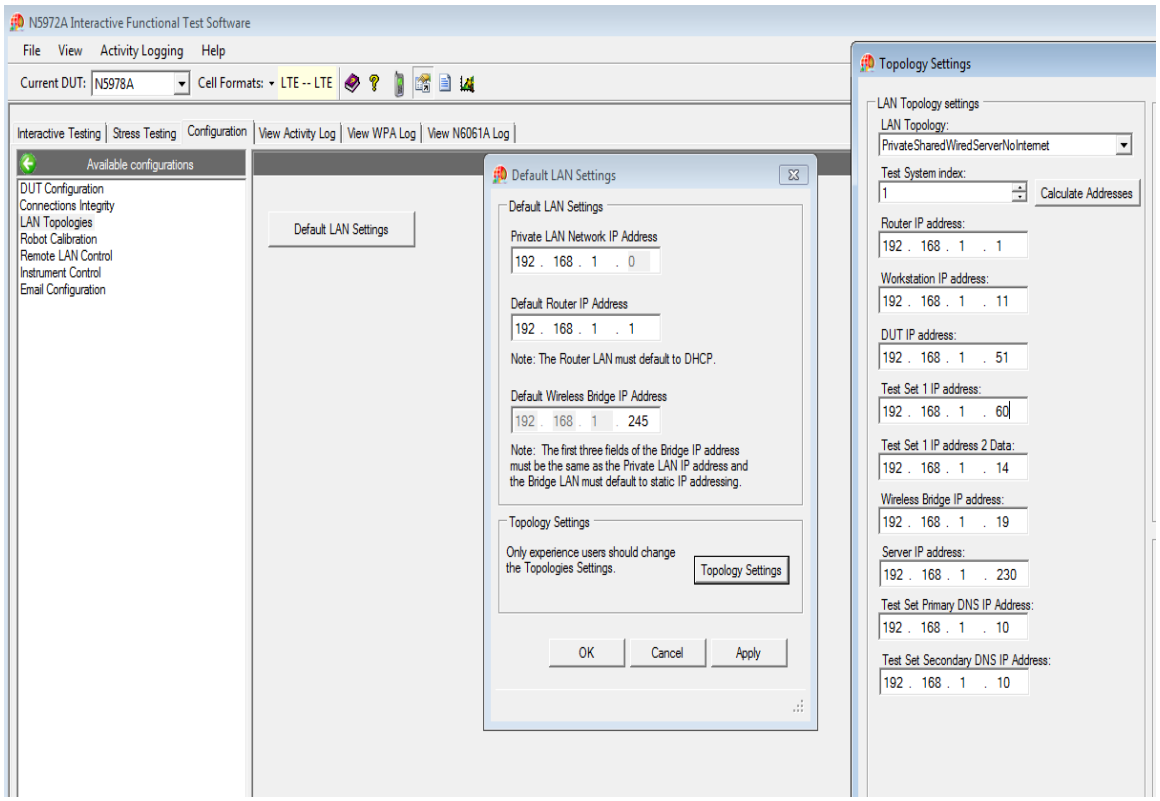
   to this location on the PXT (LTE):

   D:\Program Files\Agilent\E6621A\LTE-Scenario

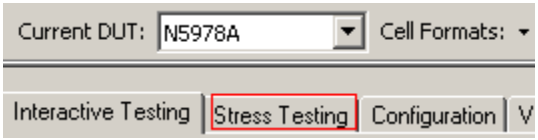
5. Set alternate source voltage in N6705B Battery Profile
6. Launch N5978A on the IFT Client PC.
7. Set the power supply voltage:



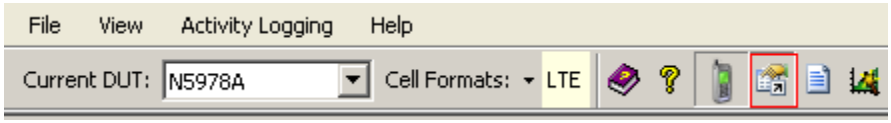
8. N5978A IP setting via LAN Topologies->Default LAN Settings-> Topologies Settings:



9. Select the **Stress Testing** tab in the main IFT application.



10. Display the N5978A Scripting Tool by double-clicking the icon outlined in red below.



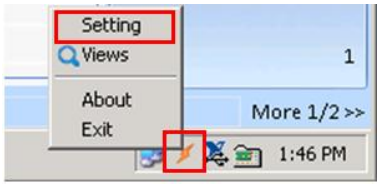
11. "Run" the test script to ensure that everything is configured correctly (on the IFT Client PC).

