Alere Informatics

RALS®-Remote Connect (RRC) Version 2.1
Installation and Configuration Instructions

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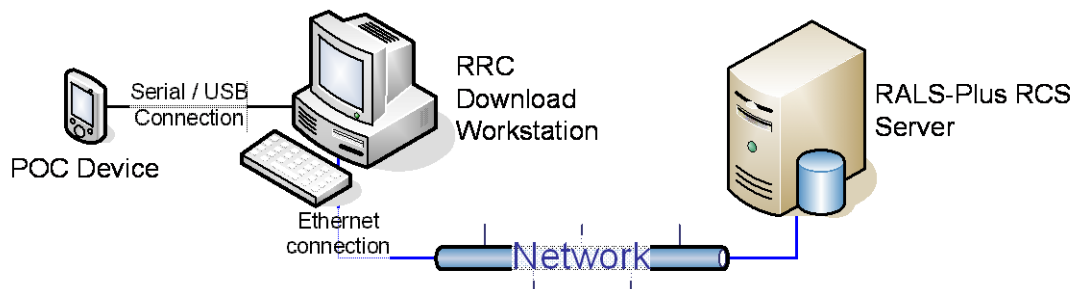
Overview

This document discusses the installation of RALS Remote Connect (RRC) Version 2.1. The RRC software and its functionality are briefly introduced, along with the new features available in RRC Version 2.1. Host PC requirements are detailed, followed by step-by-step procedures for installing the software and information about configuring the RRC software. Finally, a "Quick-start Guide" checklist-type summary of procedures is included.

Functionality

RALS Remote Connect (RRC) comprises two software programs intended to run on a Microsoft Windows PC, making it an "RRC Download Workstation". One of the programs, RRC.exe, is installed as a service that runs continually in the background whenever the Windows operating system is up and running. The RRC service uses the PC's serial or USB ports to communicate with a local Point-of-care (POC) instrument or device on the one side, and the PC's Ethernet port on the other side to link the device via the network to a remote RALS server. The other program, RRC_Status.exe, allows the user to configure the RRC service and monitor its operation. (Configuration information is stored in a third file, RRC.ini). The following figure illustrates the major components of the system in which the RRC operates and their interconnections.

Applicability

RRC 2.1 is intended for all new RRC installations, as well as to upgrade and replace all prior versions of RALS Remote Connect software. RRC 2.1 incorporates all important functionality of the earlier versions and adds support for a number of new devices.

Identification of RRC Versions

After installation, RRC versions can only be identified by their Build Number, a four segment decimal-separated number, e.g., "3.16.0.6". This build number is displayed in the RRC_Status window as "RRC Version" (see **Figure 1**, below). It can also be found by right-clicking one of the executable program files and selecting the "Version" tab. All Version 1.0 RRC builds begin with "3.", e.g. "3.16.0.6", "3.09.0.68", etc. (All Version 1.0 RRC builds are functionally identical). RRC Version 2.1's build numbers are 21.03.xxxx.xx.

> NOTE: If you are upgrading an installation of RRC Version 1.0 to Version 2.1, **DO NOT** un-install RRC Version 1.0 first. For one thing, this is handled automatically by the 2.1 installation, but more importantly, all configuration information will be lost if you do so.

RRC v2.1 Installation Procedure

> **NOTE:** Only licensed locations may be installed in accordance with the AI Technology License agreement. If you need a copy of the RRC program, one can be downloaded from the Alere Informatics website; www.rals.com.

Platform Requirements

RRC is an application designed for the Microsoft Windows operating systems. The host machine must be running some version of Microsoft Windows. RRC was designed as a "light-weight" service, making only modest demands on memory, disk, and CPU resources, so that almost any hardware supporting the listed operating systems should be a viable platform candidate. The machine must have an operational Ethernet port configured to allow communication with a RALS server via TCP/IP, and it must have serial or USB ports capable of connecting to all of the local POC devices to be supported.

Contents of the Installation Package

The RRC 2.1 Installation Package may be supplied on physical media (such as a CD) or it may be supplied electronically via the Internet. In any case, the package contains a single Windows folder named for the build, "21.02.xxxx.xx". This folder contains three files:

1. "setup.exe", the installation program executable file,
2. "RALS Remote Connect.msi", a Windows Installer package database, and
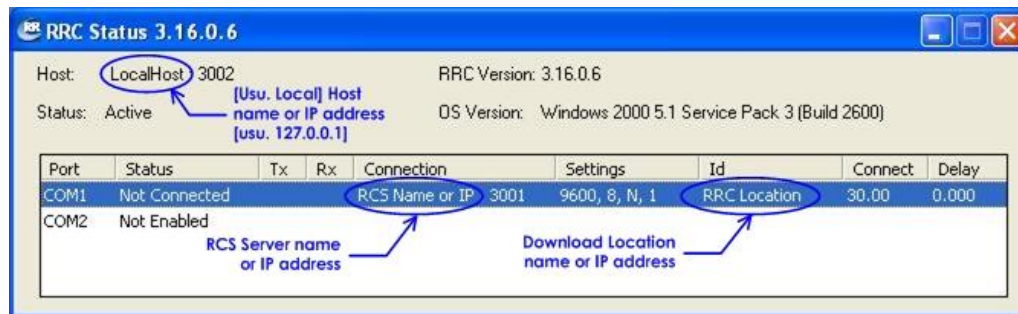3. "Data1.cab", a cabinet file containing the target executable files.

