Lab Advisor Relay Service Overview

The Agilent Lab Advisor Relay Service enables the Lab Advisor software to connect instruments that are located on a network with a different subnet. This is being achieved by installing and using a Port Forwarding Service located on a PC equipped with two network cards. One network card is responsible for each of the separate networks.

These types of setup are typical in networked laboratories where an instrument controller is installed with two network cards and applications are running on a server, but can also occur if instrumentation is being addressed that produces large amount of data and therefore needs to be separated from the company network.
Installing the Lab Advisor Relay Service

The Agilent Lab Advisor Relay Service is installed in a two-step process. The first step is to install the Service on the Instrument Controller PC. This is followed by the installation of the Agilent Lab Advisor Relay App into an existing Agilent Lab Advisor installation on an application host PC. The Agilent Lab Advisor Relay App is used to configure and control the Lab Advisor Relay Service on the Instrument Controller PC(s).

Installing the Service

**Hardware required**
Instrument Controller PC with two Network cards installed.

**Software required**
Windows XP SP3 or Windows 7
Agilent Lab Advisor B.02.03 or higher

1. To install the Service, double-click the `setup.exe` file in the `RelayServiceInstaller` folder and follow the instructions.

2. To upgrade the Lab Advisor Relay Service, uninstall the previous revision and start the `setup.exe` as described in Step 1. The configuration of the service will not be affected by the update.

**NOTE**
If the installation is being performed on a Microsoft Windows 7 OS, right-click the `setup.exe` file and select Run as administrator.
3 To uninstall the Lab Advisor Relay Service, open the Add/Remove programs tool in the Control Panel of Windows. Navigate to the Agilent Lab Advisor Relay Service and click Uninstall.

Installing the App (Lab Advisor B.02.03 only)

1 To install the Lab Advisor Relay Service App, open the LabAdvisorApp folder and copy the files it contains (do not copy the folder). Navigate to the Lab Advisor program files (for example, C:\Program Files (x86)\Agilent Technologies\Lab Advisor), open the Apps folder and paste the files into the folder.
2 Navigate back to the installation folder and copy the IQT Lab Advisor Relay Service App `xxbit` folder to `C:\Program Files (x86)\Agilent Technologies\Lab Advisor\IQTool\IQProducts`. Which of the available IQT Lab Advisor Relay Service App folders that needs to be copied depends on the Operating System of the computer.

![Image of directory structure]

3 To upgrade the Lab Advisor Relay Service App, replace the files in the `C:\Program Files (x86)\Agilent Technologies\Lab Advisor\Apps` folder, and replace the IQ folder in, for example, `C:\Program Files (x86)\Agilent Technologies\Lab Advisor\IQTool\IQProducts`.

**NOTE**

The upgrade step applies to Lab Advisor B.02.03 only.

### Running a Software IQ

1 To run an IQ on the Lab Advisor Relay Service App installation, start the IQ tool in Start\All programs\Agilent Lab Advisor\Installation Qualification.

2 Select Lab Advisor Relay Service App and press **Qualify**.

### Using the Lab Advisor Relay Service

The Agilent Lab Advisor Relay Service running on an Instrument Controller PC does not have its own user interface, but is controlled via an App screen in an Agilent Lab Advisor installation.

### Configuring the Lab Advisor Relay Service

1 To configure the Agilent Lab Advisor Relay Service, open the Lab Advisor software, then click **Apps** in the Navigation panel and select **Lab Advisor Relay Service** in the Apps screen.

The relay Service user interface is displayed.
1. Symbolizes the computer on which the Lab Advisor including the Agilent Lab Advisor Relay Service App is installed
2. Symbolizes the Instrument Controller PC on which the Agilent Lab Advisor Relay Service is installed
3. Deletes this Relay from the Lab Advisor configuration (not the Relay itself)
4. Sends changes that have been done to the Relay
5. Adds a connection to the Relay
6. Undoes changes that have been done
7. Tests all connections configured for the Relay
8. Adds a Relay to the Agilent Lab Advisor configuration
9. Exports the Agilent Lab Advisor Relay configuration to a CSV file
10. Imports a CSV configuration file
11. Prints an installation and configuration report of the Relays
12. Opens the Relay terminal for advanced setup and troubleshooting
Table 1  
Relay Color Coding

- The connection is configured and active. A Lab Advisor installation is currently connected to the Instrument Controller/instrument.
- The connection is configured but not active. This information is returned from the Relay.
- The connection has been created in Lab Advisor, but the Relay has not yet been updated.
- The connection test failed to establish a connection to the specified address.

Adding a Relay

1. To add a new Relay click **Add Relay**.

The **Add Relay** dialog box is displayed.
2 Enter the IP address or Hostname of the Instrument Controller PC in the IP Address/Hostname field and click OK.

If the Service is up and running on the Instrument Controller PC, and the Lab Advisor is capable of communicating with it, the Relay connection shows a line of green arrows.

Adding a Connection

1 To add an instrument connection, click Add Connection.

2 Enter the port number to be used. The software automatically suggests a new port in the 91xx range.

3 Enter the IP address or host name of the instrument and click Update Relay.
If the service has been successfully updated, it shows a blue line of arrows. This does not indicate that the connection is working, but merely that it has been successfully transferred to the Relay.

**Testing an Instrument Connection**

A connection test is available to test a configured connection all the way from the currently installed Lab Advisor, through the Instrument controller PC, to the instrument.

1. To test a single connection, click at the right of the connection display.

The **Connection Test** dialog box is displayed, where you can start the connection test.
2 Click **Test Connection** in the **Connection Test** dialog box.

The connection test returns a passed/failed statement. If the connection test passes, it also lists the devices found, with type and serial number, so that you can verify that it is connecting the correct system.