CAUTION	Any change you make to the scripts **WILL** violate conformance to the Compliance Test Plan. Before making any changes to a script, you should make a copy of the original script so that it can be recovered. *If you make any changes to a script, the original script* ***MUST*** *be recovered to restore conformance to the Compliance Test Plan.*

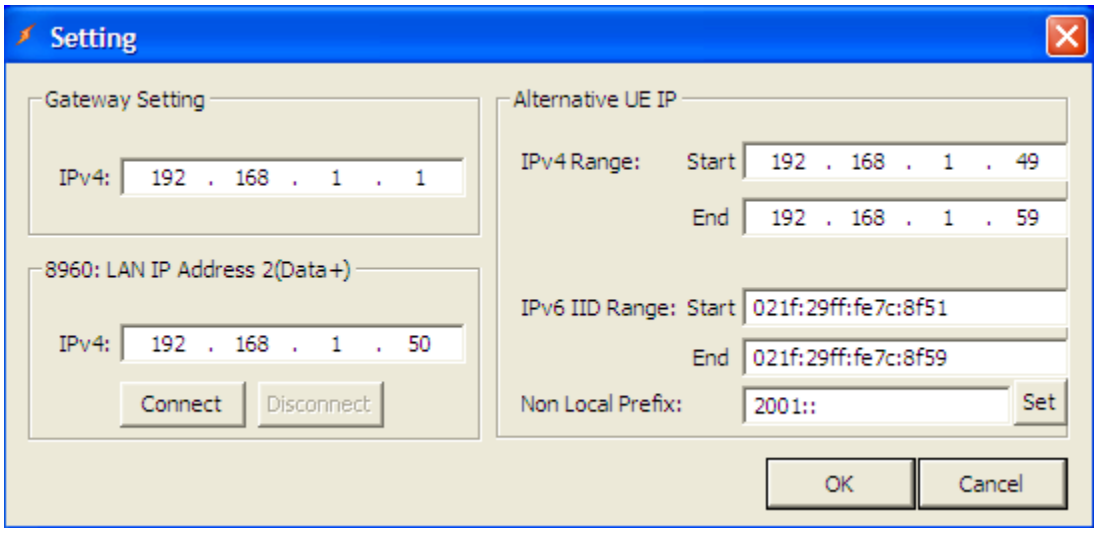
Setting the E-EPC-E IP Addresses

NOTE	You will need to plug in a USB mouse and keyboard to the PXT in order to setup the E-EPC-E (Embedded-Evolved Packet Core-Entity) IP addresses. You can also use Windows virtual keyboard on PXT: Start/Programs/Accessories/Accessibility/On-Screen Keyboard.

To access the E-EPC-E Setup menu, right click on the orange icon, in the task bar at the bottom of the Microsoft Windows' screen and select **Setting**, as shown below.



The following window is displayed:



Use the mouse and keyboard you connected to the PXT (LTE), to insert the setting values required by the scenario file you are using.

NOTE	The settings shown above are those values set in the scenario files you loaded into Step 4.

Gateway setting

This is where all DUT uplink IP data is directed during TD-LTE terminal NS-IOT testing, regardless to which subnet the IP data is destined. When setting up a TD-LTE terminal NS-IOT procedure, this IP address is the target for all DUT IP traffic and is set to the IFT server IP address. If being used on a corporate LAN this could instead be set to the network **Default Gateway**.

Alternative DUT IP

IPv4 Range:

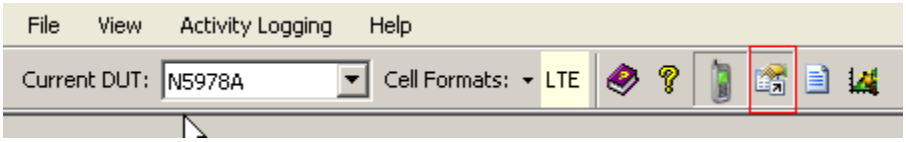
This is the IPv4 address range used when the DUT requests an IPv4 address when attached to the PXT[1] (LTE). The alternative DUT IPv4 range starts from 192.168.1.51 and ends with 192.168.1.59.
Note that this should match any scenario file in use for TD-LTE terminal NS-IOT handovers.