Pre-installation Activities

Before starting the installation process, there are several activities required to ensure that the process can be completed successfully. First, you should collect several items of information which will be required either during the installation or during the configuration that follows. This is particularly important in re-installation or upgrade situations, because some of the information is most easily obtained from the old RRC. Additionally, there are some checks that should be made for potential conflicts that would prevent the proper operation of RRC.

Collect Configuration Information

For a RRC Download Workstation to be able to communicate with a RALS RCS server, both the server and the workstation must be configured with each other's names or IP addresses. In the case of a new RRC installation, the RALS RCS software must be configured with the new Workstation name as a "Download Location" prior to the installation of RRC on a hospital client PC. If this is the case, contact the RALS System Administrator (usually the hospital Point of Care Coordinator for the RALS location names) to find out the RALS Server name and to have the RALS "Download Location" name created. You may also call the AI Customer Support hotline (1-877-627-7257) to inquire about an already existing RALS location name.

If the RRC software is being re-installed or upgraded at a download site, the "Download Location" will already have been configured in the RALS RCS software. In this case, you can get this information from the existing RRC setup on the workstation by double-clicking the RRC icon (red dot) in the service tray. The following illustrates the location of RCS server name and Workstation names in the RRC 1.0 Status window.

Figure 1: RRC 1.0 Status Window

Pre-installation Tasks

There are a few items you should check before starting the RRC installation to make sure it will be successful.

Confirm that the device is supported by RALS Remote Connect

Table 1, found in the Configuration section below, lists the devices most commonly interfaced using RRC. If your device is not listed there, you should call AI Customer Support at 1-877--627-7257. Certain devices that are supported but are not listed have additional installation instructions that are beyond the scope of this document.

Check the physical cable connections

Consult the device documentation to be sure you have the correct cable, and then plug one end of the cable into the device. Confirm also that the computer has a free serial or USB port. The connector at the other end should mate with the serial connector on the computer or with the connector of the serial-to-USB adapter. Serial port connectors are usually 9-pin male D-connectors; on computers, they are frequently marked with the symbol "I0I0I". Be sure to disconnect all cables from the computer before installing any software. Most importantly, you should NOT plug in a USB cable until you have installed the serial-to-USB drivers.

Install the serial-to-USB drivers, if necessary

If you are using a USB port on the computer, ensure that the necessary serial-to-USB drivers are installed. If this RRC installation is an upgrade of a previous version that was working, that should not be a concern. With new installations or re-installations because of computer hardware replacement, however, this is important.

If the RRC host computer does not have any conventional serial ports, or if those ports are otherwise employed but a USB port is available, then the serial-to-USB adapter will be needed. These are available from Medical Automation Systems; call Customer Support for more information. If the serial-to-USB adapter is to be used, it is recommended that the drivers for this adapter be installed prior to plugging in the adapter and prior to installation of the RRC software.

The following is the driver installation procedure for a Windows XP computer.

> **NOTE**: This installation process requires administrative privileges.

- With the computer powered and an administrator logged in, plug the serial-to-USB adapter USB connector into a USB type A receptacle on the computer.

- Place the Driver CD into the CD ROM drive of the computer.

- Click "**Next**" on the "Found New Hardware Wizard" screen.

- Select "Install the software automatically..." and click "**Next**" to continue.

- Should say "Prolific USB-to-Serial Comm Port". Select the default location and click "**Next**" to continue.

- The next screen may warn that "the software... has not passed Windows Logo testing..." Click "**Continue Anyway**" to proceed with the installation.

- The next screen should announce, "The Wizard has finished installing the software..."; click "**Finish**" to close the Wizard.

- If you want to check that the driver was correctly installed, right-click "My Computer" (on the desktop or in the Start menu), then "Properties", "Hardware", and "Device Manager". In the "Device Manager" window, click the "+" beside "Ports (COM & LPT)" and make sure that at least one "Communications Port (COMx)" is displayed. (A yellow question mark on one of the devices is a sign of a hardware-driver problem).

Verify that the computer is connected to the network and communicating

Are there any potential TCP or UDP (network) port conflicts on the machine, or are any of the ports blocked? If the Windows Firewall is enabled, one or more ports used by RRC may need to be enabled. The port(s) required by RRC and the configuration of the Windows Firewall is covered in the Configuration section below.

