.: www.totalrecallvr.com :.

Firewall Traversal

Step by Step Guide

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Author(s):

Emil Andonov

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Related Documents:

[1] Prolancer Pty Ltd, Total Recall VR Overview User Guide, 19.0, September 2017

[2] Prolancer Pty Ltd, Total Recall VR Manager User Guide, 10.0, September 2017

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1. Preface

1.1. Conventions

Our guides use several conventions to highlight certain words and phrases and draw attention to specific pieces of information.

1.1.1. Notes & Warnings

We use the following visual styles to draw attention to information that might otherwise be overlooked:

Notes are tips, shortcuts or alternative approaches to the task at hand. Ignoring a note should have no negative consequences, but you might miss out on a trick that makes your life easier.

Important boxes detail things that are easily missed: configuration changes that only apply to the current session, or services that need restarting before an update will apply. Ignoring the information will not cause data loss, but may cause irritation and frustration.

Warnings should not be ignored. Ignoring warnings will most likely cause data loss.

1.1.2. Typographic Conventions

We use typographic conventions to call attention to specific words and phrases. These conventions, and the circumstances they apply to, are as follows.

Example	Meaning
Select Guide to display ...	Locate the link named "Guide" on the screen, position the cursor over the link and then depress the appropriate mouse button to follow the link.
Select **Add** to create a new ...	Locate the button or menu item named "Add" on the screen, position the cursor over the button or menu item and then depress the appropriate mouse button to initiate an action.

Enter ***Commission*** ...	Locate the field named "Commission" on the screen, position the cursor over the field and then depress the appropriate mouse button to select the field. Once the cursor appears in the field, enter a value.
Choose ***Country*** ...	Locate the field named "Country" on the screen, position the cursor over the field and then depress the appropriate mouse button to display the available options. Then position the cursor over the desired option and depress the appropriate mouse button to select it.
Tick ***Active User*** ...	Locate the check box named "Active User" on the screen, position the cursor over the check box and depress the appropriate mouse button to place a visual tick in the box.
Un-tick ***Active User*** ...	Locate the check box named "Active User" on the screen, position the cursor over the check box and depress the appropriate mouse button to remove the visual tick in the box.
Enter *$30.95* ...	Enter "$30.95" using the keys on your keyboard.

1.1.3. Procedures

We use numbered sequence of steps to define procedures for performing certain tasks. For example:

Procedure Title

1. This is the first step of the procedure.
2. This is the second step of the procedure.
    a. This is the first sub-step of step 2.
    b. This is the second sub-step of step 2.
3. This is step three.

1.2. We Need Feedback

If you find a typographical error in this guide, or if you have thought of a way to make this guide better, we would love to hear from you.

Please submit your feedback using the feedback form on our web site: http://www.prolancer.com.au/contact/feedback.

If you have a suggestion for improving the guide, then try to be as specific as possible when describing your suggestion. Otherwise, if you have found an error, please include the section number and some of the surrounding text so we can find it easily.

2. Introduction

2.1. About This Guide

This guide explains how to configure Total Recall VR recorders and Total Recall VR PC applications when the two are deployed on separate private networks that are connected by the Internet.

In addition, the guide explains how to configure various network elements, in particular firewalls and network address translators (NATs) so that Total Recall VR PC applications can access Total Recall VR recorders over the Internet.

2.2. What is Total Recall VR

Total Recall VR is a professional audio logging and call recording system which is self-contained, fully featured and cost-effective. Enterprises and governments worldwide use it to create electronic records of many forms of audio communication including telephone, 2-way radio, broadcast radio, public address, room microphones and much more.

Total Recall VR is the ideal solution for:

- Recording business telephone conversations;
- Recording agent calls in contact centres;
- Logging emergency response communication;
- Logging business operations communication;
- Logging radio broadcasts;
- Logging public announcements;
- Creating audio records of meetings, legal proceedings, public enquiries and similar events; and
- Creating compliance records to meet duty of care and legal requirements.

For additional information on Total Recall VR see the Total Recall VR overview guide [2].

2.3. What are Total Recall VR PC Applications

Total Recall VR PC applications are designed to enhance your experience with Total Recall VR recorders. The applications can be used to remotely manage and monitor recorders as well as access recordings that are stored on recorders and various types of Total Recall VR archives.

Total Recall VR PC applications generally fall in one of the following two categories:

- Free to use (and now legacy) PC applications such as the:
  - Total Recall VR Remote Manager
  - Total Recall VR Supervisor
  - Total Recall VR RoD Client
- Premium (and now standard) PC applications such as the:
  - Total Recall VR Desktop
  - Total Recall VR Manager
  - Total Recall VR Monitor
  - Total Recall VR Browser
  - Total Recall VR Audio Player
  - Total Recall VR Event Player
  - Total Recall VR Connector
  - Total Recall VR Archiver
  - Total Recall VR Archive Doctor

For additional information on the Total Recall VR PC applications see the Total Recall VR overview guide [2].