IPv6 IID Range:

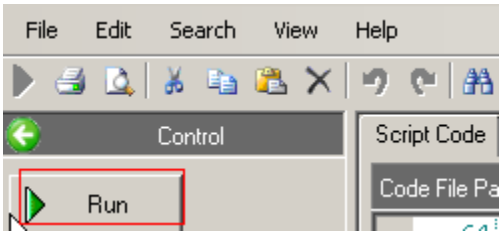
This is the Ipv6 address range used when the DUT requests an IPv6 address when attached to the PXT[1] (LTE).
Note that this should match any scenario file in use for TD-LTE terminal NS-IOT handovers.

Setting up the DUTs

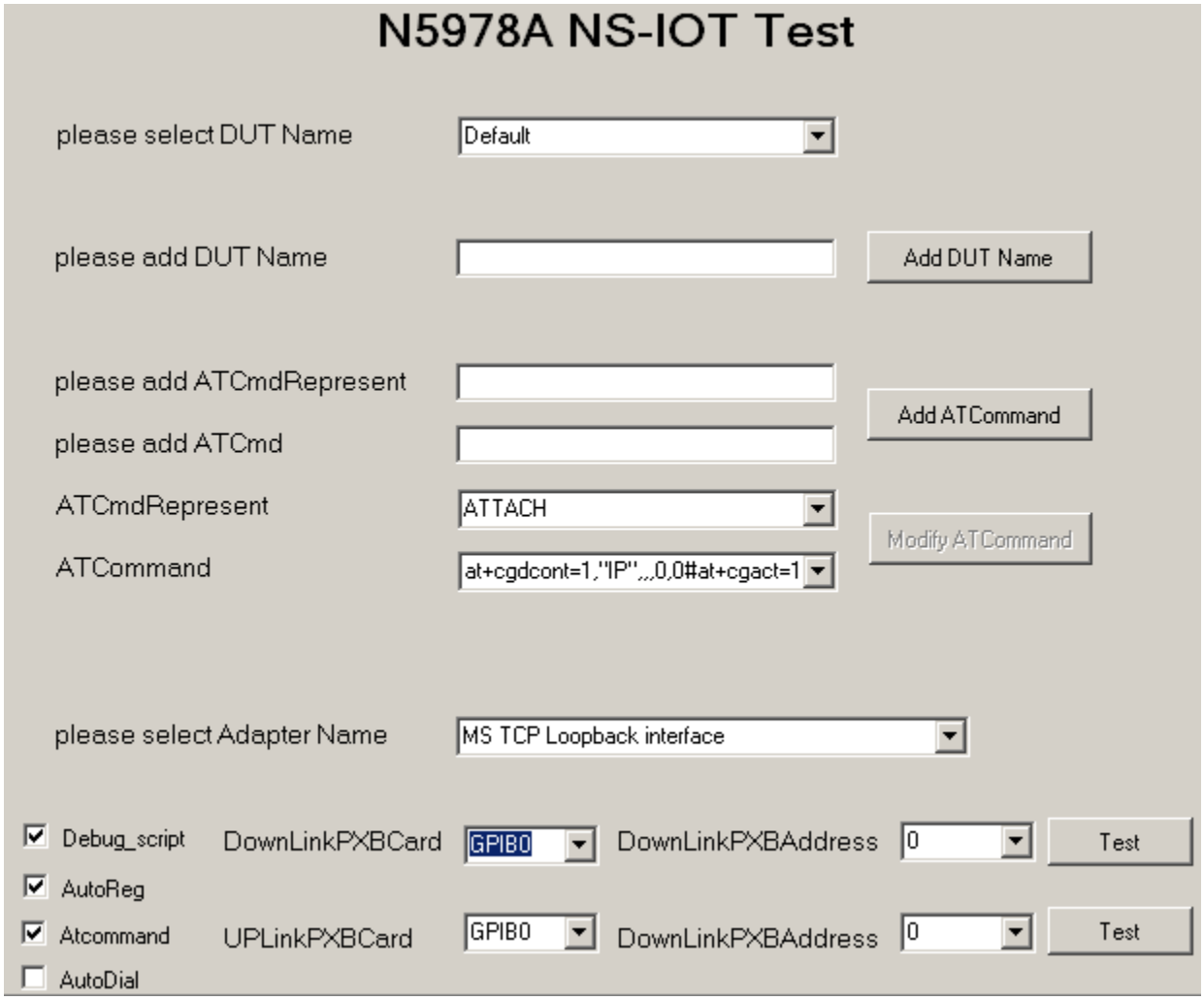
To access the DUT Setup menu, first right click on the icon outlined in red in the task bar, as shown below.



