RAVENNA

RAVENNA Virtual Sound Card for Windows

- WDM Version -

Software Installation Guide

Version: 7005/1

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Table of Contents

Welcome 4

System Requirements 5

Installing the Software 6

PTP Status & Settings 11

LAN Properties 12

RAVENNA PTP Service Context Menu 13

Windows Default Playback/Recording Device 15

Welcome

This documentation covers the installation of the RAVENNA Virtual Sound Card (RVSC) software onto a Windows 7 PC.

The procedure installs the RVSC with WDM Audio Device API, to create a virtual sound card which may be used to send and receive RAVENNA streams.

During installation, you select the network interface to be used for your RAVENNA connection. You can configure up to one capture, one playback and one speaker device, each of which can stream up to 8 channels of audio.

You can access more information by registering at ravenna.alcnetworx.com (click on **Login**). By registering you will receive the latest news for your product, and can download software and documentation.

Marginal Notes

The following symbols are used to draw your attention to:

Points of clarification.

Useful tips and short cuts.

Warning

Warnings – alert you when an action should *always* be observed.

System Requirements

Computer

The RVSC may be installed onto a PC which meets the following system requirements:

- **Operating System:** Windows 7 (32 or 64 Bit).
- **Network Interface Card**: the interface used for your RAVENNA network connection *MUST* use the Intel 82574L chipset. This chipset provides hardware timestamping support for PTP, the time synchronization protocol used within RAVENNA.
- **DPC Latency:** should *NOT* exceed 500 µs. You can use the DPC latency checker (available for download at http://www.thesycon.de/dpclat) to test your computer's performance.

The RAVENNA WDM drivers do *NOT* support Windows 8 or Windows XP.

Network

RAVENNA streaming relies on PTP (Precision Time Protocol) time reference information.

Due to poor jitter performance, your PC may only act as a PTP slave. Therefore, to send or receive RAVENNA compatible streams, a PTP Grandmaster *MUST* be installed somewhere within the network. This could be a stand-alone networking device or a piece of RAVENNA hardware with PTP Grandmaster capabilities.

Having installed the RAVENNA software, you can check the PTP status from the Windows taskbar.

Installing the Software

1. Before running the installer, make sure that your network interface is connected to a powered network switch on the RAVENNA network. If not, the network card cannot be selected during step 10.

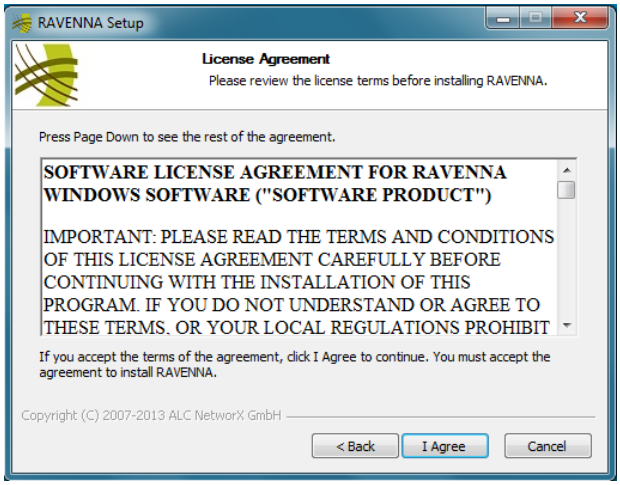
2. Copy the **ravenna-X.xx.exe** application onto your computer. This file may be downloaded from ravenna.alcnetworx.com.

3. Double-click on the application icon to start the 'RAVENNA Setup Wizard':

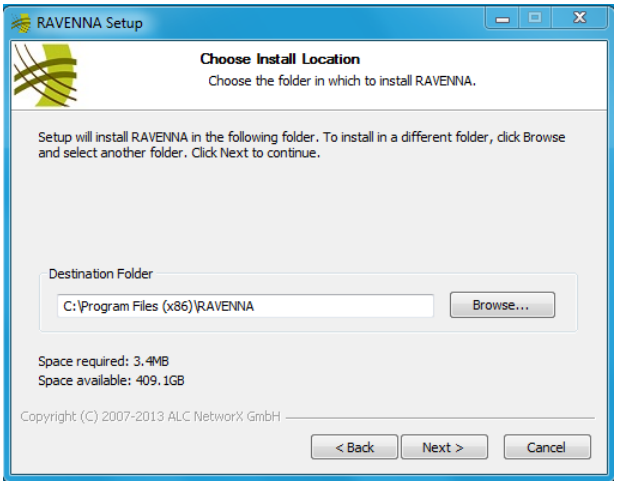
If a 'User Account Control' dialogue box appears, click **Yes** to "allow the program to make changes to this computer".