Install the RRC 2.1 Software

> **NOTE:** For all OS versions, the installation process requires administrative privileges to succeed. With Windows 2000, Windows XP or Windows Server 2003, the installer must be logged in as an administrator prior to starting the installation. With Windows Vista, Windows 7 or Windows Server 2008 R2, the logon user is largely irrelevant, since administrator credentials will be demanded regardless of the logon user during the install. If you need these credentials, please contact your hospital's IT department or security officer.
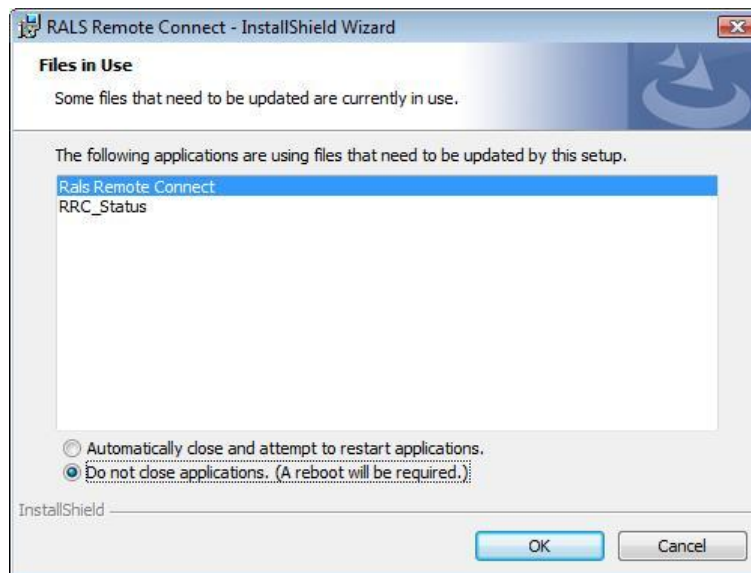
1. If you are performing an upgrade to a prior version of RRC (see **Identification of RRC Versions**, above), you should leave the prior version installed so that the configuration information (stored in RRC.ini) will be preserved. You should, however, close the RRC Status window by clicking the red "X" in the upper right-hand corner of the window.

2. From the START menu, select Run, browse to the "setup.exe" file for RRC (see **Contents of the Installation Package**, above) and run the program. You may also use Windows Explorer to browse to "setup.exe" and double-click it. The RRC "setup.exe" installation program may be run from a local CD-ROM-based install disc, it may be executed from a shared folder on the network, or the entire installation package may be copied to a local drive and run from there.

NOTE: When executing the installation process on Windows Vista, Windows 7 or Windows Server 2008 R2, you should immediately get a window entitled "Open File – Security Warning." and stating, "The publisher could not be verified. Are you sure you want to continue?" If the "Name" is the "setup.exe" you just executed, select "**Run**".

3. A "Preparing to Install…" window will appear, followed by "Welcome to the InstallShield Wizard for RALS Remote Connect". Click "**Next**" on this window.

4. The "Destination Folder" window should appear, showing the default installation folder. For new installations, this will be "C:\Program Files\MAS\RRC". For upgrades or re-installations on the same machine, this will be wherever RRC was previously installed. If you wish to change the installation folder from what is shown, click "**Change**" and either type in or browse to the installation folder you desire. When you are satisfied with the destination folder, click "**Next**" on this window.

5. The "Ready to Install" window will appear. When you're ready, click "**Install**". This will bring up the "Installing RALS Remote Connect" screens showing the progress of the installation.

NOTE: On Windows Vista, Windows 7 or Windows Server 2008 R2, at this point the screen will be dimmed and a User Account Control window will appear asking "Do you want the following program from an unknown publisher to make changes to your computer?" The "Program name:" should be "setup.exe". You will be prompted with an administrator username and must provide an administrator password and click "**Yes**" to continue.

6. On Windows Vista, Windows 7 or Windows Server 2008 R2 only, if the installation is an upgrade of a
7. previous version of RRC, at some point during the installation the following screen will appear:

Figure 2: "Files in Use" Window

Select "**Do not close applications**…" and "**OK**". After a short time, another identical "Files in Use" window will be displayed. Again Select "**Do not close applications**…" and "**OK**". Installing RALS Remote Connect" screens showing the progress of the installation will reappear.

8. After program installation is complete, click "**Finish**". Click "**Yes**" to reboot the PC.

9. Upon reboot, the RRC Status window should be displayed. On
    Windows 2000, Windows XP, Windows Vista or Windows Server 2003,
    the RRC icon (black, red, yellow, or green dot) should appear in the
    system tray (typically in the lower right-hand side of the screen).

