MultiDSLA

Getting Started

Revision 3.4

Malden Electronics Ltd.

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End-user Licence Agreement

In the End-user Agreement below, the following terms are employed with these definitions:

- The End-user is the person or entity that has purchased the Software and is using it in the course of its business.
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  or:

    - right by any other means to elect or appoint directors of the entity (or persons performing similar functions) who have a majority vote.

- The Software is the MultiDSLA application program and related programs including the speech quality metric (s) and firmware that have been supplied to the End-user and have been installed from the original media along with any product enhancements supplied by Malden Electronics Limited and come into being upon a single computer platform.

By installing and using the Software the End-user agrees to the following:

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2. One instance of the Software may be caused to come into being on one computer platform.
3. The Artificial Speech Test Stimulus (ASTS) may only be used for the purpose of making a measurement or a sequence of measurements with the PESQ or PAMS algorithms, as part of which at least one such copy of the ASTS shall be processed through the Software. No more than five simultaneous copies of the ASTS may be being generated at any one time per Device Support Increment.
4. The End-user shall not copy the Software in whole or in part, other than is essential for the proper operation of the Software or for normal security back-up purposes.
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8. The acknowledgement of the rights in the Software shall not be removed from the Software or any installation of it

9. A demonstration version of the Software, or part of it, may be provided and enabled for evaluation purposes only. Access to demonstration Software is time limited. The End-user shall not use the demonstration Software for commercial purposes or publish any results, data or information obtained from the use of demonstration Software.

10. Where the File Processor option is enabled then use is limited to the analysis of simulations or subjective experiments. The File Processor may not be used as part of a client-server structure.

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12. The validity construction and performance of this Agreement shall be governed by and interpreted in accordance with the laws of England.

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Key Management System:

- Malden software is controlled through a Key Management system. When you install the software it is ready for use if a dongle is supplied. If a hard disk-based softkey is to be used then the installation key is created at the end of the installation process. This key should be sent to your supplier for authorisation.

- Malden will replace an existing customer's softkey once due to key transfer/hard disk failure or OS re-installation. On a subsequent softkey loss, the customer must purchase the requisite dongles for the system components. Please contact your supplier if you lose a softkey. The current, full price of the supplied software will be charged for the replacement of a lost dongle.

- A defective dongle will be replaced free of charge once it has been received by Malden. Please contact your supplier to arrange a replacement and a temporary 30-day key.

- A damaged dongle can be replaced once it has been received by Malden. Please contact your supplier to arrange purchase of a replacement dongle and a temporary 30-day key.

Table of Contents

Introduction

This section

- Gives a brief introduction to MultiDSLA.
- Lists the additional product options available for purchase
- Lists the node types supported by MultiDSLA

What is MultiDSLA?

MultiDSLA is a test server. It controls test nodes to measure the transmission quality of communications networks and devices. MultiDSLA is being used in test labs, on manufacturing lines, across international networks and out on the road to measure the transmission quality of communications equipment and networks.

A MultiDSLA solution consists of the following main components:

- MultiDSLA Controller
- Results database
- One or more nodes

MultiDSLA gives you an environment to:

- Script tests to perform the exact test you require
- Schedule testing for unattended operation
- Watch test progress, graphically or through an event log, in real time
- View quick reports of test results
- Drill down into results for close up analysis of issues
- Set alerts to provide notification on test progress

MultiDSLA Options

Additional options which are available to purchase include the following:

- An Artificial Speech Test Stimulus (ASTS)
- Perceptual Evaluation of Speech Quality (PESQ)
- Perceptual Objective Listening Quality Assessment (POLQA)

- Performance Examiner, for detailed analysis of degraded speech artefacts
- Sound file equalisation
- Dual tone, multi-frequency (DTMF) analysis
- A codec library, for the extended VoIP codec selection required for sVN
- The Key Performance Indicator, a rolling results summary of chosen parameters
- Telephone Tester, acoustic tests to ITU-T Rec. P.310/311 and 3GPP2

Note: Additional increments to support more than the basic five devices are available in blocks of five.

Node Types

MultiDSLA supports a variety of node types to allow you to place your test points where you need them in the network.

Node	Type	Description
DSLA II	Analogue Telephone x 2	Connect to the 2-wire telephone socket of a PSTN or PBX
	Analogue Handset x 2	Allow you to connect a telephone handset or the microphone/loudspeaker connector of a PC sound card
	Analogue Balanced x 2	Provides a balanced signal audio connection directly into the DSLA
DSLA C4/C6	Analogue Telephone x 4 or 6	Connect to the 2-wire telephone socket of a PSTN or PBX
	Analogue Handset x 4 or 6	Allow you to connect a telephone handset or the microphone/loudspeaker connector of a PC sound card
ISDN	ISDN Basic Rate	A PCI or PCMCIA card that provides digital connection using ISDN
Scalable Virtual Node (sVN)	SIP	Provides an SIP endpoint to allow controlled testing in a VoIP network. Enables a single PC to run 1, 5, 10 or 20 channels.
	H.323	Provides an H.323 endpoint to allow controlled testing in a VoIP network. Enables a single PC to run 1, 5, 10 or 20 channels.
VoxPort Packet	SIP	An enhanced version of the SIP endpoint provided by Scalable Virtual Node. VPP nodes:

Node	Type	Description
(VPP)		• are multi-core aware, which improves scalability. • are more robust. • offer better call setup diagnostics • are easier to extend in terms of adding SIP features and codecs.
VoxPort Packet+ (VPP+)	SIP	Provides some advanced features useful in test and development labs. These include: ▪ control of codec rate during the call. ▪ managed packet transmission impairment; jitter, loss and sequencing.
Phantom Node	N/A	A network termination point that cannot be directly controlled by MultiDSLA. Other nodes may need to interact with a phantom node in order to perform a test. Examples of phantom nodes include: ▪ Conference Bridge ▪ Interactive Voice Response (IVR) system ▪ Answering Machine ▪ Voicemail Service

Notes:

- MultiDSLA allows you to set a node as uncontrolled. This means that the node will be controlled by another MultiDSLA application. The “local” MultiDSLA expects the “remote” MultiDSLA to behave in a predictable manner, with both copies of MultiDSLA executing the same tasklist.
- Separate Getting Started Guides are available for each of the different test node types.

Installation

This section explains the following:

- Minimum system requirements
- System considerations
- Installation process

Notes:

- The MultiDSLA software is locked to your PC using a software key or a physical dongle. The software key cannot be copied to another PC although it can be transferred to another PC.
- If this is a new installation, install MultiDSLA first. While you are waiting for the software key to be authorised, connect the DSLA(s) to your network and then install the Scalable VN and ISDN options, if applicable.

Minimum System Requirements

Before you install MultiDSLA you should make sure that each computer meets the minimum system requirements:

- **Supported Operating System Minimum Revision Level:**
  - Windows 7 Professional
  - Windows 8 Professional
  - Windows Server 2008
  - Windows Server 2012

Note: Both 32- and 64-bit versions of all the above operating systems are supported.

- **Processor:**
  - Pentium Duo processor or equivalent (Minimum)
  - Intel Core i5 processor or equivalent (Recommended)
- **RAM:**
  - 2048 MB of RAM (Minimum)
  - 4096 MB of RAM (Recommended)
- **Hard Disk:** Up to 2.0 GB of available space may be required

- **Display:**
    - 1366 x 768 high colour (Minimum)
    - 1920 x 1080 high colour (Recommended)

Note: To install MultiDSLA, you must have Administrator rights on the PC.