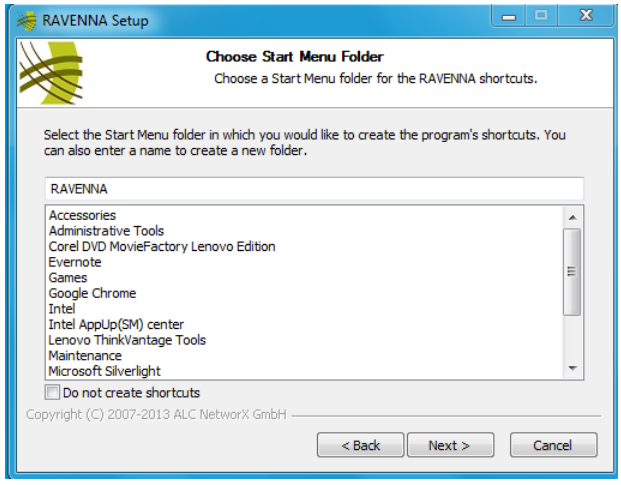
4. Observe the recommendation by closing all other applications, and click **Next** to continue.

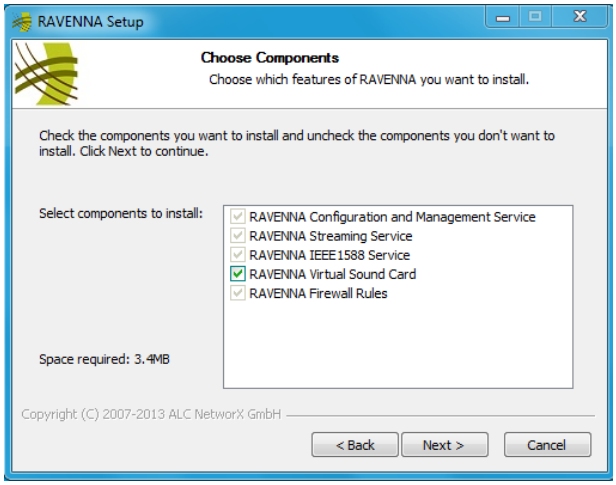
5. Read the license agreement and click **I agree**:



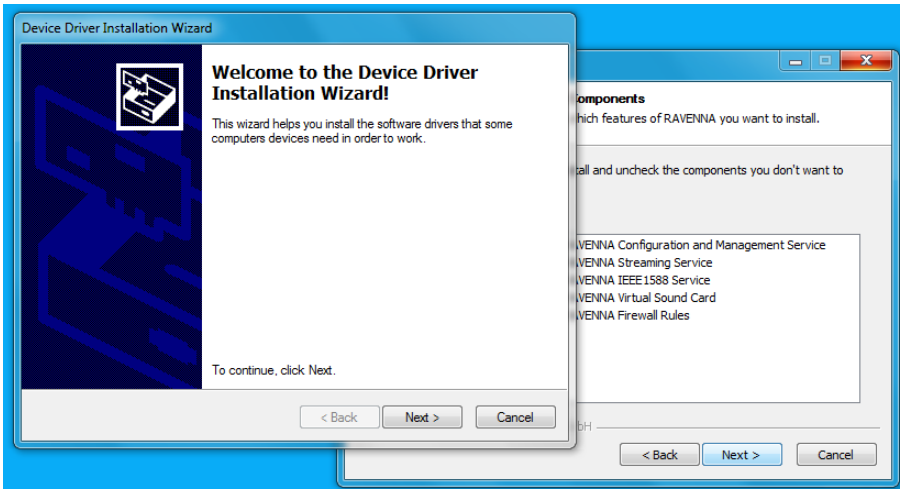
6. Then click **Next** three times to accept the default installation options:







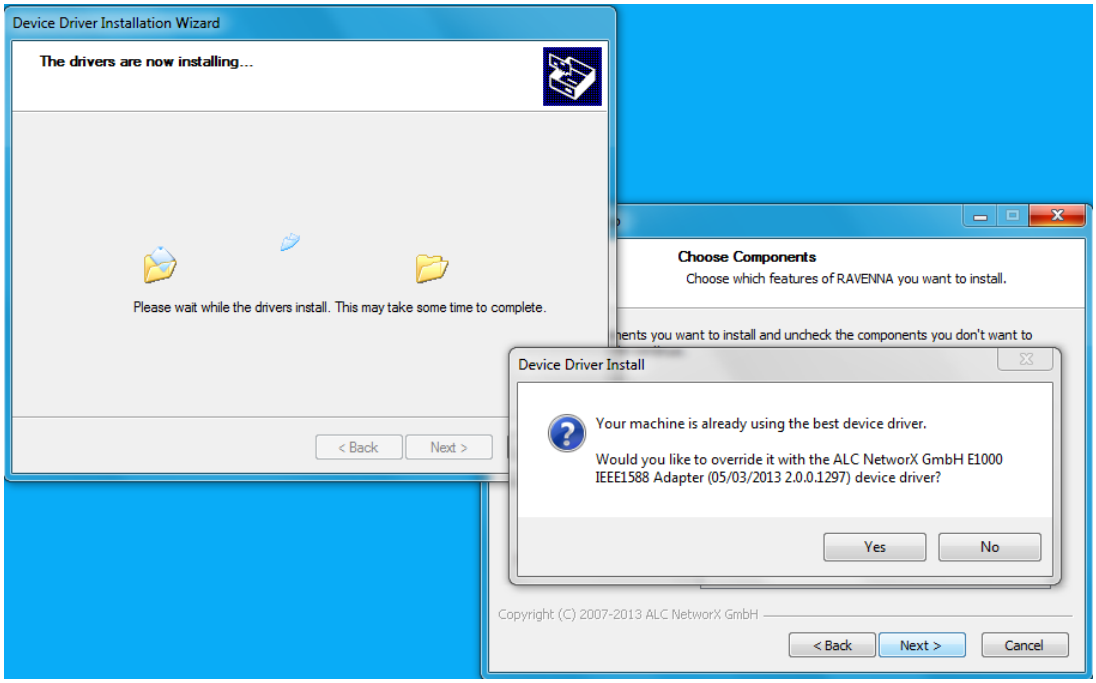
The 'Device Driver Installation Wizard' opens:



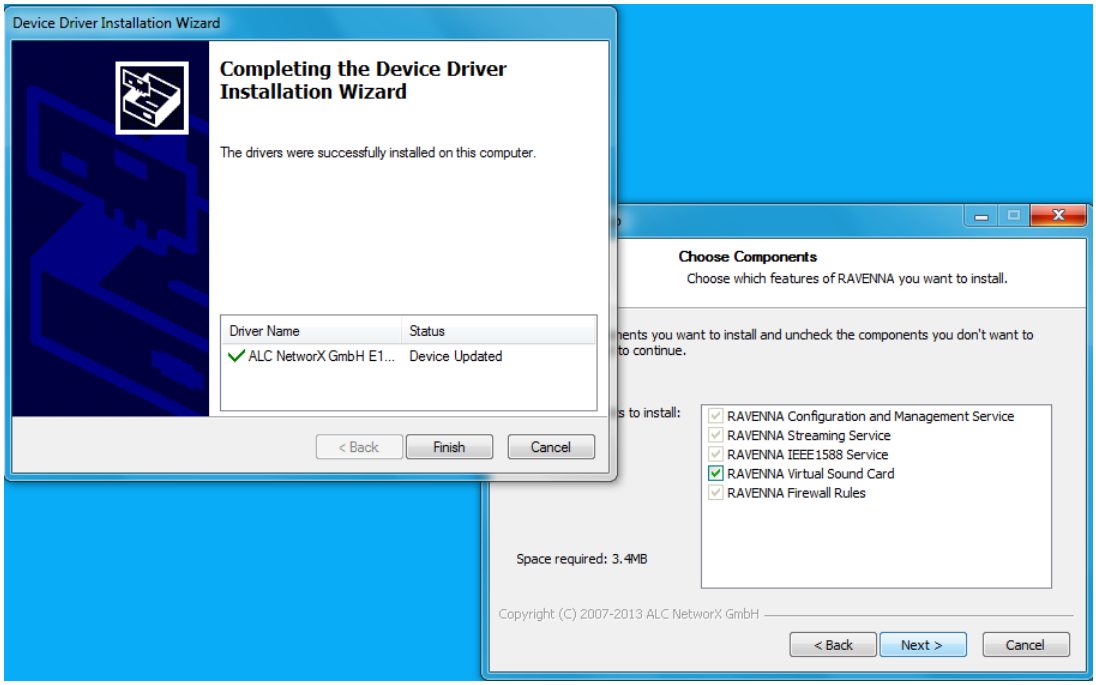
7. Click **Next** to continue and install the RAVENNA network device driver.

If a 'Windows Security' dialogue box appears, click **Install** to "trust the software from ALC NetworX GmbH".

8. When the following dialogue box appears, click **Yes** to "override the current device driver":

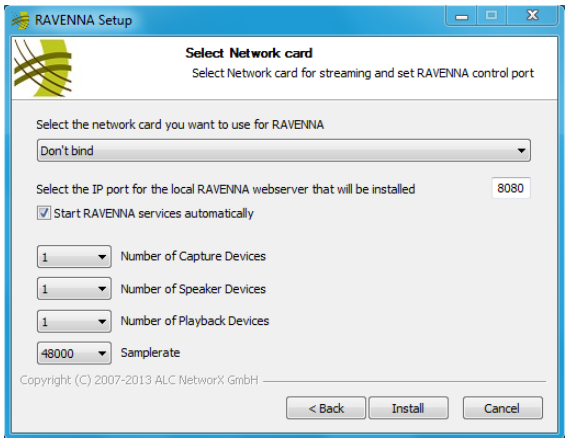


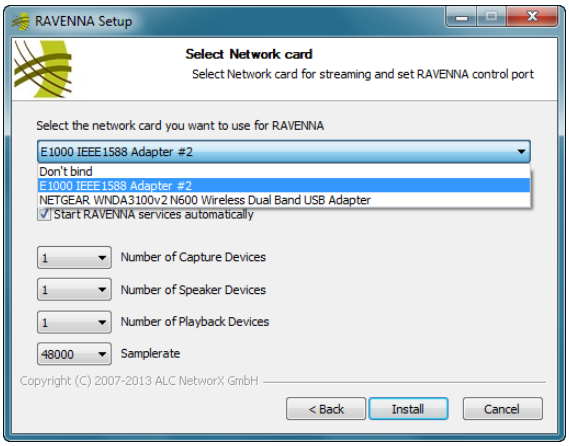
When the driver is successfully installed, the following appears:



9. Click **Finish** to complete the network driver installation.

The 'RAVENNA Setup' Wizard now configures the RAVENNA Virtual Sound Card:





10. Choose an option from the drop-down menu - the list will include all network interfaces installed on your computer. Select the interface which uses the Intel 82574L chipset (to meet the System Requirements).