3. Solution Examples

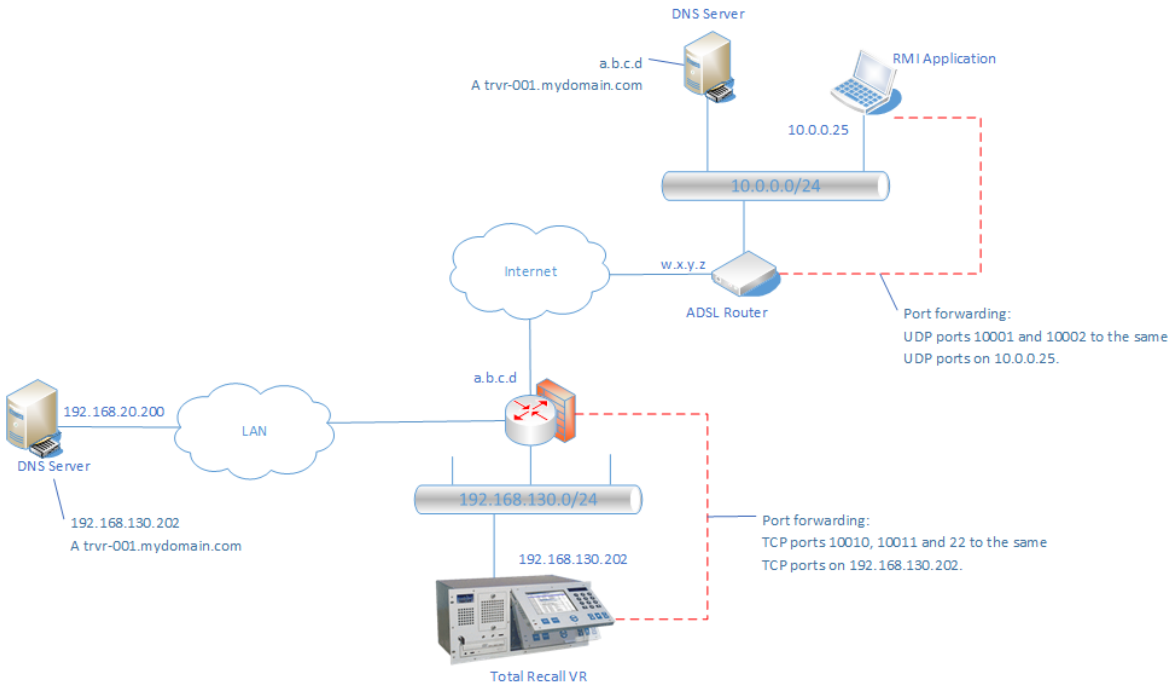
3.1. Legacy PC Applications with Max and LinX Recorders

This example shows how to use the legacy PC applications, such as the Total Recall VR Remote Manager, with 9.x.y (Max) and 10.x.y (LinX) recorders.

The example assumes that you are running the latest version of the 9.x.y (Max) or 10.x.y (LinX) release on your recorder. At the time of writing the latest versions are 9.20.0 and 10.15.0.

Do not forget – you must use the same version of the Total Recall VR Remote Manager PC applications as the version of your recorder. That is, you must use either Total Recall VR Remote Manager 9.20.0 or 10.15.0.

The following diagram shows the example solution:



In this solution the communication between the Total Recall VR PC application and recorder depends on the configuration of two name (DNS) servers: one used by the recorder and another by the PC application.

The DNS used by the PC application can be eliminated by static configuration in the 'hosts' file on the PC that runs the PC application. However, the rest of the section assumes that there is a DNS server.

Recorder Site Configuration

The following need to be configured correctly at the recorder site:

1. The DNS server
2. The Internet Router

3. The Total Recall VR recorder

To complete the configuration of the recorder you will need a PC with the Total Recall VR Remote Manager application.