12. Select the **Run** tab in the left column.



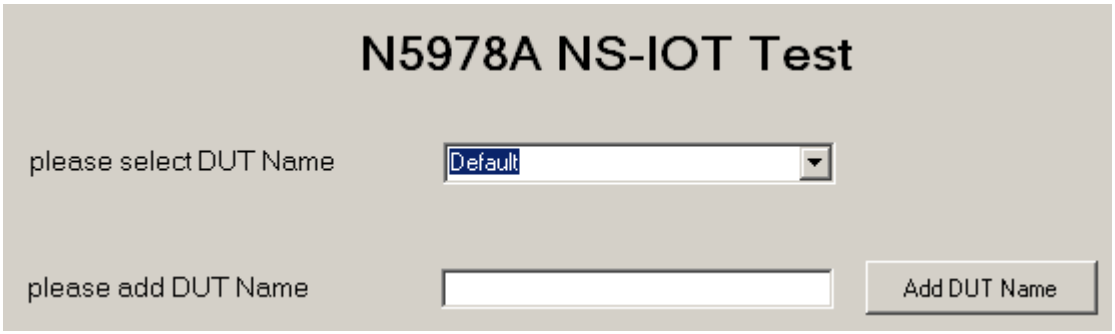
When the script is run, the following message box is displayed.



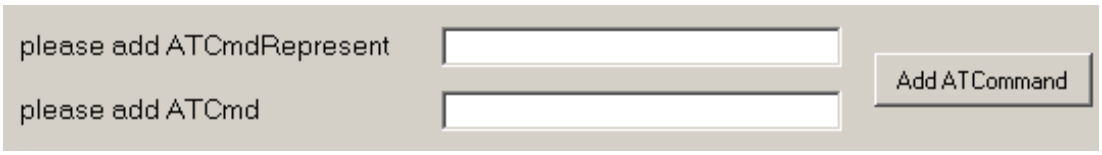
Select one of the DUT names from the drop-down list or add a new DUT name.

The DUTs available from the drop-down list are defined in the Default.txt, located in the Template file. The directory is C:\N5978ATestLogs\Template.

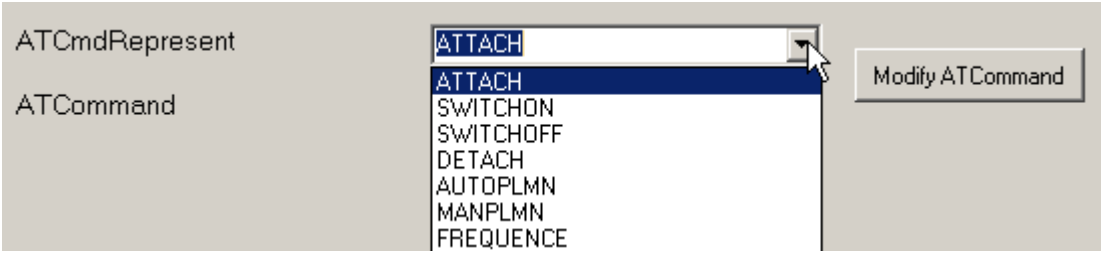
If you select **Add DUT Name**, the new DUT defined in the **please add DUT Name** field is added to the drop-down list.

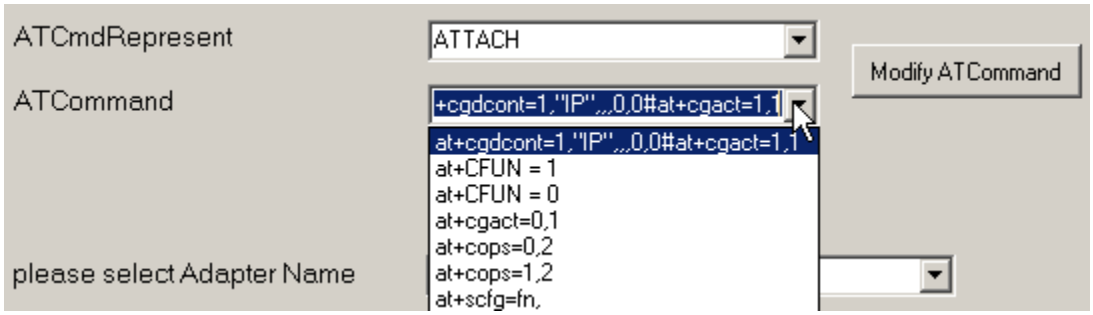


If you select **Add AT Command**, the new parameters defined in the **please add ATCmdRepresent** and **please add ATCmd** field is added to the drop-down list.