You can also click **Copy IP Address to Clipboard** to copy the instrument address to the clipboard for use during setup of the instrument in the **System Overview** of the Lab Advisor.

**NOTE**

**Test all** carries out a connection test on all available connections and returns a passed/failed statement (and, if successful, a list of devices) for each one.

**Documenting the Configured Relays**

1 To document the configured Relays and the tests that have been performed, click **Print Report**.

The **Print Relay Report** dialog box is displayed.
2 Mark the check boxes against the Relays that should be reported. Additionally, you can specify that the report should contain a signature line.

3 Click **Print**.
   The report is generated. The report contains the following information:
   • Lab Advisor revision
   • Lab Advisor Relay Service App revision
   • Relay address
   • Relay Service status
   • Hostname of instrument controller PC
   • Relay Service revision

4 If you want to generate a list of the Relays with the configured connections, mark the **Print Service Configuration Information** check box.
This also adds information of any connection test results that have been performed. The generated report contains additional detailed information about the configured Relays and their connections.

Export and Import Configurations

If a large number of instruments and/or relays are to be setup on multiple Lab Advisor installations, it is possible to distribute the setup information via a CSV export/import function in the Lab Advisor Relay Service App.

The format of the table in the CSV file is as follows:

<table>
<thead>
<tr>
<th>Instrument Controller IP Address</th>
<th>Instrument Controller Name</th>
<th>Port</th>
<th>Instrument IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>134.40.29.83</td>
<td>LABADVISORRELAY</td>
<td>9100</td>
<td>192.168.254.11</td>
</tr>
<tr>
<td>134.40.29.83</td>
<td>LABADVISORRELAY</td>
<td>9101</td>
<td>rrlc1</td>
</tr>
<tr>
<td>134.40.29.83</td>
<td>LABADVISORRELAY</td>
<td>9102</td>
<td>rrlc2</td>
</tr>
<tr>
<td>134.40.29.83</td>
<td>LABADVISORRELAY</td>
<td>9103</td>
<td>npi060224</td>
</tr>
<tr>
<td>134.40.29.83</td>
<td>LABADVISORRELAY</td>
<td>9104</td>
<td>134.40.27.55</td>
</tr>
</tbody>
</table>

The CSV import function imports only the instrument controller IP Address/Hostname. The relay configuration is retrieved from the relay as soon as the connection is established.
Relay Terminal

For advanced usage and troubleshooting of the Lab Advisor Relay Service, the Relay Terminal offers direct communication with the Service. It is a command-line-based window that allows specified commands to be sent, and information to be received or actions executed.

1. To start the Relay Terminal, click **Relay Terminal**.

The **Relay Terminal** window is displayed.

2. In the Relay Terminal window select the IP address or Hostname of the Instrument Controller PC that the service is installed on.

A list of possible actions is displayed.
Using the Lab Advisor Relay Service

Relay Terminal

Enter the command for the required action according to following table and click Enter.

<table>
<thead>
<tr>
<th>Command</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>Returns the service host machine name</td>
</tr>
<tr>
<td>i</td>
<td>Returns the service host installation directory</td>
</tr>
<tr>
<td>j</td>
<td>Returns the service host data directory</td>
</tr>
<tr>
<td>k</td>
<td>Returns the service revision</td>
</tr>
<tr>
<td>l</td>
<td>Starts the service manually</td>
</tr>
<tr>
<td>S</td>
<td>Restarts the service manually</td>
</tr>
<tr>
<td>/</td>
<td>Returns the relay’s status (more slashes, for example ///, give more details)</td>
</tr>
<tr>
<td>r</td>
<td>Stops and restarts the relays</td>
</tr>
<tr>
<td>t</td>
<td>Creates and writes trace file</td>
</tr>
<tr>
<td>n</td>
<td>Stops tracing to trace file</td>
</tr>
<tr>
<td>T</td>
<td>Starting tracing session via telnet</td>
</tr>
<tr>
<td>N</td>
<td>Stops tracing via telnet</td>
</tr>
<tr>
<td>d</td>
<td>Dump configuration</td>
</tr>
<tr>
<td>d#</td>
<td>Dump historic trace file where # = [1..2]</td>
</tr>
<tr>
<td>e</td>
<td>Exit current connection</td>
</tr>
<tr>
<td>?</td>
<td>List of possible actions</td>
</tr>
</tbody>
</table>
Troubleshooting

For troubleshooting purpose, the Microsoft Event Viewer provides information about the actions and events generated by the Lab Advisor Relay Service, and this information can be exported for remote assistance.

Global access to service

The Lab Advisor Relay Service can be configured from any Lab Advisor installation with the Relay Service App installed. This leads to the possibility that the ports get reconfigured by any of the installed Lab Advisor Relay Service Apps and thereby other Lab Advisor installations are no longer able to connect to an instrument, or it connects to a different instrument.

Speed of connection

When an instrument is connected using port forwarding, the distance the information packages need to travel is doubled, leading to more than twice the delay time for the connection to be established in Lab Advisor.

IT requirements

At some customer sites, port forwarding is either not allowed or only partially allowed by the IT organization. In these cases, the ports defined need to be made accessible by IT for the Lab Advisor Relay Service to be able to work.

Required ports

The Lab Advisor Relay Service uses the Telnet (port 23) to communicate with the Lab Advisor Relay Service App. If this port is occupied by any other program on the Instrument Controller PC, the communication will be impeded.

Firewalls

If a Firewall is activated on the Instrument Controller PC, it needs to be setup to accept the configured ports (i.e. port 23 and 91xx). This can be done with standard Windows tools, but must often be done in cooperation with the IT department.