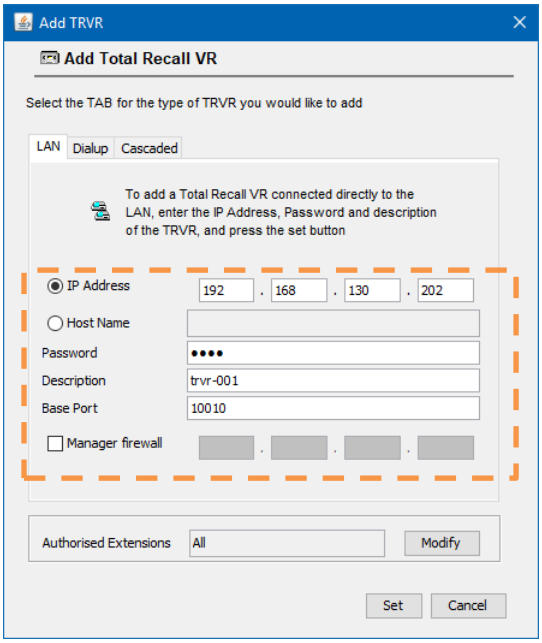
The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps a hostname of your choice to an IP address that you plan to assign to the recorder. For example, create the following DNS entry:

   192.168.130.202 A trvr-001.mydomain.com.

2. On the recorder:- Navigate to the Network Settings and configure the following:
   a. Set the Name Server. For example: 192.168.20.200.
   b. Assign the IP address from step 1 (192.168.130.202) to the LAN 1 interfaces.
3. On the recorder:- Navigate to the Remote Manager settings and configure the Remote Interface to accept client connection on the IP address (192.168.130.202) from step 1. Leave the base port to its default value (10010).
4. Connect a PC with the Total Recall VR Remote Manager application to the same network as the recorder. Start the Remote Manager application and configure a connection to the recorder using:
   a. IP Address: 192.168.130.202
   b. Password: 0000
   c. Description: trvr-001
   d. Base Port: 10010

   For example:



5. Using Remote Manager:- Navigate to the Network Configuration tab and in the 'Remote Manager Interface Settings' section set the Host Name to the hostname from step 1 (trvr-001.mydomain.com).

   Note that the hostname used by the Remote Interface can be different to the hostname assigned to the recorder as a system on the network. However, the hostname must map to an IP address that is assigned to one of the LAN interfaces of the recorder.

6. On the Internet router:- Configure the following port forwarding rules:

   a. External TCP ports 10010 and 10011 to the same TCP ports on the IP address assigned to the recorder (192.168.130.202).

      This assumes that the Total Recall VR Remote Interface configuration uses the default base port 10010 – see step 3. If you changed the base port during step 3, then you must change the port forwarding rules accordingly. Always create port forwarding configuration for base port and base port + 1.

   b. Optionally, external TCP port 22 to the same TCP port on the IP address assigned to Total Recall VR during step 2.

      This allows for transfer of files from/to the recorder using SCP (secure copy protocol). Note that this is the standard SSH port as well.

PC Application Site Configuration

The following need to be configured correctly at the PC application site:

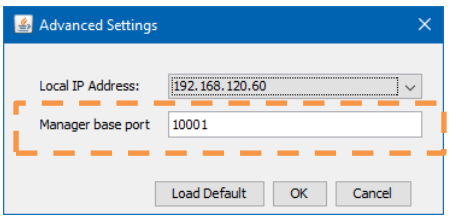
1. The DNS server
2. The Internet Router
3. The Total Recall VR Remote Manager PC application

The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps the hostname used by the recorder for its Remote Interface (trvr-001.mydomain.com) to the public IP address of the Internet router at the recorder site (a.b.c.d). For example, create the following DNS entry (replace a.b.c.d with an actual IP address):

   a.b.c.d A trvr-001.mydomain.com.

2. Start the Remote Manager application and under File -> Advanced… make sure that 'Manager base port' is set to 10001.



3. Using Remote Manager:- Configure a connection to the recorder using:

   a. Host Name: trvr-001.mydomain.com

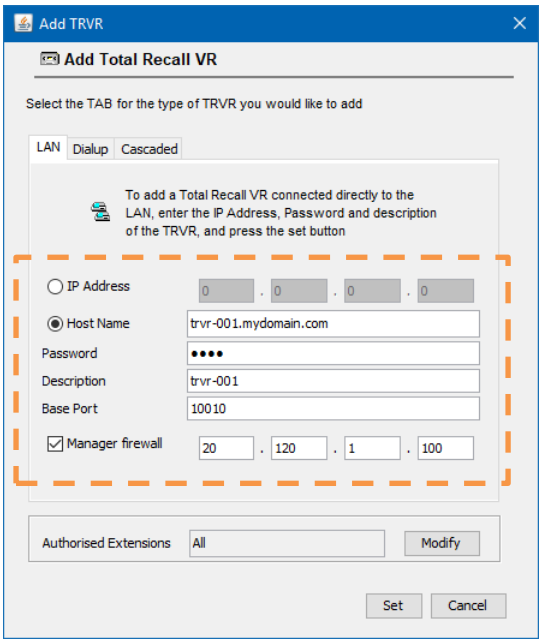
   b. Password: 0000

   c. Description: trvr-001

   d. Base Port: 10010

   e. Manager Firewall: w.x.y.z (replace w.x.y.z with an actual IP address)

   For example (and assuming w.x.y.z is IP address 20.120.1.100):



4. On the Internet router:- Configure the following port forwarding rules:

   a. External UDP ports 10001 and 10002 to the same UDP ports on the IP address (10.0.0.25) assigned to the PC.