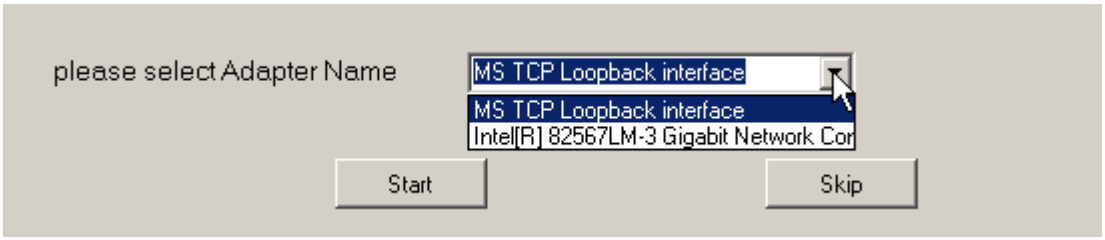


To select or modify the existing parameters from the drop-down list defined in the **ATCmdRepresent** and **ATCommand.**





Select one of the **Adapter Names** from the drop-down list.



Selecting **Start** generates a default DUT-specific settings file for the DUT (if one does not already exist) at this location: C:\N5978ATestLogs\Template\ Default.txt

Table 5-3: UE-specific settings file configuration

ATCmdRepresent	ATCmd
ATTACH	at+cgdcont=1,"IP",,,0,0#at+cgact=1,1
SWITCHON	at+CFUN = 1
SWITCHOFF	at+CFUN = 0
DETACH	at+cgact=0,1
AUTOPLMN	at+cops=0,2
MANPLMN	at+cops=1,2

FREQUENCE	at+scfg=fn

6 Service and Support

Calling Agilent Technologies

Agilent Technologies has offices around the world to provide you with complete support for your products. For help, to obtain servicing information or to order replacement parts, contact the nearest Agilent Technologies office listed on page 14. In any correspondence or telephone conversations, you will need the product number, full serial number, software revision, and any other pertinent contract numbers.

Software and Technical Support Contracts

If you have a Software and Technical Support Contract, there are three methods of accessing your technical support:

- Web-based support: My Support Center
- E-mail support
- Phone support

For fastest response times, we recommend using the web-based or e-mail access methods as these provide the most direct route to your technical support expert. All support cases may be viewed and tracked through the online support center (My Support Center), regardless of how you initially contacted technical support.

NOTE	Software and Technical Support Contracts (STSC) entitle you to software updates and feature enhancements, as well as direct access to technical experts. The N5978AS STSC covers all automation scripts you have purchased for the N5978A.

Web-based support

You can directly enter and manage your support requests online via www.agilent.com/find/mysupportcenter.

The first time you use My Support Center you will be asked to create a profile and provide proof of entitlement. Once your profile is created, you can use the online support center to enter your support request.

Each support request will be given a unique case number which you can use to track the progress of your support case. A technical expert will contact you via phone or email (whichever you have stated as your preferred option) to resolve your issue.

Note: English, Japanese, Korean, and Mandarin local language support is available.

E-mail support

You can also contact our technical support at the following e-mail addresses:

- wireless_test_support_americas@agilent.com
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- wireless_test_support_asia@agilent.com
- wireless_test_support_korea@agilent.com

Your support request will be routed to a technical expert who will contact you via e-mail or phone (whichever you have stated as your preferred option) to help resolve your issue.

Note: English, Japanese, Korean, and Mandarin local language support is available.

Locations for Agilent Technologies

Online assistance: http://www.agilent.com/find/assist

If you do not have access to the Internet, one of these centers can direct you to your nearest representative:

If you have a current STSC for the E6621A, you can contact Agilent at the e-mail addresses listed in "Software and Technical Support Contracts" on page 20.

Should the Declaration of Conformity be required, please contact an Agilent Sales Representative, or the closest Agilent Sales Office. Alternately, contact Agilent at: www.agilent.com.

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