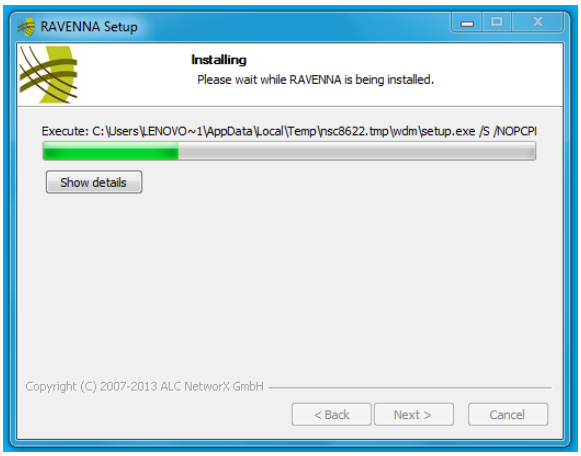
If you cannot see the correct network card, then check that it is connected to a powered network switch. Only connected interfaces appear in the drop-down list.

11. Leave the **Start RAVENNA service automatically** option checked, and the IP port at its default setting (**8080**).

12. Choose the **Number of Capture**, **Speaker** and **Playback Devices** from the drop-down menus - the free version supports 1 x Capture (send) + 1 x Playback (receive) + 1 x Speaker device. Each device streams up to 8 channels of audio. Speaker devices can be used for channel mixdown, i.e. to mix a 7.1 source into a stereo stream.

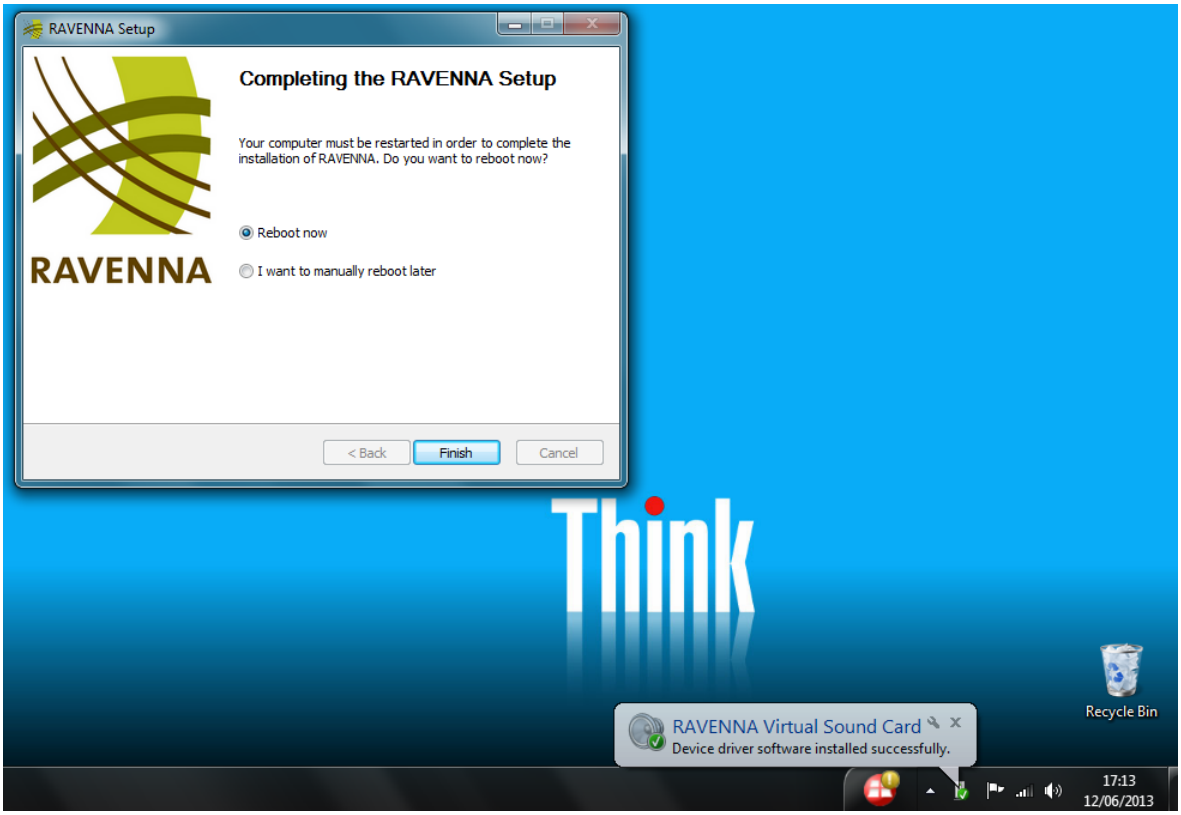
13. Set the **Samplerate** to either **48000** (48kHz) or **44100** (44.1kHz). The sample rate may be changed later as desired.