Installation Process

Dongle Key Installation

1. Insert the dongle in a USB port. The installation process should start automatically. If it does not, follow these steps:
    - From the **Windows Start** menu, select **Run**.
    - Type **<DRIVE>:\autorun.exe** where **<DRIVE>** is the USB drive associated with the dongle.
    - Click **OK**.
2. Select MultiDSLA from the list and click **Install**.
3. The setup program prompts you through the installation process. Follow the instructions on the screen.
4. Start MultiDSLA for the first time by selecting **Start-All Programs-Malden Electronics-MultiDSLA**.

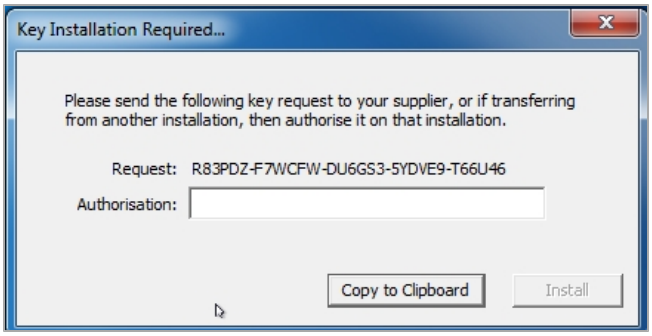
Note: If the dongle is removed, you are given 30 seconds in which to replace it before MultiDSLA is closed.

Software Key Installation

1. Insert the CD in the CD-ROM drive. The installation process should start automatically. If it does not, follow these steps:
    - From the **Windows Start** menu, select **Run**.
    - Type **<DRIVE>:\autorun.exe** where **<DRIVE>** is the CD-ROM drive you are using.
    - Click OK.
2. Select MultiDSLA from the list and click **Install**.
3. The setup program prompts you through the installation process. Follow the instructions on the screen.

4. Start MultiDSLA for the first time by selecting **Start-All Programs-Malden Electronics-MultiDSLA**.

5. When started, the application automatically creates a Request Key and opens the following dialog:



6. Send this Request Key to your supplier, either by email or in a file.

   Your supplier will authorise the key and return a new Authorised Key to you.

7. Enter the Authorised Key in the dialog and click **Install**.

   The installation process is complete.

Uninstalling MultiDSLA

If required, you can uninstall MultiDSLA at any time.

1. Select **Start-Control Panel-Add or Remove Programs**.

2. From the list of currently installed programs, select **MultiDSLA**, and click **Remove**.

Note: This process removes the MultiDSLA Controller, but it does not remove the user files, the database or the softkey, where used. This is because the database relies on Microsoft's SQL Server™, and removing the MultiDSLA database could impact on other applications using SQL Server™. If required, you can clear the database at any time from within MultiDSLA. For more information, refer to the online manual.

Running MultiDSLA

This section contains the following information:

- How to start MultiDSLA
- Navigating in the MultiDSLA Controller window
- How to close MultiDSLA

Starting MultiDSLA

To start MultiDSLA, select **Start-All Programs-Malden Electronics-MultiDSLA**.

Once MultiDSLA has been started, it remains active until you explicitly close it.

MultiDSLA Controller

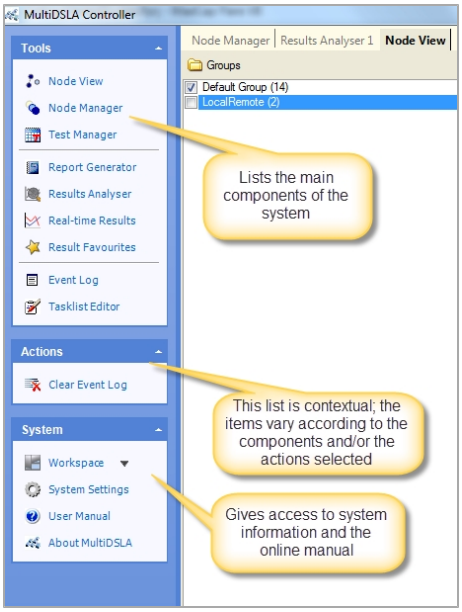
When you start MultiDSLA, the MultiDSLA Controller window opens. The different components of this window are described below.When you start MultiDSLA for the first time, you can see:

- The left-hand panel
- Node View with no nodes created
- An empty Event Log

To see Test Manager and the Tasklist Editor, click the appropriate tab at the bottom left of the Controller window.

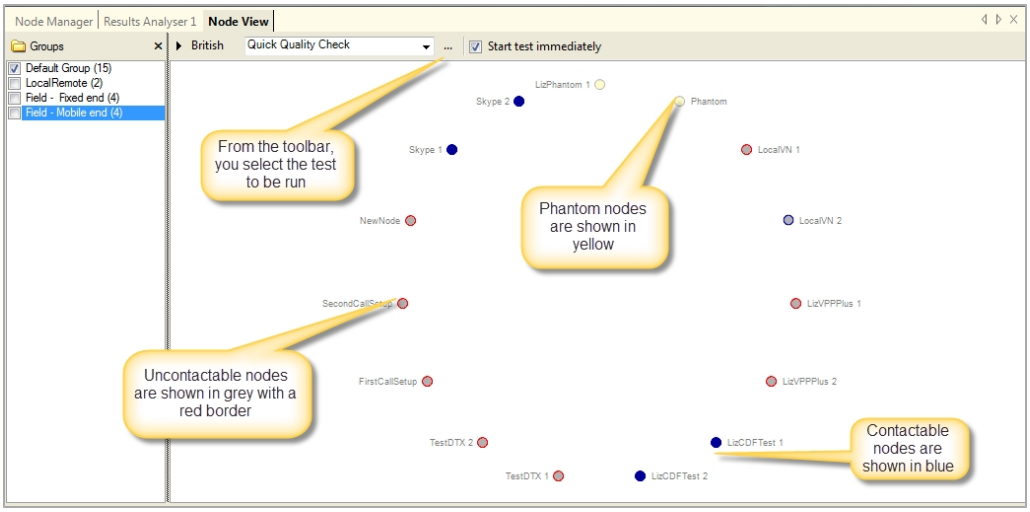
Note: The items on the **Toolbar** vary according to the component and/or the action selected.

Left-hand Panel



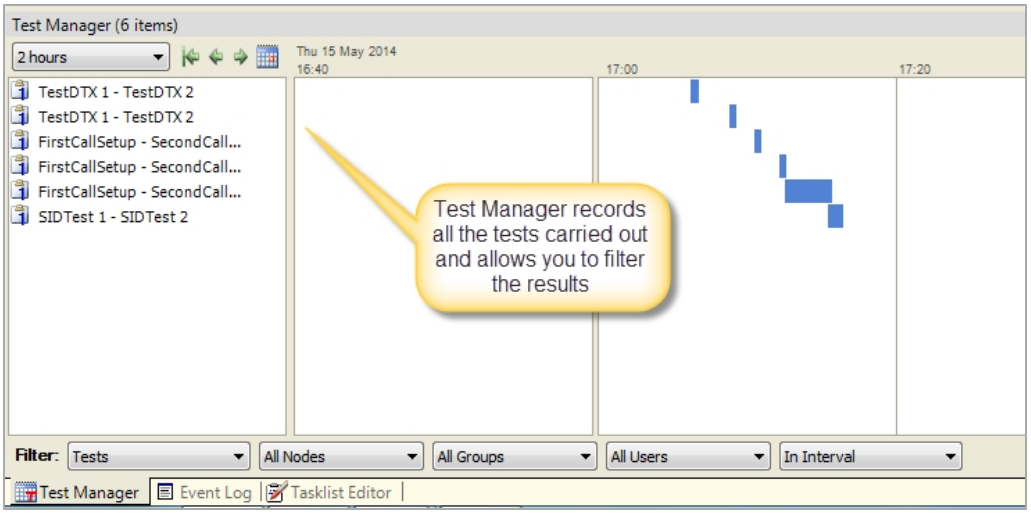
This panel is always visible.