This assumes that the 'Manager base port' is set to 10001 in the PC application configuration – see step 2. If you changed the base port during step 3, then you must change the port forwarding rules accordingly. Always create port forwarding configuration for base port and base port + 1.

Note that the two DNS servers map the same hostname (trvr-001.mydomain.com in the example) to different IP addresses. This is crucial for the correct operation of the connection between the recorder and PC application.

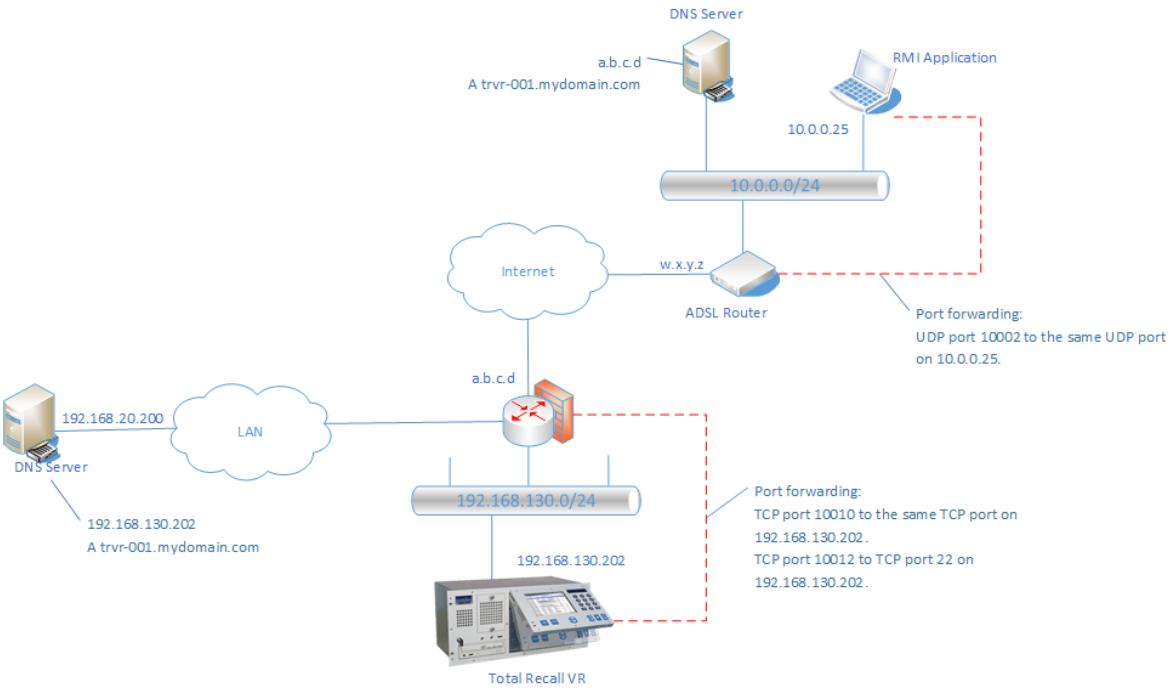
3.2. Premium PC Applications with Max and LinX Recorders

This example shows how to use the premium PC applications, such as the Total Recall VR Desktop, with 9.x.y (Max) and 10.x.y (LinX) recorders.

The example assumes that you are running the latest version of the 9.x.y (Max) or 10.x.y (LinX) release on your recorder. At the time of writing the latest versions are 9.20.0 or 10.15.0.

In addition, the example assumes that you are using the latest version of the PC applications. At the time of writing the latest version is 11.0.0.

The following diagram shows the example solution:



In this solution the communication between the Total Recall VR PC application and recorder depends on the configuration of two name (DNS) servers: one used by the recorder and another by the PC application.

The DNS used by the PC application can be eliminated by static configuration in the 'hosts' file on the PC that runs the PC application. However, the rest of the section assumes that there is a DNS server.

Recorder Site Configuration

The following need to be configured correctly at the recorder site:

1. The DNS server
2. The Internet Router
3. The Total Recall VR recorder

To complete the configuration of the recorder you will need a PC with either the Total Recall VR Manager or the Total Recall VR Desktop application.