14. Then click **Install** to start the software installation - this may take a few minutes, and windows open and close automatically during the install:



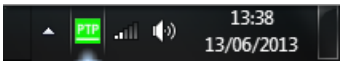
Each time a 'Windows Security' dialogue box appears, click **Install** to "trust the software from ALC NetworX GmbH".

Once the RVSC Setup is complete, you will see the following dialogue box and an alert in the task bar:



15. Select **Reboot now** and **Finish** to reboot your computer and complete the software installation.

Following the reboot, a PTP icon appears in the Windows taskbar:



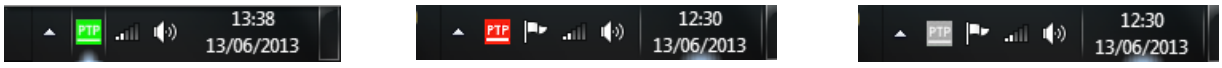
You should now perform the following steps:

- Check the status of your RAVENNA PTP service and, if necessary, adjust the PTP Settings.
- Adjust the LAN Properties of the RAVENNA network interface to optimise performance.

PTP Status & Settings

PTP Status

The PTP icon in the Windows taskbar indicates the status of your RAVENNA PTP service and clock source:

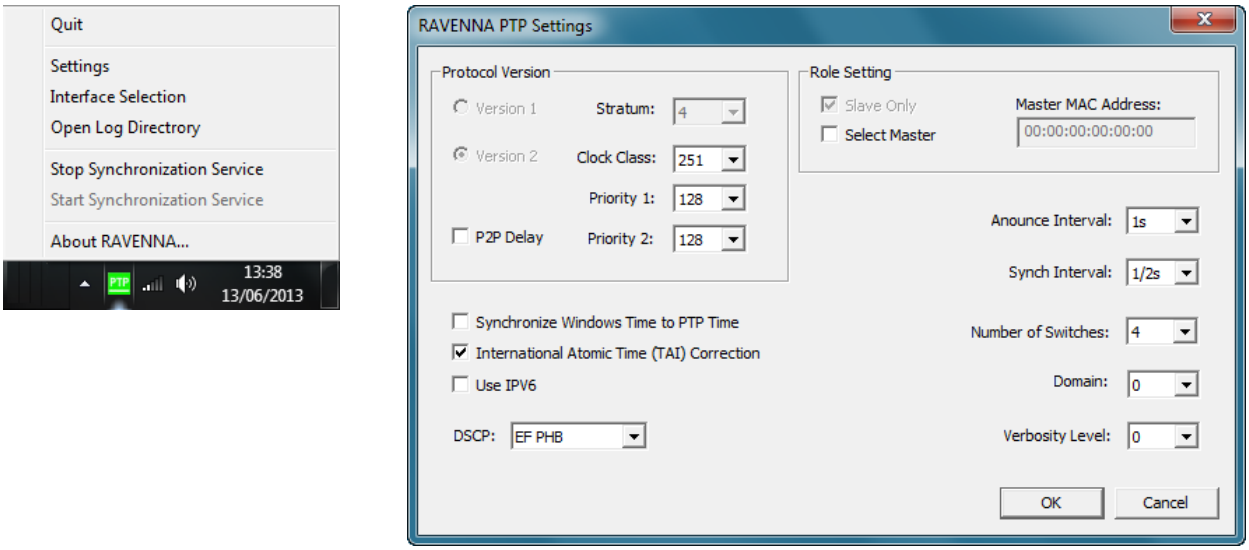


- **Green** = service started and a valid PTP clock source detected. This is the correct state for normal operation.
- **Red** = service started, but no PTP clock source detected. If you see this icon, then check that your computer's network interface is connected to the RAVENNA network, and that a PTP Grandmaster is running.
- **Grey** = service stopped. If, during the software install, you unticked the Start RAVENNA service automatically option, then you can start and stop the RAVENNA PTP service manually from the taskbar. See the RAVENNA PTP service context menu for more details.

PTP Settings

The PTP settings for your RAVENNA network interface should match those of the Grandmaster configuration. To check the settings:

1. Right-click on the PTP icon to open the RAVENNA PTP service context menu, and select **Settings**:



The specific settings depend on your PTP Grandmaster configuration. For details please contact your network or system administrator.