    On Windows 7, the RRC Status icon in the "Notification Area" (equivalent to the system tray) will be
    hidden by default. If want to see the RRC Status icon, you must click the small "Show hidden icons"
    button in the Notification Area, select "**Customize**", and then, beside "RRC Status", select "**Show icon
    and notifications**", "**OK**".

The RRC 2.1 Status Icon Color

The RRC 2.1 Status icon color indicates RRC service status as follows:

A red icon indicates that the RRC Status program is communicating normally with the RRC service, and the
RRC service is idle and not communicating with any devices via serial ports or servers via the network. If the
cursor lingers over a red icon, "**IDLE**" will be displayed.

A yellow icon indicates that a local device has begun transmitting to the RRC via its serial port, but the RRC
service has not yet established communications with the corresponding server via the network. This should be
a very transitory situation when the RRC, device, and server are all properly connected and configured. If the
icon remains yellow more than a second or so, it indicates a problem in the network connection or the
configuration of communication between the RRC and the server. Possible causes are (a) a discrepancy in
the "Download Location" name or IP address between the RRC and the server, (b) the network port used to
communicate with the server is not configured properly, or (c) there is a general problem with network
connectivity. A cursor lingering over a yellow icon will display "**ATTEMPT CONNECT**".

A green icon indicates RRC is actively communicating with the server via the network and is most likely
communicating with one of the local devices as well. A cursor hovering over a green icon will display
"**DOWNLOADING**".

A black icon indicates that the RRC Status program is unable to connect to the RRC service, which could
mean the service is stopped, has not been properly installed or configured, or that the RRC program
(RRC.exe) is missing or corrupted. A cursor over a black icon will display "**NOT ENABLED**". (See also the
following section).

Configuring the RRC 2.1 Software

If your installation was an upgrade of RRC Version 1.0 to Version 2.1, and Version 1.0 was previously working, no further configuration should be necessary. The RRC Status window should be checked, however, to confirm that all previously connected devices are still communicating as desired. If not, follow the configuration procedure below. This procedure is applicable for all new installations and re-installations on "new" workstations (where the RRC software has not been previously installed).
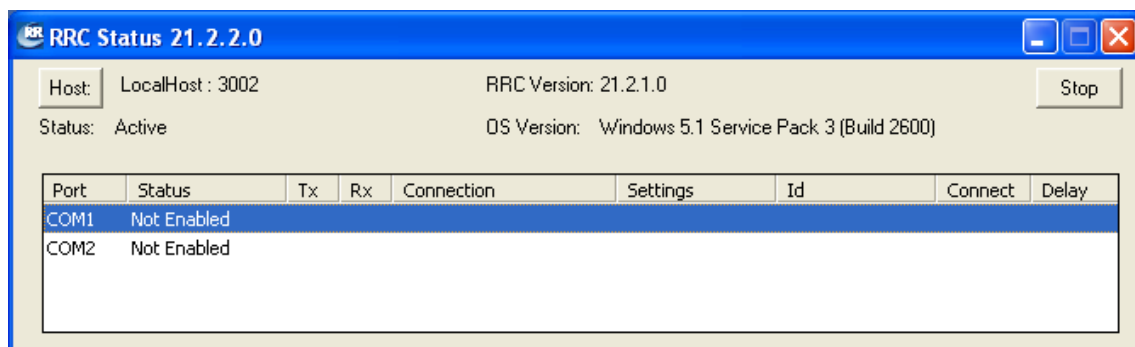
1. Right-click on the RRC icon and select "**Administer RRC Settings**".
   NOTE: If the RRC icon is not visible in the system tray then the RRC Status window must first be opened at "C:\Program Files\MAS\RRC\"
2. You will need to put in a password of the day to enable RRC. For the RRC password of the day visit the website "http://www.rals.com/RRC_Password.htm" and enter Keycode = **Richmond** (or **richmond**), or call AI Customer Support at 1-877-627-7257).
3. If the RRC icon is red, skip to the following step. If the RRC icon is black, select the "Host" button and change Host to 127.0.0.1, Port to 3002, and check the box beside "Set As Default". If the RRC icon is now red, skip to the following step. If the RRC icon is still black, the cause is most likely one of the following scenarios:
   a. another software program is currently using the network port (3002 by default) on the PC used by RRC Status to communicate with the RRC service, or
   b. the network port used by the RRC Status program to communicate with the RRC service (usually port 3002) is being blocked by IT, or
   c. (less likely, but possible) the RRC service is stopped, has not been properly installed, or the RRC.exe file has been moved, deleted, or corrupted.

   If the situation is **a**., you must either remove the other software program using port 3002, or choose a different PC on which to load the RRC software. If the situation is **b**., you will need to contact your hospital's IT department or security officer. In the case of **c**., try uninstalling and re-installing the software.
4. If the RRC icon is red and the serial port to be configured (e.g., COM1, etc.) is visible in the RRC Status window, enable the port by double-clicking on it.