Node View



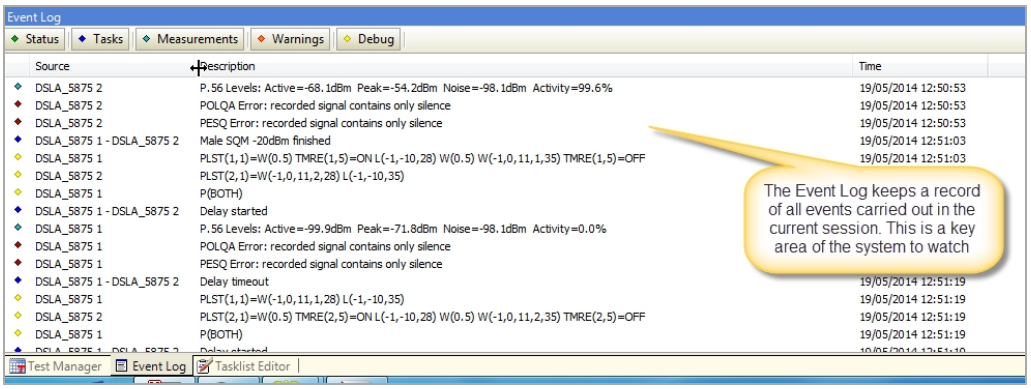
When you start MultiDSLA for the first time, there are no nodes. In the figure above, a number of nodes have been added.

Test Manager



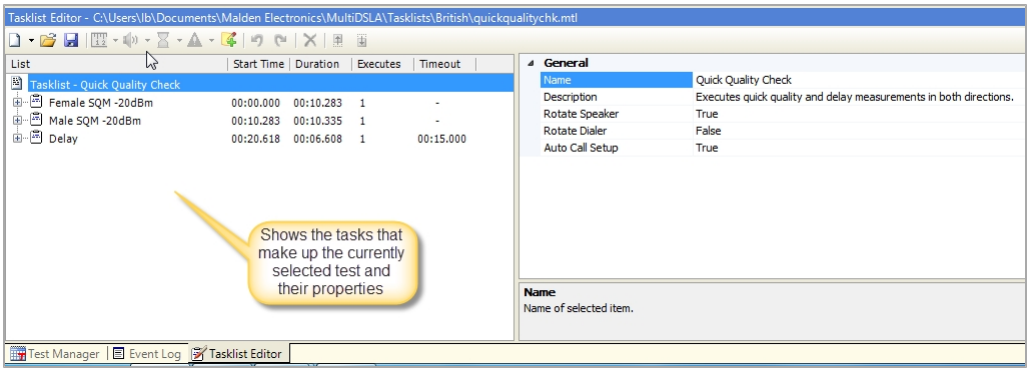
When you start MultiDSLA for the first time, the display is empty, as no tests have yet been carried out.

Event Log



In the figure above, the Event Log is shown after a test has been run, to show the different types of event.

Tasklist Editor



The Tasklist Editor lists the tasks that make up the test that is currently selected in the drop-down list on the Node View toolbar.When you start MultiDSLA for the first time, the selected test is the standard Quick Quality Check.

Basic Navigation in MultiDSLA

When using MultiDSLA, note the following:

- The list of **Tools** always shows the main components of MultiDSLA, but the list of **Actions** and the items on the **Toolbar** vary according to the components and/or the actions selected.
- Click **User Manual** on the **System** panel to see comprehensive help information on all aspects of the MultiDSLA system.
- In **Node View**, contactable nodes are shown in blue; un-contactable nodes are shown in grey with a red border. Hover the cursor over a node name to see basic information about the node.
- A great many additional functions are available from right-click, contextual menus. When in doubt, always right-click to see the options available. For example, to ensure that the Test Manager always shows the current time, select **Now** from the Test Manager right-click menu.
- MultiDSLA windows have an auto-hide feature. The pin icon on the title bar acts as a toggle. When the pin is horizontal, the window is hidden when it is not the active window. When the pin is pointing downwards, the window is always visible. Click on the pin to change its position.

- Using the Tasklist Editor you:
    - Create tasks by building up sequences of standard events
    - Create task lists by building up sequences of tasks
- Each tasklist object has a set of configurable parameters associated with it. Click an object to see its parameters.

Closing MultiDSLA

To close MultiDSLA, click the MultiDSLA icon at the top-left of the screen and then select **Close**.

Using MultiDSLA

Now that MultiDSLA is up and running you can follow the instructions in the online manual to configure the nodes and set alarms, thresholds and other facilities.

This section explains how to do the following:

- Add and configure nodes
- Carry out your first test, the Quick Quality Test, and see the results
- Run your first report

Note: Before you start to add nodes ensure that you have unpacked and connected your DSLAs (if any) and installed the relevant software for the other node types.

Adding and Configuring Nodes

A *node* is a network termination point. Each node has a set of properties including:

- The IP address where the node will be found
- Telephone number and extension

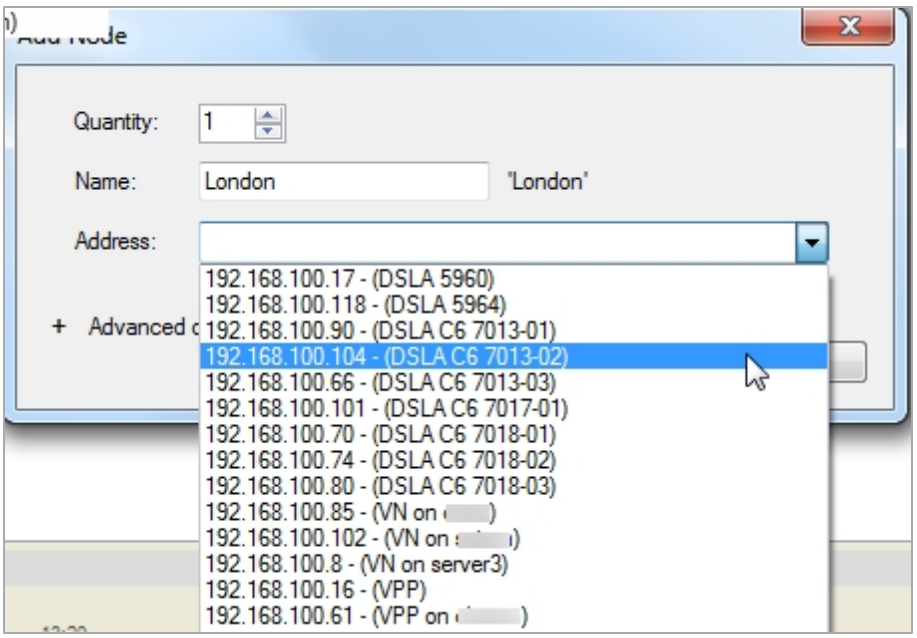
When you start MultiDSLA for the first time, the first thing you need to do is add your required nodes and then configure their properties. Each node has a configuration, known as a *config*, associated with it which lists the properties associated with the node in a convenient, editable format. By default, when you add a node, the node is allocated a generic configuration which depends on the type of node. This generic configuration is always called **default**.