2. Click **OK** to save any changes and exit the dialogue box.

LAN Properties

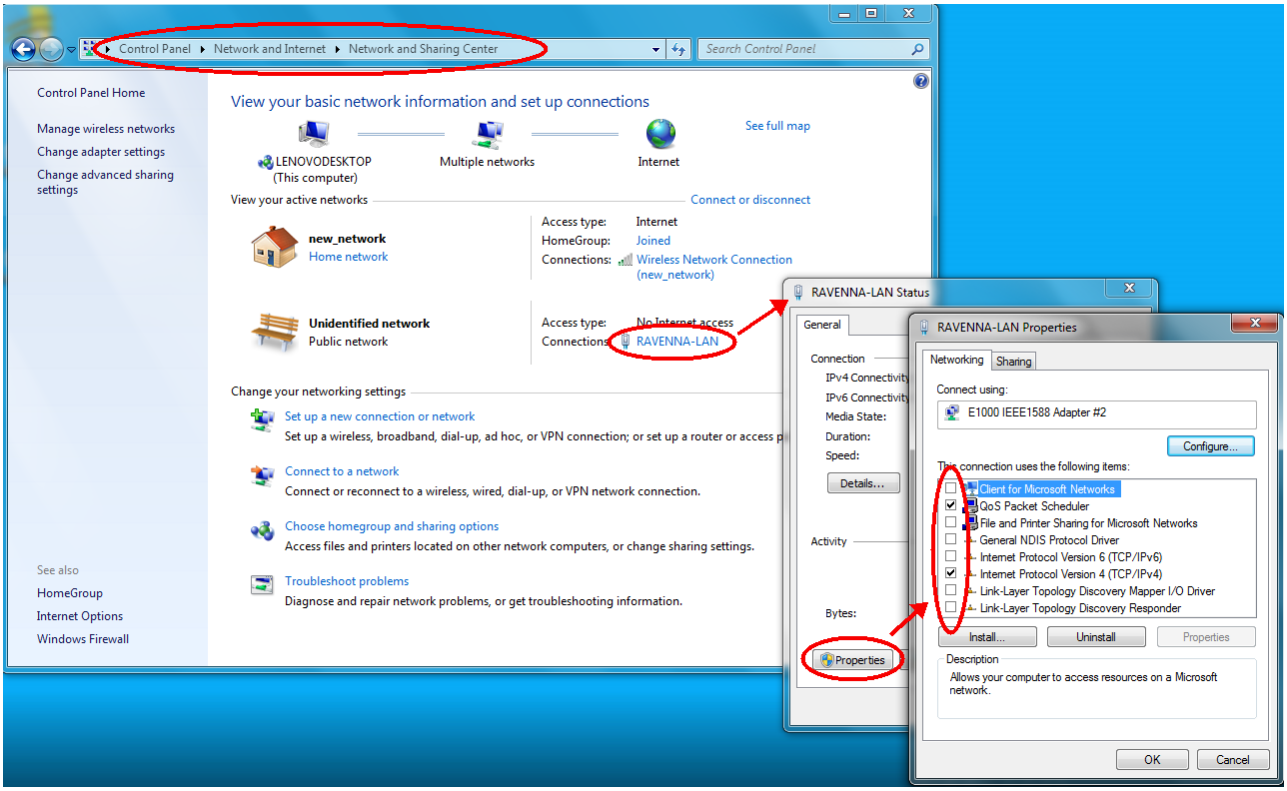
To optimise the performance of your RAVENNA network interface, you should adjust its 'LAN Properties' as follows:

1. Open the Windows Control Panel from the **Start** menu, and select **Network and Internet** -> **Network and Sharing Center**.

   You should see the LAN (Local Area Network) connection which you are using for RAVENNA listed on the right hand side.

2. Click on the connection (e.g. **RAVENNA-LAN**), and select **Properties**.

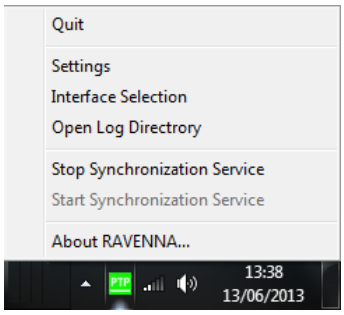
3. Under the **Networking** tab, untick all the options except for **QoS Packet Scheduler** and **Internet Protocol Version 4 (TCP/IPv4)**:



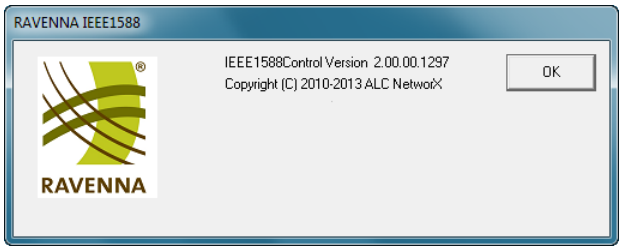
4. Select **OK** and **Close** to confirm the changes.