We assume that you will be using the Total Recall VR Manager application.

The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps a hostname of your choice to an IP address that you plan to assign to the recorder. For example, create the following DNS entry:

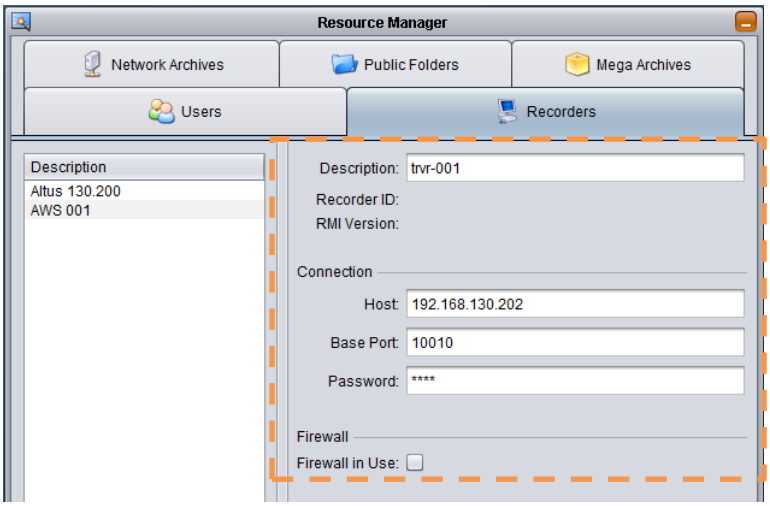
   192.168.130.202 A trvr-001.mydomain.com.

2. On the recorder:- Navigate to the Network Settings and configure the following:
   a. Set the Name Server. For example: 192.168.20.200.
   b. Assign the IP address from step 1 (192.168.130.202) to the LAN 1 interfaces.
3. On the recorder:- Navigate to the Remote Manager settings and configure the Remote Interface to accept client connection on the IP address (192.168.130.202) from step 1. Leave the base port to its default value (10010).
4. Connect a PC with the Total Recall VR Manager application to the same network as the recorder. Start the application and using the Resource Manager configure a Recorder using:
   a. Description: trvr-001
   b. Host: 192.168.130.202

c. Base Port: 10010

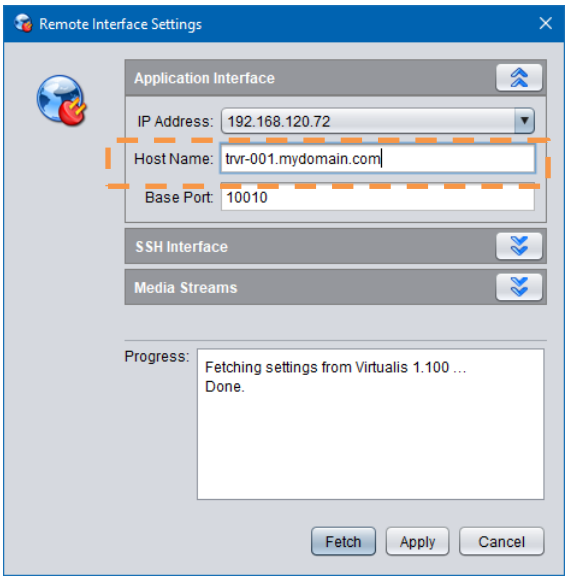
d. Password: 0000

For example:



5. In Manager:- Open the Recorder Control Panel and select the Remote Interface configuration. Set the Host Name to the hostname from step 1 (trvr-001.mydomain.com).

   For example:



   Note that the hostname used by the Remote Interface can be different to the hostname assigned to the recorder as a system on the network. However, the hostname must map to an IP address that is assigned to one of the LAN interfaces of the recorder.

6. On the Internet router:- Configure the following port forwarding rules:

   a. External TCP port 10010 to the same TCP port on the IP address assigned to the recorder (192.168.130.202).

This assumes that the Total Recall VR Remote Interface configuration uses the default base port 10010 – see step 3. If you changed the base port during step 3, then you must change the port forwarding rules accordingly.

b. External TCP port 10012 to TCP port 22 on the IP address assigned to the recorder (192.168.130.202).

This allows for transfer of files from/to Total Recall VR using SCP (secure copy protocol).

This assumes that the Total Recall VR Remote Interface configuration uses the default base port 10010 – see step 3. If you changed the base port during step 3, then you must change the port forwarding rules accordingly. Always create port forwarding configuration for base port + 2.