Once you have added one node or a set of nodes, you need to change the properties of the **default** configuration to take account of the requirements of your tests. You should then save the updated configuration with a meaningful name.

Adding Nodes

To add a node:

1. In **Node View**, from the list of actions, select **Add Node**. The **Add Node** dialog opens.



Select the number of nodes you want to add. The maximum number varies according to the type of node, as shown in the table below:

Node Type	Maximum Number You Can Add in One Operation
DSLA (DSLA II unit)	2
DSLA (DSLA C4 unit)	4
DSLA (DSLA C6 unit)	6
IDSN: BRI/PRI	30
E1	31
T1	24
sVN	30
VPP	30
VPP+	30

2. Enter a meaningful name for the node or set of nodes. This name should help you to

identify the node during future testing.

As a guide, it is helpful to include information such as location, the serial number of the DSLA or the reason for the test.

If you are adding a node type that supports more than one channel, for example DSLA, each channel will be added as a separate node.

For each node you create with the same base name, an incremental number is automatically added to the node name; For example if the base name is "TestNode", the first node created is "TestNode 1", the second node is "TestNode 2", and so on.

Note: Node names can have a maximum of 20 characters. If required, as well as alphanumeric characters, node names can contain the characters + and period (.).

3. In the **Address** field do one of the following:

   - Select the required IP address from the drop-down list.

     The node type is taken from the IP address. The node type is listed after each IP address.

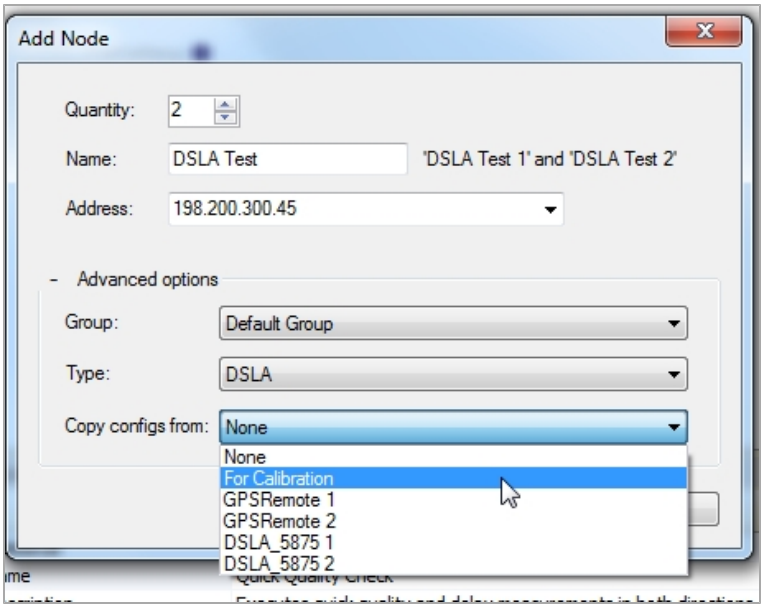
     For DSLA nodes, the serial number of the DSLA is also provided; for example: **189.123.212.14 - (DSLA 4567)**

   - Enter the IP address of the node directly.

     Note: You must do this if the PC on which the node is to reside is not currently accessible on the LAN.

When you add a DSLA node, and that node is identified as being part of a DSLA C4 or C6, all 4 or 6 nodes respectively are always added unless you explicitly change the number before you click **OK**. If certain sections of a C4 or C6 unit are unreachable because they are switched off or on a remote network, then all the 4 or 6 nodes are added, but the entry in the **Address** column in Node Manager for these nodes is blank.

If you specify an unreachable IP address, MultiDSLA cannot identify the node type. In this case, the **Advanced Options** dialog opens to allow you to specify the node type.



4. From the **Group** drop-down list, select the group to which the node(s) are to be allocated. By default there is only one group, the **Default Group**, but you can add as many groups as are required. Refer to the online manual.

5. From the **Type** drop-down list, select the node type.

6. From the **Copy configs from** drop-down list, you can choose to allow your new node or set of nodes to inherit a configuration from an existing node of the same type.

   Note: If you do not select a configuration, your node(s) will be allocated a default configuration that you will need to edit.

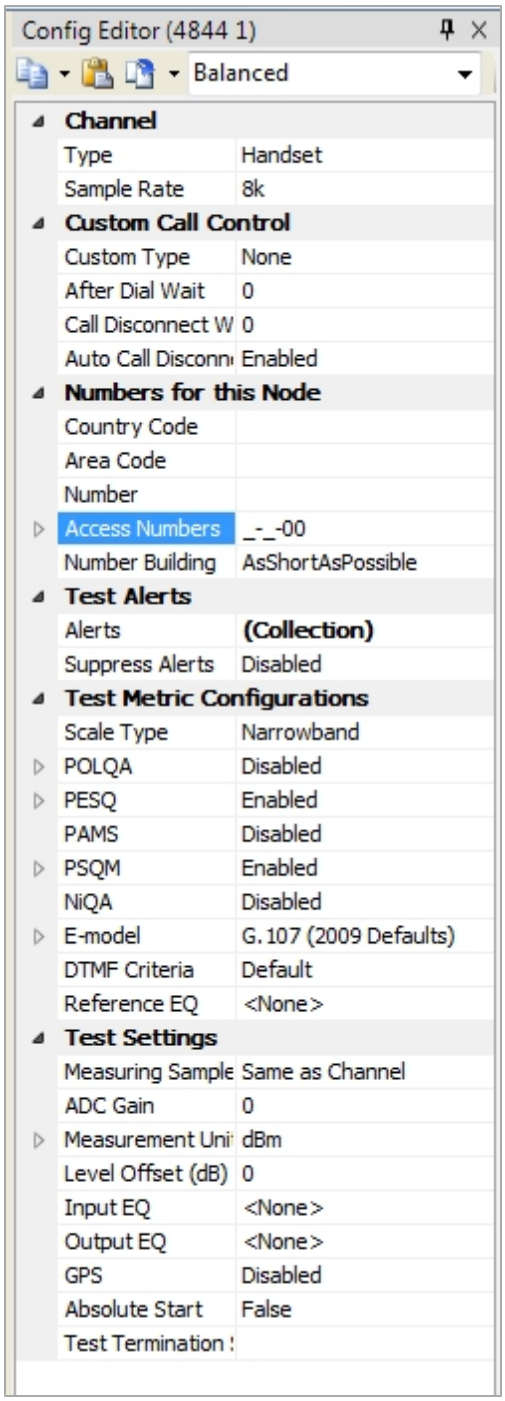
7. Click **OK**.

   Node Manager opens with the Config Editor showing the specified configuration for the node you have just added. In Node Manager, you can see a list of the nodes that have already been added. From Node Manager, you can rename existing nodes and edit configurations. For more information, refer to the online manual.