5. A "Configure Port: [Port ID]" window will appear. Select the "**Enabled**" check box; this will permit further selections.

The values for Baud, Data, Destination IP/Name, Port and ID are given in **Table 1**, below. The default values of the other items are as follows:

Data:	8	RxLen:	2048
Parity:	N	Timeout:	0.050
Stop:	1	Connect:	30.00
RTS:	OFF	Delay:	0.000
DTR:	OFF	KeepAlive:	OFF
CTS Flow:	OFF	ID (Type):	**Type 1 (ENQ)** is used for all devices *except* Roche Inform used with RALS-Lite software, for which use **Type 3 (1.X)**
DSR Flow:	OFF		

The following table lists the devices most commonly (serially) interfaced using RRC. If your device is not listed here, you should call AI Customer Support at 1-877-627-7257. Certain devices that are supported but are not listed have additional installation instructions that are beyond the scope of this document.

Table 1: Most common devices supported by the RRC

Device Manufacturer	Device Name	Connection (Destination IP/Name)	Baud Rate	[Network] Port	ID (Download Location Name or IP)
Roche Diagnostics	Accu-Chek® Inform	RALS® RCS Server Name or IP	9600	TCP 3001	RALS® Location Name (Case Sensitive)
IL	GEM® Premier™ 3000, 3500, 4000				
SIEMENS	RapidPoint® 400 & 405				
SIEMENS	Stratus CS Diagnostic System®				
Radiometer	Radiometer® ABL 80, 800 (series)				
SIEMENS	Clinitek Status Connect®				
ITC	Hemochron® Signature + Hemochron Signature Elite®	RALS® RCS Server Name or IP	9600	TCP 3001 & UDP 3003	RALS® Location Name
Abbott POC	i-STAT® PCA	RALS® DE Server	19200	TCP 6000	[Leave Blank]
Abbott POC	i-STAT® 1	RALS® DE Server	38400	TCP 6004	[Leave Blank]
Abbott POC	DRC300	RALS® DE Server	38400	TCP 6004	[Leave Blank]

6. Click **OK**, plug download cable into configured COM port and test download.

7. Repeat steps 4 - 6 for additional COM ports as necessary.

Downloading Devices Utilizing RRC

Under normal operation, no further operator interaction should be necessary. The RALS-Remote Connect (RRC) service is configured to start automatically when the PC is started and should remain running at all times. Devices that support automatic downloading may transfer data even if no user is logged in to the PC – assuming, of course, that the PC power is on.

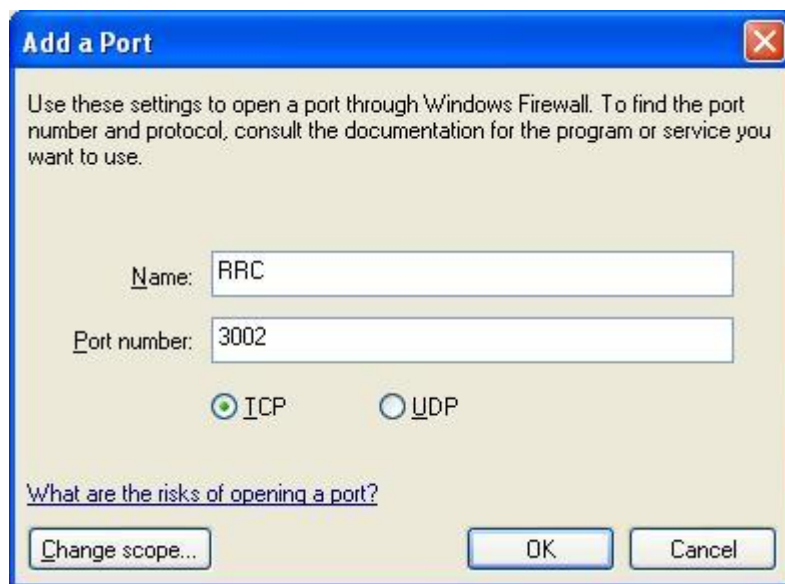**Windows Firewall Configuration**

For new installations or re-installations on computers with Windows XP– Service Pack 2 or later, Windows Vista, Windows 7, Windows 2008 Server R2 or Windows Server 2003 installed, if the local Windows Firewall is