PC Application Site Configuration

The following need to be configured correctly at the PC application site:

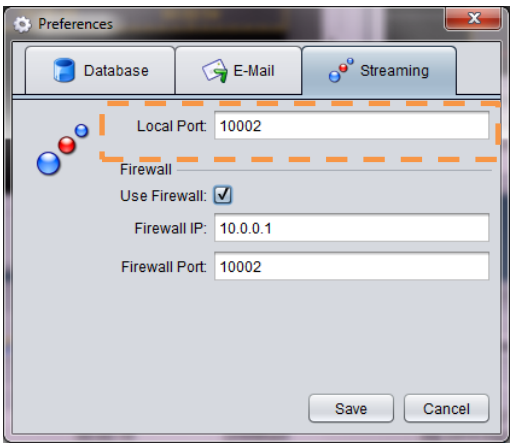
1. The DNS server
2. The Internet Router
3. The Total Recall VR Remote Manager PC application

The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps the hostname used by the recorder for its Remote Interface (trvr-001.mydomain.com) to the public IP address of the Internet router at the recorder site (a.b.c.d). For example, create the following DNS entry (replace a.b.c.d with an actual IP address):

   a.b.c.d A trvr-001.mydomain.com.

2. PC application:- If you are using the Total Recall VR Desktop or the Total Recall VR Monitor PC application, configure it to use UDP port 10002 for streaming. To do this, use the Preferences dialog, Streaming tab:



3. PC application:- Configure a connection to the recorder using:

a. Description: trvr-001

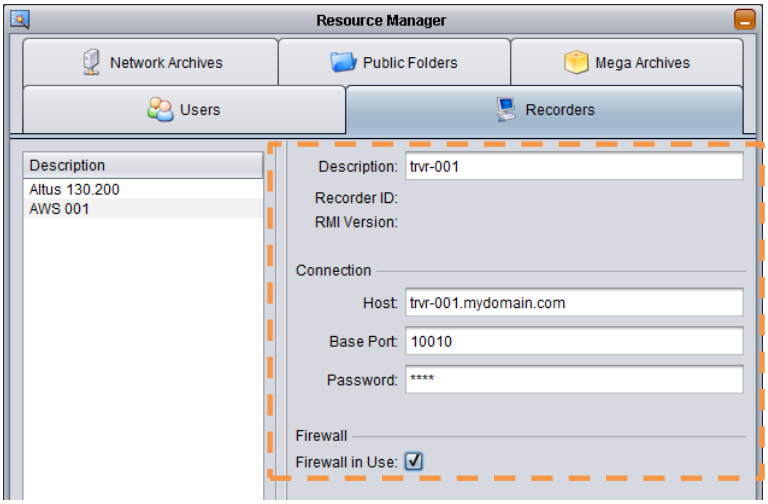
b. Host: trvr-001.mydomain.com

c. Base Port: 10010

d. Password: 0000

e. Firewall in Use: Ticked

For example:



4. On the Internet router:- Configure the following port forwarding rules:

   a. External UDP port 10002 to the same UDP port on the IP address (10.0.0.25) assigned to the PC.

      This assumes that the PC application is using UDP port 10002 for streaming – see step 2. If you changed the streaming port during step 2, then you must change the port forwarding rules accordingly.

Note that the two DNS servers map the same hostname (trvr-001.mydomain.com in the example) to different IP addresses. This is crucial for the correct operation of the connection between the recorder and PC application.