8. Edit the configuration(s) as required.

Configuring Nodes

An example of a simple node configuration is shown below:



When you are configuring a node, note the following:

- For some parameters you are required to enter a value directly, while you select other parameters from drop-down lists. To check whether a drop-down list is available, click a property. A drop-down list is indicated by a down arrow. Click the down arrow to see the list of available values.
- In some cases changing the value of one parameter causes other parameters to change automatically.
- When you select a parameter a description of the parameter is provided in the field at the bottom of the parameter list. A sequence of dots at the end of a description indicates that not all the text is displayed. To see all the text, place the cursor on the top border of the description field and drag the cursor upwards.
- In some cases you may want to assign more than one configuration to a node. A typical example of this is a set of scalable Virtual Nodes for which you want to test more than one codec. For more information on managing multiple configurations, refer to the online manual.
- Once you have finished configuring a node, you are strongly recommended to give the configuration a meaningful name. For example:
    - If you have connected Channel A Balanced terminals to Channel B of the DSLA, you may want to change the name of the configuration to Balanced.
    - If you want to test sVN or VPP nodes with different codecs, you may want to name each configuration according to the codec.

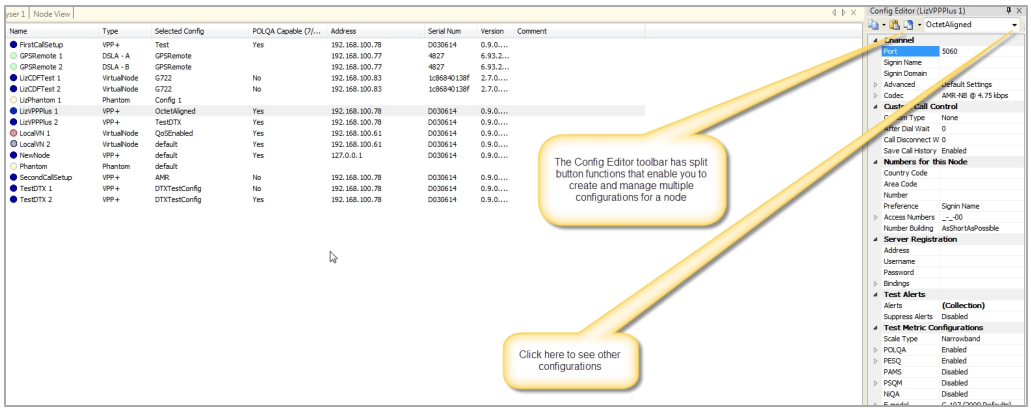
  To change the name of a configuration, select **Save As** from the Organise Config split-button menu on the Config Editor toolbar. For more information, refer to the online manual.

Using Node Manager

Using Node Manager you can add new nodes and reconfigure existing nodes.

To display the Config Editor, do one of the following:

- Double-click on a node in the list.
- From the list of **Actions**, select **View/Edit Configs**.



The Config Editor has split button functions that allow you to create and manage multiple configurations for the same node. You can select the available configurations from the drop-down menu on the Config Editor toolbar.

Running Your First Test

This section describes everything you need to know in order to run your first test.It covers the following topics:

- The pre-defined tests supplied with MultiDSLA
- How to select a test
- The basic concepts you need to be familiar with before you run a test
- How to view your test results

Speech Quality Tests

MultiDSLA is supplied with a number of pre-defined speech quality tests. The six most common tests are described in the table below:

Test	Description	Time Taken (Approx.)
Connection Test	Confirms that two nodes are connected and that a speech path can exist between them.	20 seconds
Quick Quality Test	Runs two speech quality tests in each direction and measures the delay.	2 minutes
Full Quality Check	Assesses speech quality through a number of tests in each direction using a wide range of speech sounds and measures the delay.	5 minutes
Engineer Evaluation	Performs a thorough speech quality test using a wide range of speech sounds at different levels and measures delay and echo level with delay.	More than 10 minutes
E--Model (PESQSYNC)	Calculates the E-model R Factor based on PESQ, delay and echo measurements for synchronised nodes. (Narrowband measurements only).	2 minutes (depending on Call Setup)
E-Model (POLQASYNC)	Calculates the E-model R Factor based on POLQA, delay and echo measurements for synchronised nodes. (Narrowband measurements only).	2 minutes (depending on Call Setup)

Sample Sound Files for Testing

MultiDSLA with the PESQ option has tests which use the Artificial Speech Test Stimulus (ASTS) files located in the folder **<WorkingDir>/Phonytalk**. 8k and 16k sample rate files are supplied in either American or British versions. The MultiDSLA application and DSLA firmware will select the appropriate 16k or 8k files depending on the sample rate setting in the node configuration. You do not need to make any changes to the tasklists as long as the ASTS files are in the **Phonytalk** folder.

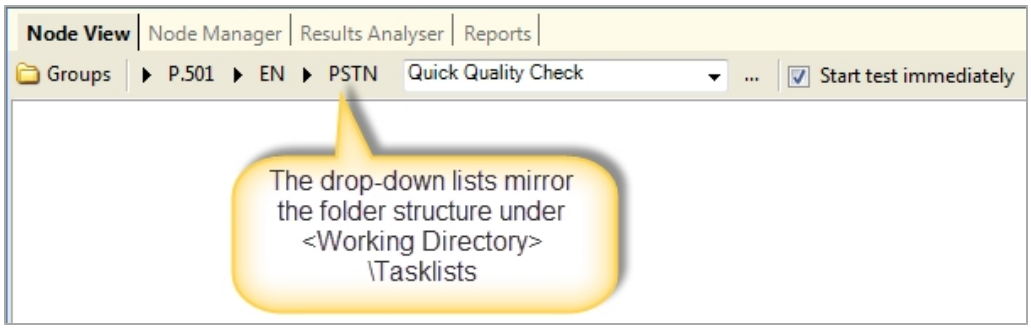
MultiDSLA with the POLQA option has tests which use files from ITU-T Rec. P.501 which are also located in the folder **<WorkingDir>/Phonytalk**. 8k, 16k, 32k and 48k sample rate files are supplied. The MultiDSLA application and DSLA firmware will select the appropriate 8k, 16k, 32k or 48k files depending on the sample rate setting in the node configuration. You do not need to make any changes to the tasklists as long as the P.501 files are in the **Phonytalk** folder.

For each DSLA or other node that is added to the system a set of ASTS or P.501 files must be copied from the PC into the memory of the node. MultiDSLA can upload the sound files automatically each time you add to your system a node for which sound files have not already been uploaded.

Note: You can also store your own sound files in the **Phonytalk** folder for use in tasklists. These files must be 16-bit linear PCM WAV files.

Selecting a Test

You select the test to be run from the drop-down list in the **Node View** toolbar.



The test may be one of the pre-defined tests, or it may be one that you have created yourself. By default the test is run immediately, but if required, you can schedule tests to run in the future. If you deselect the checkbox labelled **Start test immediately**, the **Define test** window opens to allow you to schedule one or more tests to be run in the future.

Basic Concepts

Before you run a test, you need to understand the relationship between tests and *tasklists*, and between node configurations and tests.

- A tasklist is a sequence of *tasks*.
- A task is a sequence of *events*.
- An event is a pre-written subroutine.
- A test is equivalent to a *tasklist*. A test will run a tasklist one or more times between two or more nodes according to a user-defined schedule.
- A *measurement* is a task that produces results.

Using the **Tasklist Editor**, you can create your own test by building up a tasklist.