active, you will need to configure the Firewall to allow the RRC to communicate with the RALS RCS Server (or the RALS DE Server). Specifically, you must add any TCP or UDP Ports used by RRC to the Firewall Exceptions and configure the Windows Firewall to allow ICMP incoming echo request ("ping") messages. The procedure for doing this varies by the operating system used. Specific procedures by operating system follow.
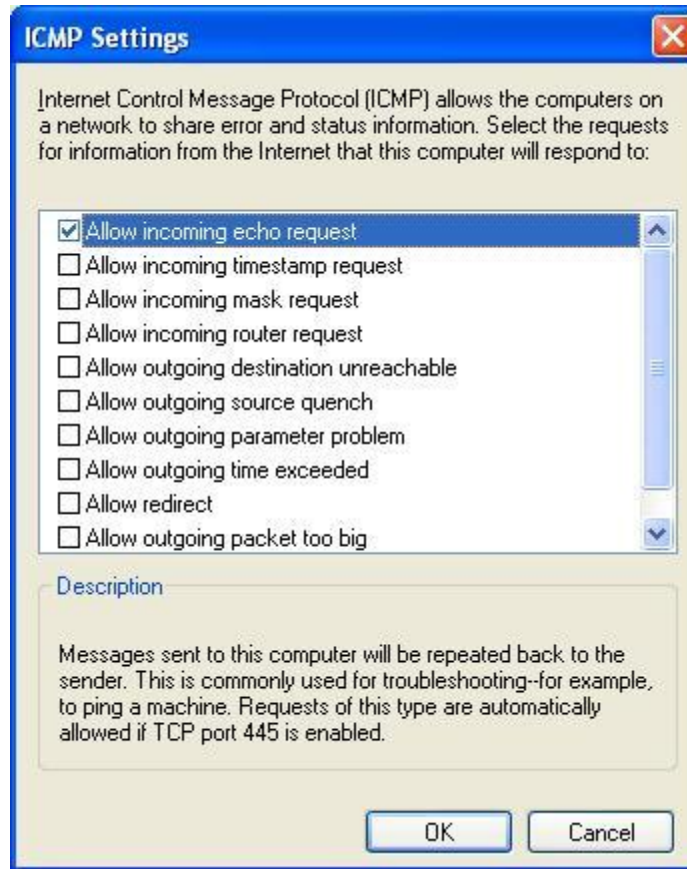
Windows XP/Windows Server 2003 Firewall Configuration

> **NOTE**: This installation process requires administrative privileges.

1. On the "Start" menu, select "Control Panel", then "Windows Firewall".
2. In the "Windows Firewall" window, select the "Exceptions" tab, then click "Add a port…"
3. In the box beside "Name", type "**RRC**", unless another port will be needed, in which case a name that will differentiate the ports, like "**RRC1**" or "**RRC [Device]**" should be used. For "Port number:" enter the (network) port number and port type ("TCP" or "UDP") found in Table 1, above (also see the following figure). If there is more than one device and/or a different port is used, you will need to add additional ports.