RAVENNA PTP Service Context Menu

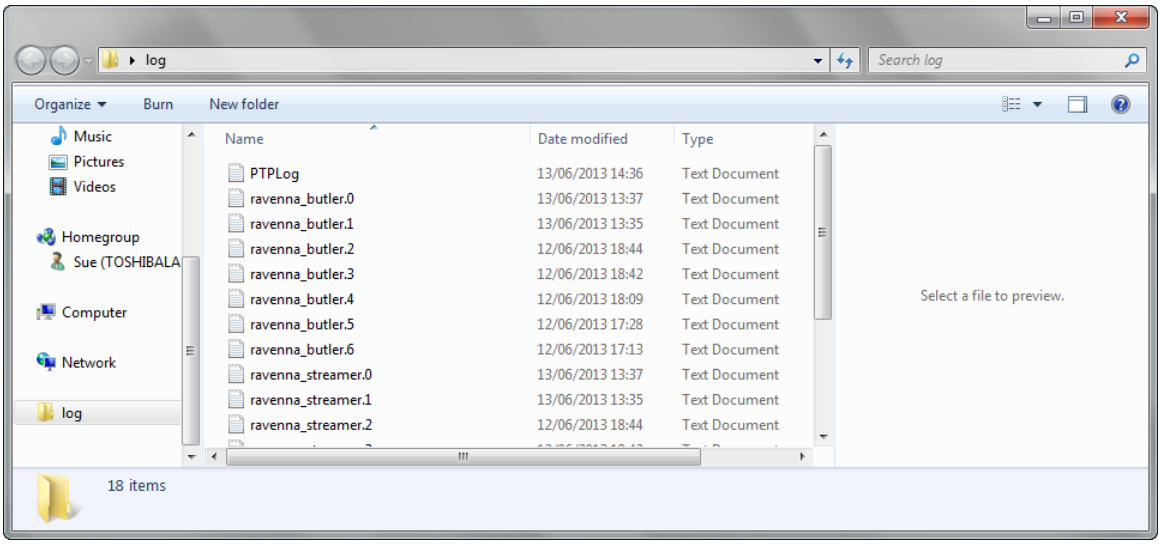
1. Right-click on the PTP icon in the taskbar to open the RAVENNA PTP service context menu:



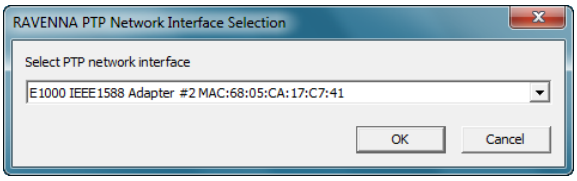
- **About RAVENNA.** - reveals information about the RAVENNA PTP service release:



- **Stop/Start Synchronization Service** - use these options to start or stop the RAVENNA PTP service. Note that the various RAVENNA services are interdependent, and therefore you may not be able to stop the RAVENNA PTP service if another depending service (such as the RAVENNA streamer service) is running.
- **Open Log Directory** - opens the log file directory on your computer. Here you can open or copy a log file to assist with diagnostics:



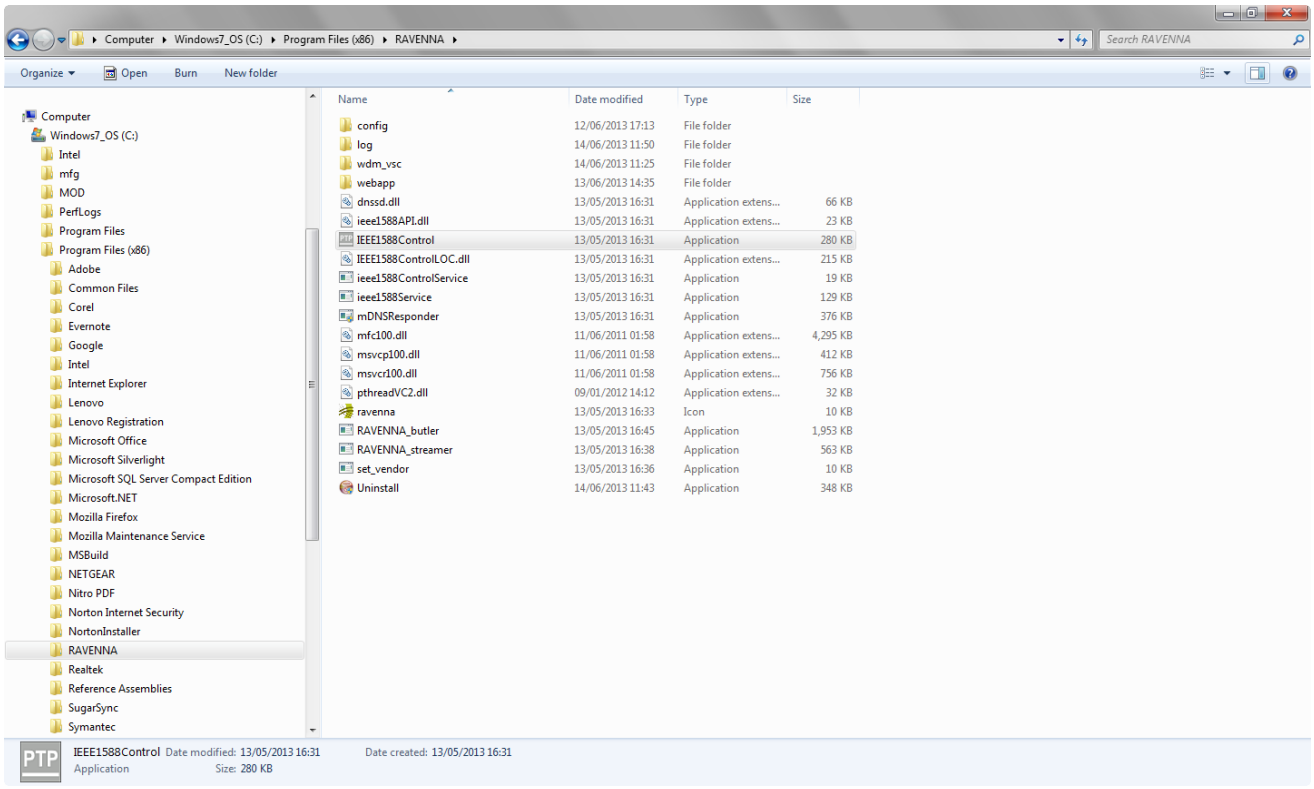
- **Interface Selection** - click to select a different network interface card for your RAVENNA PTP service. Note that only suitable interfaces (those meeting the System Requirements) appear in the drop-down list:



- **Settings** - opens the PTP Settings dialogue box.
- **Quit** - terminates the RAVENNA PTP control program.