The following types of file can also be used within a tasklist:

- Sound files that you have stored in the Phonytalk folder (local files)
- Files that have been downloaded to DSLA memory

The node configurations supply the parameters to be used for the tests. The use of node configurations means that the tests can be generic and that one tasklist can be used to test a number of different conditions.

Notes:

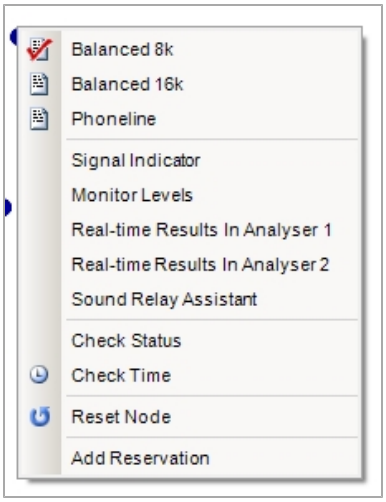
- If you are unsure whether the nodes you want to test are connected, you are recommended to run the Connection Check test before the Quick Quality Check.
- Ensure that you are using the correct configuration for each node.See Running the Quick Quality Check below.

Running the Quick Quality Check

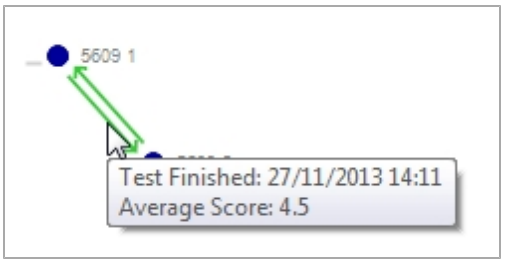
To run the Quick Quality Check test:

1. In **Node View**, from the **Test** drop-down list, select **Quick Quality Check**.
2. Select one node (the **calling** node) and drag the cursor over to another node (the **called** node). This starts the test between the two nodes. A dotted line is displayed as each task is carried out. When the test is finished, these lines become green, orange or red, depending on the quality of the results of the test; good, acceptable, or poor.

   Note: If the nodes you are testing have more than one configuration, before you run the test, in **Node View**, right-click on each node to ensure that you are using the correct configuration, as shown in the figure below. To ensure the integrity of the test, you must select an appropriate configuration for each node.

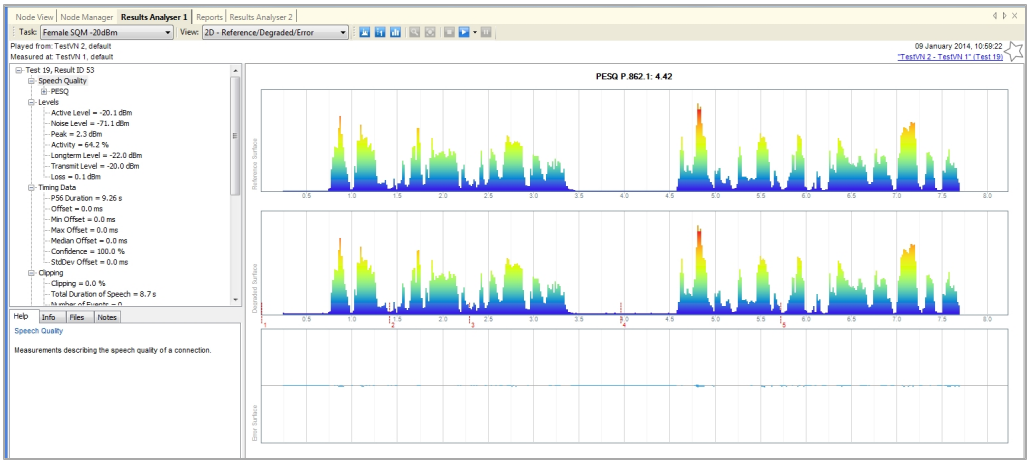


3. When the test is finished, hover the cursor over the lines to show a summary of the test result, as shown in the figure below.



Note: If you are using a DSLA with its balanced terminals connected together you should see a P.862.1 score of 4.5

4. Double-click on the lines to see the test result in detail, as shown in the figure below. The **Results Analysis Viewer** clearly shows the levels and quality of speech.



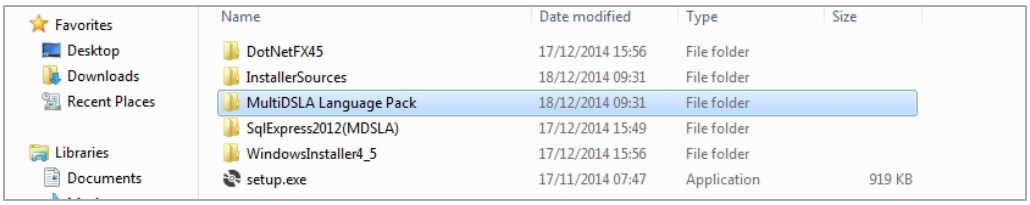
Note: MultiDSLA allows you to have two instances of the Results Analyser open at the same time, as the best way to solve a problem is often to compare 'good' test results with 'poor' test results. By default, the first Results Analyser view, **Results Analyser 1**, opens. When Results Analyser 1 is open, you can open the second Results Analyser view by selecting **Open 2nd Analyser** from the **Actions** panel on the left-hand side of the MultiDSLA Controller window. A new window called **Results Analyser 2**, opens next to Results Analyser 1.

Using the MultiDSLA Language Pack

The MultiDSLA Language Pack, supplied on the dongle or the CD as part of the MultiDSLA installation, contains speech files and tasklists which enable you to test speech quality using the languages listed below:

- Chinese
- Dutch
- Finnish
- French
- German
- Italian
- Japanese

The figure below shows the Language Pack listed in the set of installer files.



Contents of the Language Pack

The folder MultiDSLA Language Pack contains two sub-folders:

- **Speech Material**, which contains the sets of speech files for each supported language.
- **Tasklists**, which contains the sets of tasklists for each supported language.

Both sets of files are labelled as follows:

Language	Folder Label
Chinese	CN
Dutch	NL
Finnish	FI
French	FR
German	DE
Italian	IT
Japanese	JP

In order to use these files in tests, you need to do the following:

- Copy the relevant contents of the **Speech Material** folder into the folder **<MultiDSLAWorkingDirectory>\Phonytalk\P.501C**.
- Copy the relevant contents of the **Tasklists** folder into the folder **<MultiDSLAWorkingDirectory>\Tasklists\P.501C**.

How to Use Language Pack Speech Files in a Test

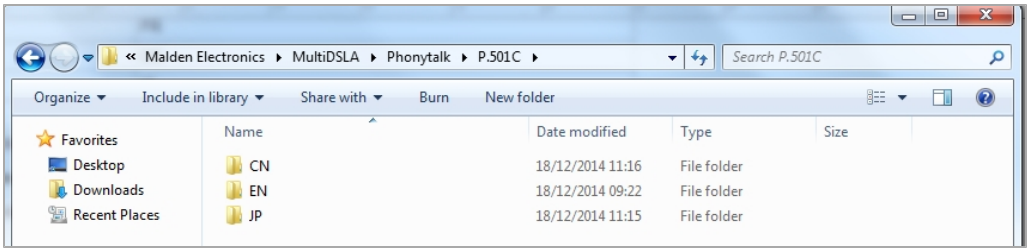
When you have installed MultiDSLA:

- The folder <MultiDSLAWorkingDirectory>\Phonytalk\P.501C contains the sub-folder labelled **EN** which contains speech files in English.
- The folder <MultiDSLAWorkingDirectory>\Tasklists\P.501C contains the sub-folder labelled **EN** which contains tasklists which support English speech files.