4. Still in the "Windows Firewall" window, select the "Advanced" tab, then click the "Settings" button beside "ICMP".
5. In the "ICMP Settings" window, make sure that the box "Allow incoming echo request" is checked (see following figure), select "OK" to close this window, then select "OK" to close the "Windows Firewall" window.
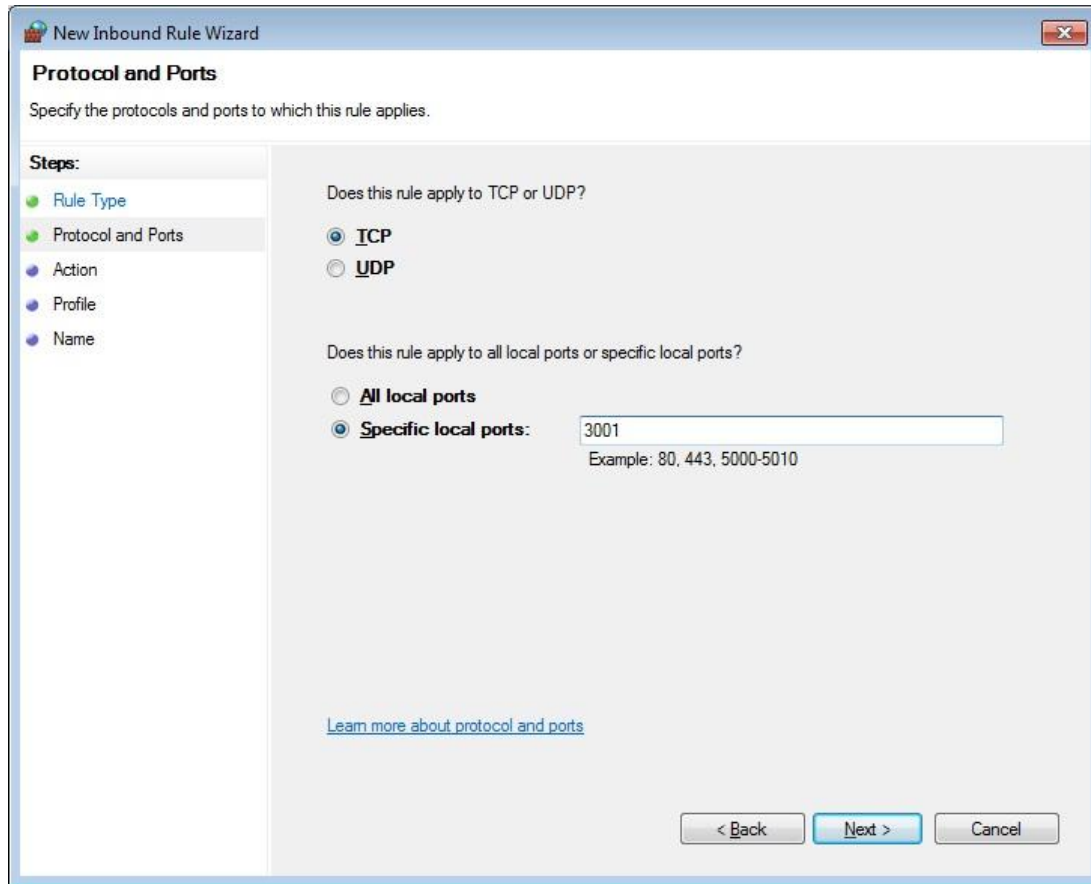
Windows Vista / Windows 7/Windows Server 2008 R2 Firewall Configuration
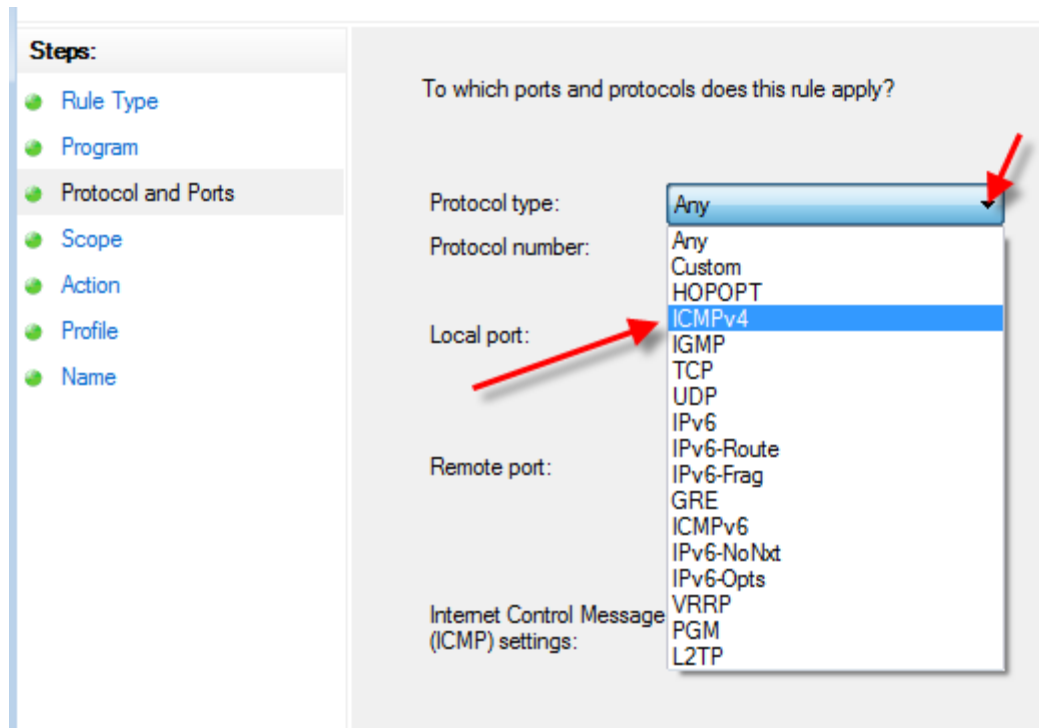
> **NOTE 1**: This installation process requires administrative privileges.

> **NOTE 2**:The screen shots below are from Windows 7. Vista screens may appear somewhat different, but don't differ significantly in content.

1. Press the Windows button (lower left corner of the desktop), "Control Panel", "System and Security", "Windows Firewall", then "Advanced Settings".
2. Select "Inbound Rules".
3. With the "Inbound Rules" pane displayed, select "New Rule…" under "Actions".
4. The "New Inbound Rule Wizard" window should be displayed, with a "Rule Type" selection. Click the button beside "**Port**", then click "**Next**".
5. Select "TCP" or "UDP" and, in the box beside "Specfic local ports:", enter the (network) port number found in Table 1, above (see the following figure), then click "**Next**".