You can restart the RAVENNA PTP control program by rebooting your computer (if the Start RAVENNA service automatically option was ticked).

Alternatively, locate the **Program Files** -> **RAVENNA** folder on your computer, and double-click on the **IEEE1588Control** application:



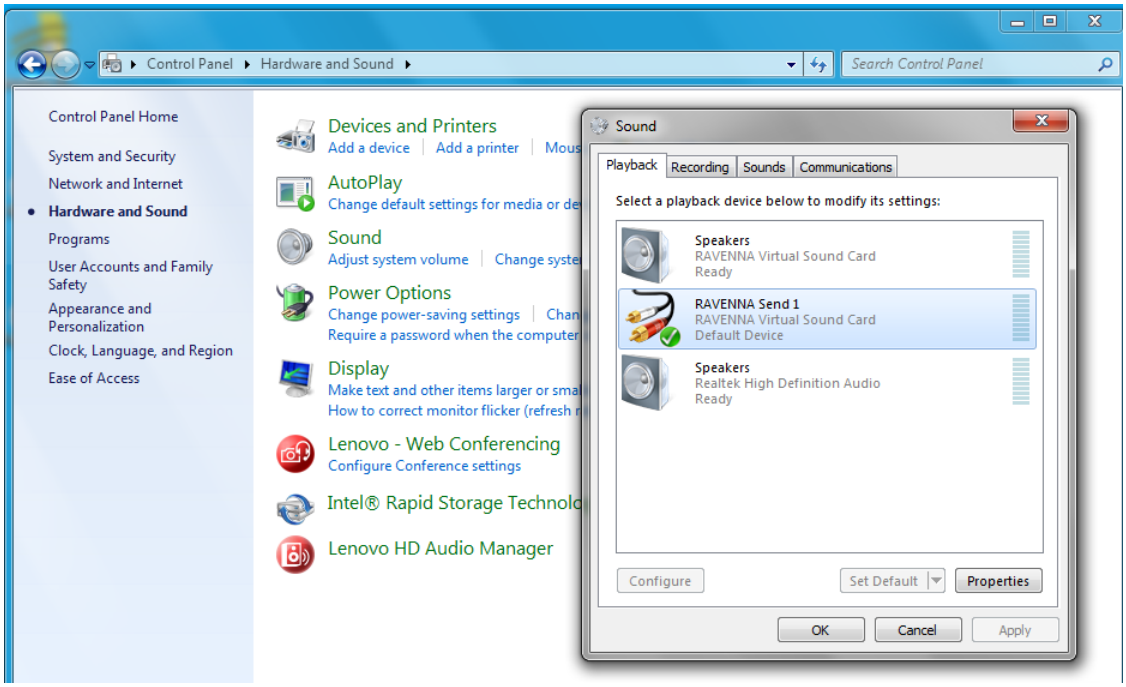
Windows Default Playback/Recording Device

Following a successful installation, the RAVENNA send, receive and speaker devices appear in the Windows Sound Control Panel. This allows you to assign them as the default Playback and/or Recording device, if desired (e.g. to directly monitor an incoming stream).

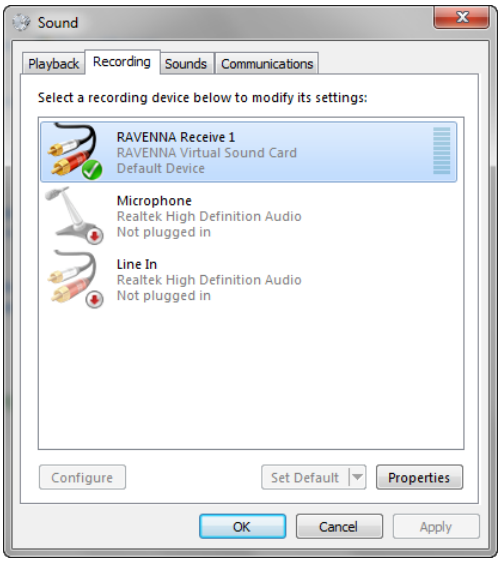
The procedure is identical to configuring a physical sound card:

1. Open the Windows Control Panel from the **Start** menu, select **Hardware and Sound** and click on **Sound**.

2. Under the **Playback** tab, select either the **RAVENNA Send** (or **Speakers**) device, and click on **Set Default**:



3. Under the **Recording** tab, select the **RAVENNA Receive** device, and click on **Set Default**:



4. Select **OK** to confirm all the changes.