As an example, let us assume you want to run tests involving Chinese and Japanese speech files. Carry out the following steps:

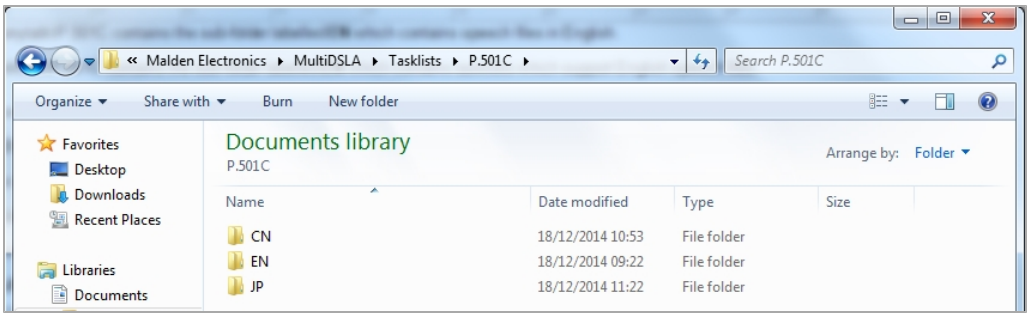
1. In the installation folder, find the folder **MultiDSLA Language Pack**.
2. In the sub-folder **Speech Material**, select the sub-folder **CN**, which contains the Chinese speech files.
3. Copy the CN folder into the folder **<MultiDSLAWorkingDirectory>\Phonytalk\P.501C**.
4. Go back to **Speech Material** and select the sub-folder **JP**, which contains the Japanese speech files.
5. Copy the JP folder into the folder **<MultiDSLAWorkingDirectory>\Phonytalk\P.501C**.

   <MultiDSLAWorkingDirectory>\Phonytalk\P.501C now has the following contents:



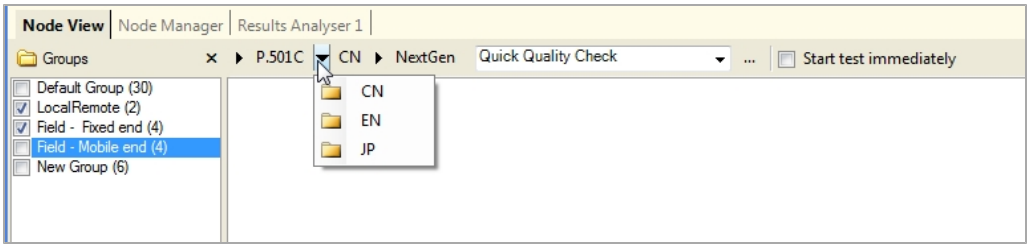
6. In the sub-folder **Tasklists**, select the sub-folder **CN**, which contains tasklists which support the Chinese speech files.
7. Copy the CN folder into the folder **<MultiDSLAWorkingDirectory>\Tasklists\P.501C**.
8. Go back to **Tasklists** and select the sub-folder **JP**, which contains tasklists which support the Japanese speech files.
9. Copy the JP folder into the folder **<MultiDSLAWorkingDirectory>\Tasklists\P.501C**.

   <MultiDSLAWorkingDirectory>\Tasklists\P.501C now has the following contents:



10. Start MultiDSLA.

11. In Node View, select the test you want to run. The drop-down lists mirror the folder structure under **<MultiDSLAWorkingDirectory>\Tasklists**.



Running Your First Report

This section explains:

- The different types of report you can run
- How to run a report

MultiDSLA Reports

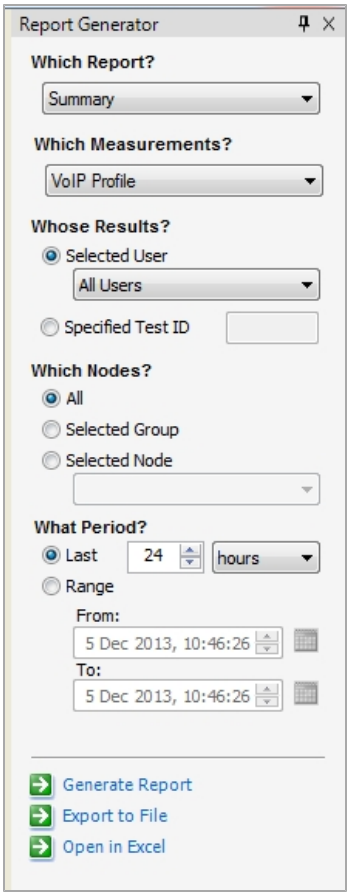
Using the Report Generator you can run four different types of report. These reports are described in the table below.

Report	Description
Summary	Presents the principal measurements in histogram format, with an indication of pass or fail
Connections	Shows an ordered list of node pairs that have been tested, with the worst at the top
Trend	Shows the variation of different measured parameters over time
KPI	Shows up to four metrics measured at a node, and updates the display automatically as new measurements are carried out (purchased option)

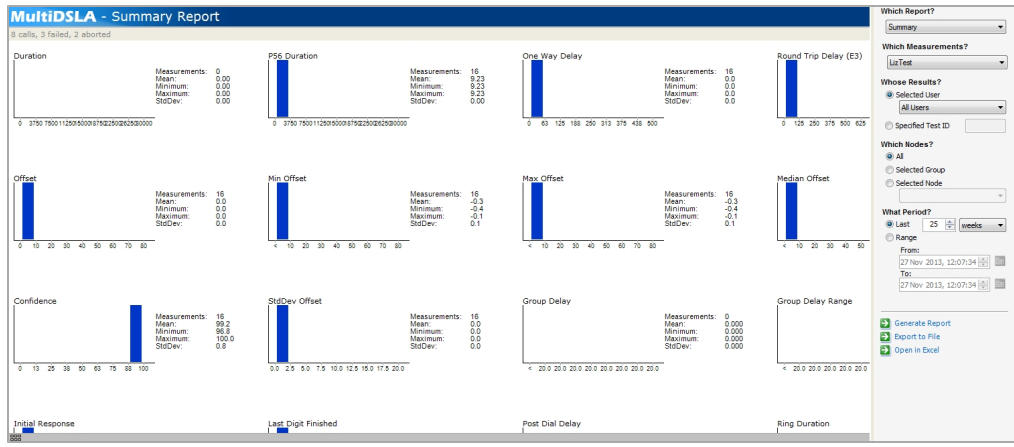
Running a Report

To run a report:

1. In the list of **Tools**, select **Report Generator.** The Report Generator window becomes active.



2. Select the type of report you want to run.
3. If applicable, select the results and/or nodes you want to use and the period or range.
4. Select **Generate Report**. Your report is generated as shown in the figure below.The example is of a Summary report.



5. Click on a particular value to see a list of the tests that achieved that value.

6. In the list of tests, click on a test to see the detailed results of that test. This is the same as directly viewing the results of a test, as shown in Running the Quick Quality Check above.

Frequently Asked Questions

Q. Do we need a separate licence for each installation of MultiDSLA?

A. Yes. Each installation can share the same nodes and access the channels independently. For example, User 1 on PC 1 could be using channel A on DSLA 1 and channel A of DSLA 3. While User 2 on PC 2 could be using channel B on DSLA 1 and channel B on DSLA 3 at the same time.