6. On the next screen, make sure the button beside "**Allow the connection**" is selected, then click "**Next**".
7. On the following screen, "**Domain**", "**Private**", and "**Public**" should all be checked, then click "**Next**".
8. Finally, name this rule, say, "**RRC**", unless another rule will be needed for another port, in which case a name that will differentiate the ports, like "**RRC1**" or "**RRC [Device]**" should be used. The description is optional, but recommended. You could say "RRC link between [Device] and RALS RCS", for example.
9. Select "Finish" to complete the rule. The rule just created should appear at the top of the list of "Inbound Rules" with a green check mark beside it. If there is more than one device and/or a different port is used, you will need to add additional rules. When done with creation of rules for specific ports, select , select "New Rule…" under "Actions" again to allow ICMP ("Internet Control Message Protocol") incoming echo request ("ping") messages.
10. In the "New Inbound Rule Wizard" window, click the button beside "**Custom**", then click "**Next**".
11. On the next screen ("Program"), make sure the button beside "**All programs**" is selected, then click "**Next**".
12. On the next screen, click on the button beside "**Protocol type:**" and select "**ICMPv4**" from the drop-down list as shown in the following figure. Leave all other settings at their default values and click "**Next**".

13. On the following screen ("Scope"), leave "Any IP address" selected for both "…local IP addresses…" and "…remote IP addresses…" and click "**Next**".
14. On the following screen ("Action"), leave "Allow the connection" selected and click "**Next**".
15. On the following screen ("Profile"), "**Domain**", "**Private**", and "**Public**" should all be checked, then click "**Next**".
16. Finally, name this rule something like "**Echo Request (ICMPv4-In "Ping")**", then select "**Finish**" to complete the rule. The rule just created should appear at the top of the list of "Inbound Rules" with a green check mark beside it. You can now close the "Windows Firewall with Advanced Security" window, as well as the "Windows Firewall" window.

Procedure for Un-Installing RRC

NOTE: If you are planning to upgrade an installation of RRC Version 1.0 to Version 2.1, **DO NOT** un-install RRC Version 1.0 first. For one thing, this is handled automatically by the 2.1 installation, but more importantly, all configuration information will be lost if you do so.

1. Close the RRC Status program window.

2. Open the Control Panel: on the Windows "Start" menu, point to "**Settings**"and click "**Control Panel**".

   a. Double-click "**Add/Remove Programs**".

3. Select "**RALS_Remote_Connect**", then select "**Remove**", then answer "**Yes**" to the question "Are you sure…". A window will appear saying, "Please wait while Windows configures RALS Remote Connect". For RRC Version 1.0, this will be followed by another saying, "You must restart your system now… Click Yes to restart now…"

4. For RRC Version 1.0, click "**Yes**" to reboot the PC.

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RRC 2.1 Quick-start Installation Guide

The following is a brief summary of the installation process which may be useful to the experienced RALS® user or to anyone as a checklist to follow while preparing for and carrying out the installation and subsequent configuration.

Pre-installation Tasks

- ☐ If upgrading RRC Version 1.0 to Version 2.1, **DO NOT** un-install RRC Version 1.0 first.
- ☐ RRC 2.1 can be installed on Windows Operating Systems (except Millenium)
- ☐ Confirm that the device is supported by RRC: check **Table 1** in the Configuration section, above, or call AI Customer Support at the number below.
- ☐ RALS RCS or RALS DE Server name or IP address: _____
- ☐ RALS Location name (Case Sensitive): _____
- ☐ RALS Password of the Day (get at http://www.rals.com/RRC_Password.htm): _____
- ☐ Check that all required device cables are present and can be connected.
- ☐ Install serial-to-USB driver (if required).
- ☐ Reboot.
- ☐ Install serial-to-USB cables (as many as required).
- ☐ Verify that the computer is connected to the network and communicating.

Install RALS RRC 2.1 Software

- ☐ If upgrading, close RRC Status window.
- ☐ Execute "setup.exe" in RRC 2.1 installation package.
- ☐ In Windows Vista and 7, select "**Run**" in Security Warning window.
- ☐ Select "**Next**", "**Next**", "**Install**".
- ☐ In Windows Vista and 7, supply administrative credentials and select "**Yes**" in the User Account Control window.
- ☐ In Windows Vista and 7, select "**Do not close applications…**" and "**OK**" in the two "Files in Use" windows.
- ☐ Select "**Finish**", then "**Yes**" to reboot the PC.

Configure RALS RRC 2.1 Software

- ☐ Right-click the RRC icon (red dot) in system tray/Notification Area.
- ☐ Select "**Administer RRC Settings**", enter Password of the Day when prompted
- ☐ Double-click the COM port that you are wish to configure.
- ☐ Fill in information for the device being connected according to Table 1 in the Configuration section, above.
- ☐ Configure additional COM ports as required.
- ☐ If the Windows Firewall is enabled, follow the instructions in **Windows Firewall Configuration**, above.
- ☐ Test downloading a device.

If you have any questions regarding RALS-Remote Connect (RRC), contact AI Customer Support

Call Support at 1. 877.627.7257 or visit www.rals.com today.