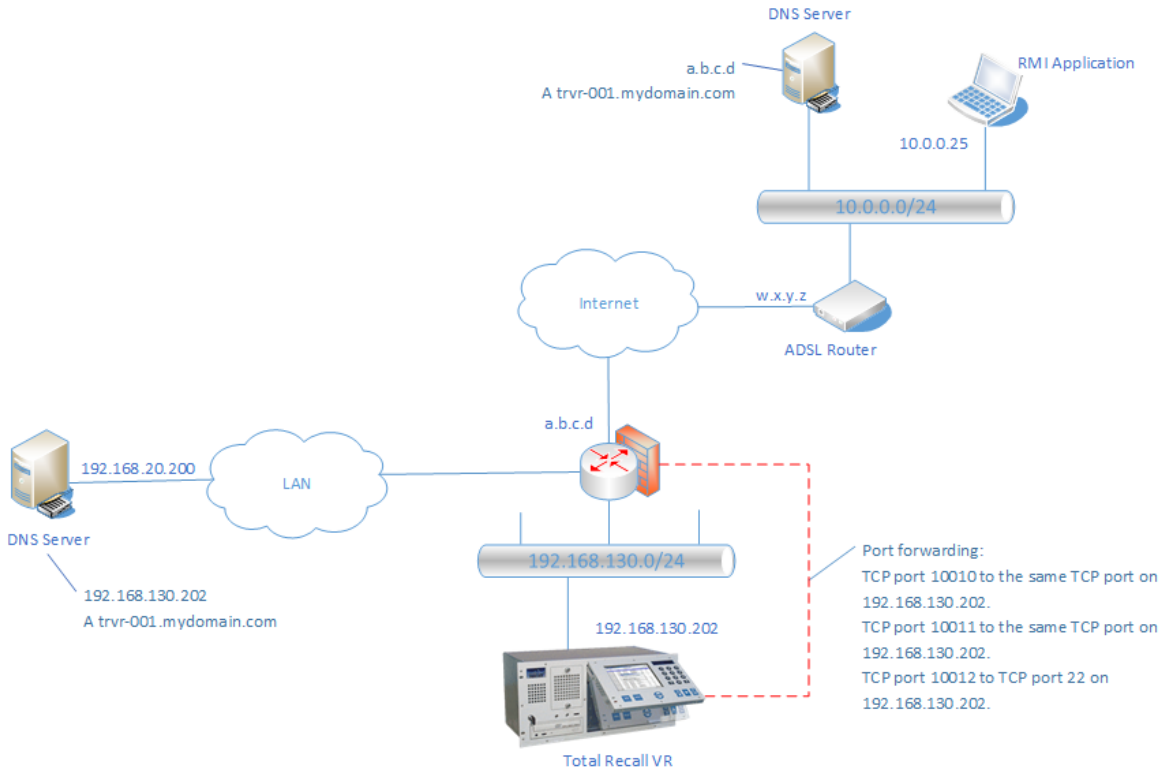
3.3. Premium PC Applications with LinX II Recorders

This example shows how to use the premium PC applications, such as the Total Recall VR Desktop, with 11.x.y (LinX II) recorders.

The example assumes that you are running the latest version of the 11.x.y (LinX II) release on your recorder. At the time of writing the latest version is 11.4.0.

In addition, the example assumes that you are using the latest version of the PC applications. At the time of writing the latest version is 11.0.0.

The following diagram shows the example solution:



In this solution the communication between the Total Recall VR PC application and recorder depends on the configuration of two name (DNS) servers: one used by the recorder and another by the PC application.

The DNS used by the PC application can be eliminated by static configuration in the 'hosts' file on the PC that runs the PC application. However, the rest of the section assumes that there is a DNS server.

Recorder Site Configuration

The following need to be configured correctly at the recorder site:

1. The DNS server
2. The Internet Router
3. The Total Recall VR recorder

To complete the configuration of the recorder you will need a PC with either the Total Recall VR Manager or the Total Recall VR Desktop application.

We assume that you will be using the Total Recall VR Manager application

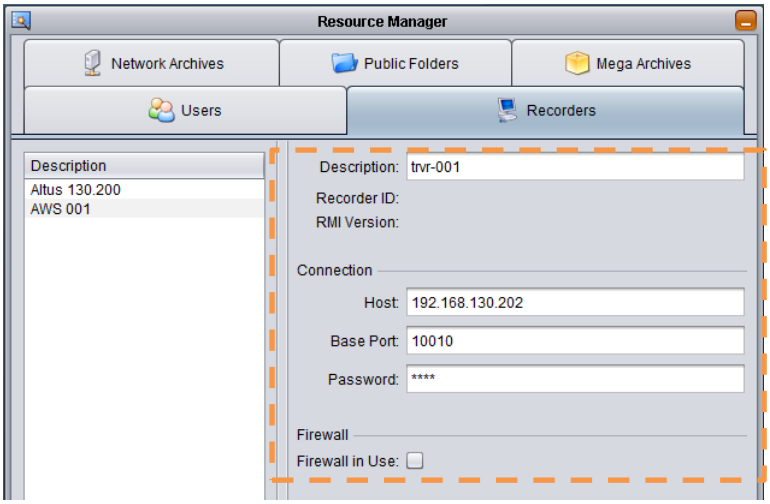
The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps a hostname of your choice to an IP address that you plan to assign to the recorder. For example, create the following DNS entry:

   192.168.130.202 A trvr-001.mydomain.com.

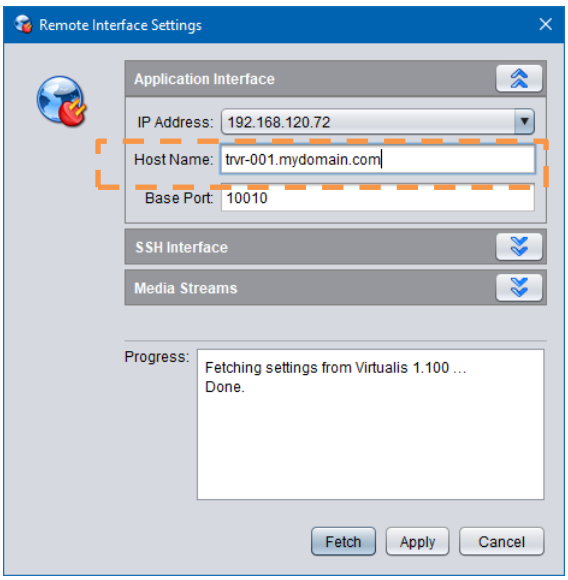
2. On the recorder:- Navigate to the Network Settings and configure the following:
   a. Set the Name Server. For example: 192.168.20.200.
   b. Assign the IP address from step 1 (192.168.130.202) to the LAN 1 interfaces.
3. On the recorder:- Navigate to the Remote Manager settings and configure the Remote Interface to accept client connection on the IP address (192.168.130.202) from step 1. Leave the base port to its default value (10010).
4. Connect a PC with the Total Recall VR Manager application on the same network as the recorder. Start the application and using the Resource Manager configure a Recorder using:
   a. Description: trvr-001
   b. Host: 192.168.130.202
   c. Base Port: 10010
   d. Password: 0000

   For example:



5. In Manager:- Open the Recorder Control Panel and select the Remote Interface configuration. Set the Host Name to the hostname from step 1 (trvr-001.mydomain.com).

   For example:



   Note that the hostname used by the Remote Interface can be different to the hostname assigned to the recorder as a system on the network. However, the hostname must map to an IP address that is assigned to one of the LAN interfaces of the recorder.

6. On the Internet router:- Configure the following port forwarding rules:

   a. External TCP ports 10010 and 10011 to the same TCP ports on the IP address assigned to the recorder (192.168.130.202).

      This assumes that the Total Recall VR Remote Interface configuration uses the default base port 10010 – see step 3. If you changed the base port during step 3, then you must change the port forwarding rules accordingly. Always create port forwarding configuration for base port and base port + 1.

b. External TCP port 10012 to TCP port 22 on the IP address assigned to the recorder (192.168.130.202).

   This allows for transfer of files from/to Total Recall VR using SCP (secure copy protocol).

   This assumes that the Total Recall VR Remote Interface configuration uses the default base port 10010 – see step 3. If you changed the base port during step 3, then you must change the port forwarding rules accordingly. Always create port forwarding configuration for base port + 2.

PC Application Site Configuration

The following need to be configured correctly at the PC application site:

1. The DNS server
2. The Total Recall VR Remote Manager PC application

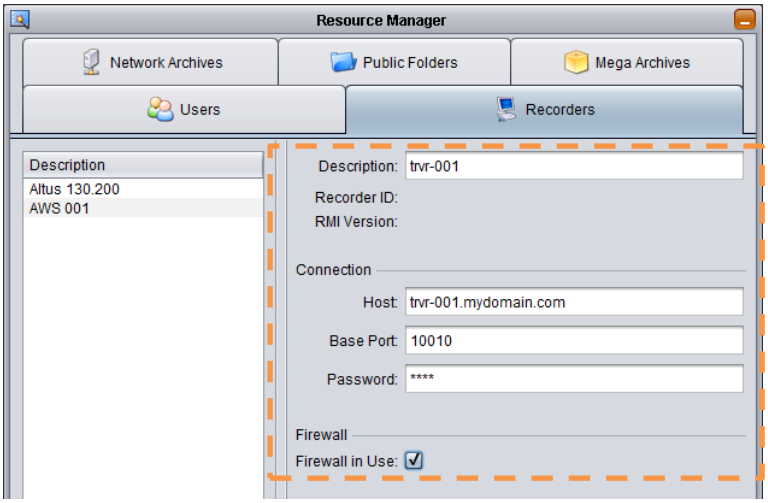
The necessary configuration for this example is:

1. On the DNS server:- Create an 'A' record that maps the hostname used by the recorder for its Remote Interface (trvr-001.mydomain.com) to the public IP address of the Internet router at the recorder site (a.b.c.d). For example, create the following DNS entry (replace a.b.c.d with an actual IP address):

   a.b.c.d A trvr-001.mydomain.com.

2. PC application:- Configure a connection to the recorder using:
   a. Description: trvr-001
   b. Host: trvr-001.mydomain.com
   c. Base Port: 10010
   d. Password: 0000
   e. Firewall in Use: Ticked

   For example:



Note that the two DNS servers map the same hostname (trvr-001.mydomain.com in the example) to different IP addresses. This is crucial for the correct operation of the connection between the recorder and PC application.

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