Q. What does the colour scaling indicate in the PESQ view in the Results Analyser?

A. It allows you to differentiate the differences between signal energy at different times – particularly in the 3D views of the auditory sensation surfaces. Signal energy is indicated from blue – low signal energy, to red – high signal energy.

Q. What is the difference between the SP and IRS speech sets?

A. The SP speech set contains utterances that are flat to 4kHz or 8kHz and are ideally suited for use where a wide bandwidth signal is expected, for example, into a standard mouth acoustically coupled to a microphone. The IRS speech set contains utterances that are bandwidth limited using the Intermediate Reference System Send characteristic (ITU-T Recommendation P.79) and are ideally suited for direct injection into the telephone network.

Q. How do I set-up a centralised results database on an internal network?

A. During the installation process, you select Custom Installation, and then either select to install the MultiDSLA Controller and the database on different machines, or to install only the MultiDSLA Controller. In this way you can set up a structure where a number of MultiDSLA controllers, all on different machines, can communicate with a central database.

Q. What is the meaning of the Offset Confidence figure shown with PESQ?

A. The confidence figure is a percentage value, showing the reliability of the offset figure that has been calculated.

Q. Can I use my own speech files and is there a length restriction?

A. Yes; place the files in a sub-directory of the Phonytalk folder and upload them to your nodes in the same directory structure. The only restriction is that the files are stored as 16-bit linear PCM wav header files at a 8k, 16k,32k or 48k sample rate. You can use any length signal you require, although longer files will be streamed from the DSLA during testing as the DSLA has limited internal memory storage.

Q. What are the port numbers that MultiDSLA uses to communicate with each device?

A. The port numbers that MultiDSLA uses to communicate with each device are listed in the table below.

Application	Port Number	Use	Comments
DSLA	6010	Communications	
	6011	Channel A streaming In/Out	
	6012	Channel B streaming In/Out	
	6013	Channel A Comms	
	6014	Channel B Comms	
	6015	Remote I/O Communications	
ISDN	6020	Communications	
sVN/VPP	5060	SIP signalling	VN opens this port only during an active test. When no tests are running this port is closed.
	1720	H.323 signalling	H.323 is not supported for VPP nodes.
	6030	sVN communications	
	6040	VPP communications	
	50000+	RTP, +2 for each new call	Ports above 50000 are re-used sporadically in line with RTP standard.

Q. Where can I get the latest version of the MultiDSLA software?

A. For the latest MultiDSLA software updates and information, visit our website at: http://www.malden.co.uk

Conformance with ITU-T Recommendations

MultiDSLA supports the following standards:

- The mean active speech level is measured in accordance with ITU-T Recommendation P.56 Method B.
- Perceptual Objective Listening Quality Assessment (POLQA) conforms with ITU-T Rec. P.863.
- Perceptual Evaluation of Speech Quality (PESQ) conforms with ITU-T Rec. P.862.
- PESQ with mapping to LQO conforms with ITU-T Recommendation P.862.1.
- PESQ-wideband conforms with ITU-T Recommendation P.862.2.
- Perceptual Speech Quality Measurement (PSQM) was formerly ITU-T Rec. P.861.
- E-model and R-Factor conform with ITU-T Recommendation G.107.

Glossary of Terms and Abbreviations

ASTS	Artificial Speech Test Stimulus
DSLA	Digital Speech Level Analyser
DTMF	Dual Tone, Multi-frequency
G.107	ITU Recommendation G.107 gives the algorithm for the so-called E-model as the common ITU-T transmission rating model.
H.323	ITU standard for real-time multimedia communications and conferencing over packet-based networks
IRS	Intermediate Reference System Send Characteristic filtering
ISDN	Integrated Services Digital Network
ITU	The International Telecommunications Union
ITU-T	International Telecommunications Union - Telecommunications
IVR	Interactive Voice Response
KPI	Key Performance Indicator
P.48	ITU Recommendation P.48. Specification for an Intermediate Reference System (IRS)
P.56	ITU Recommendation P.56 for Objective Measurement of Active Speech Levels Method B
P.800	ITU Recommendation P.800 for Subjective determination of Transmission Quality
P.830	ITU Recommendation P.830 for Subjective performance assessment of telephone-band and wideband digital codecs
P.861	ITU Recommendation P.861 for Objective quality measurement of telephone-band codecs (300-3400 Hz)
P.862	ITU-T Recommendation P.862 for Perceptual Evaluation of Speech Quality (PESQ), an objective method for end-to-end speech quality assessment of networks and speech codecs
P.863	ITU-T Recommendation P.863 for Perceptual objective listening quality assessment
PAMS	Perceptual Analysis Measurement System
PBX	Private Branch eXchange
PESQ	Perceptual Evaluation of Speech Quality
POLQA	Perceptual Objective Listening Quality Assessment
PSQM	Perceptual Speech Quality Measurement
PSTN	Public Switched Telephone Network
RMS	Root-Mean-Square
SP	Flat frequency response speech set

Contacting Malden Electronics

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Web:	www.malden.co.uk

Software Updates

The latest releases and upgrades for MultiDSLA are always available from the Malden Maintenance Portal. To access the Portal:

1. In your browser, enter the URL: http://software.malden.co.uk/.

   The Maintenance Portal Login Screen is displayed.

2. Follow the instructions on the screen to create a new account.

   An automated email is sent to you containing a link.

3. Click the link to activate your account.

   Once your account has been activated, you are prompted to register your product.

4. Select **Start-All Programs-Malden Electronics-Malden Tools-Key Manager**.

   The Malden Key Manager dialog opens.

5. Click the **Installed Keys** tab.

   The serial number for MultiDSLA is listed.

6. On the Maintenance Portal registration screen, enter the Product Serial Number for your product and click **Register**.

When you have registered your product, you can access all the latest releases and upgrades from the Maintenance Portal. Previous releases of the product are available from the archive.

Technical Support

In the event that you are unable to carry out tests or measurements using MultiDSLA, you should first try to resolve your problem by searching this guide and the online manual. If you still cannot solve the problem, you can obtain product support in the following ways:

- If you purchased your MultiDSLA through a distributor then contact your supplier.
- If you purchased your MultiDSLA directly from Malden Electronics Ltd then either contact us by telephone or email Technical Support at support@malden.co.uk. You will receive a reply by email.

The minimum data you are required to supply is as follows:

- The version numbers of all your Malden Electronics Ltd. software
- A description of the network under test, including protocols
- A trace of a successful call setup by equipment that works on the network
- A corresponding trace from the same network with a failing call setup.

Note: If your problem involves VPP nodes, you should run a diagnostic trace from Node Manager on tests involving those nodes. For more information, refer to the VoxPort Packet (VPP) Getting Started Guide.

In the event that your supplier is unable to resolve the problem, the diagnostic information will be sent to Malden Electronics Ltd. for further investigation. Insufficient data will delay resolution of the problem.

Malden Express Setup

Malden Express Setup (MES) is a facility whereby Malden Electronics will provide you with all the MultiDSLA components ready-configured to enable you to carry out complex tests including drive tests, three-way calling and conference calling. All the data is delivered to you in a file that you can drop into a clean MultiDSLA target system. After importing the components, you will have the correct environment to carry out your tests.

To find out if your organisation would benefit from MES, please contact us by telephone or email Technical Support at support@malden.co.uk.

More information on MES is available in the MultiDSLA online manual.