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RecordTS v3.2 Single Server Edition

# Installation Guide





<http://www.tsfactory.com>

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RecordTS by TSFactory LLC is protected by an End User License Agreement. To view the agreement, visit the company website at [www.tsfactory.com](http://www.tsfactory.com), under RecordTS Documentation.



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# Introduction

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## What is RecordTS Single Server Edition?

RecordTS Single Server Edition is a remote session recorder for Windows Terminal Services. It is a complete out-of-the-box, stand-alone software product that installs all the necessary software components onto one machine. It is intended for demonstration and single-server installations only.

**NOTE:** Customers requiring larger configurations should install the full enterprise version of RecordTS.

Once installed on a server running Terminal Services or simply a Windows server or workstation with Remote Desktop/Remote Administration enabled, administrators will be able to record everything users are doing during their sessions for later playback and/or archiving. It's pretty much the same as watching a video on your computer! Thanks to this product you can:

- Track who is connected to the computer and see what they do on it
- View selected recordings for a specific user, during a specific time period, etc.
- Track users actions that might have caused problems on a server or workstation
- Save recorded sessions to a PostgreSQL Server database.

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## Main Features

### Security/Audit compliance

Instead of looking at hundreds of entries in log files, RecordTS allows you to actually see everything that was done - as it happened, in real time. You can archive all recorded sessions for later playback, and in case of an audit it is just a matter of finding a particular session and watching!

### Developed for Terminal Services

Although other similar solutions do exist in the market, RecordTS is the first and only solution that works directly at the protocol level (RDP and ICA). This means increased performance and scalability, with much smaller recordings, nothing is missed. The users have no clue that their sessions are being recorded.

## Per user session recording

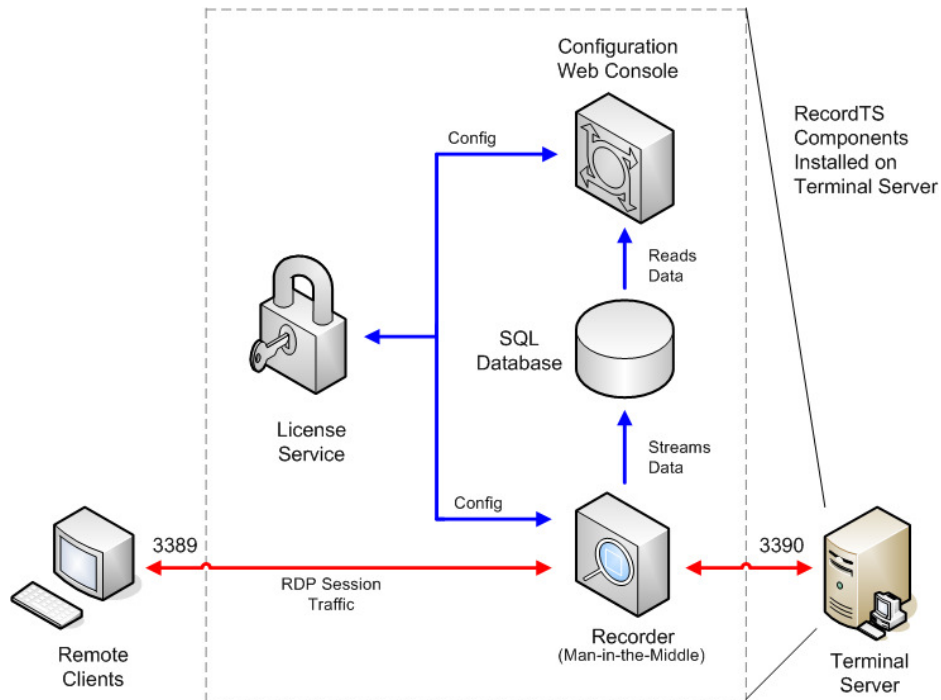
Recorded sessions are saved individually on a per user basis. Recordings are stored in a database for later retrieval and replay.

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## How does RecordTS work?

RecordTS installs locally on the Terminal Server intercepting all traffic through the RDP port 3389. It acts as a man-in-the-middle software service, passing RDP session traffic between the client and the host. Once intercepted, the RDP session stream is stored to a SQL database. As RecordTS was developed from the ground up specifically for Terminal Services, this process does not affect your Terminal Server performance, scaling easily once more users and/or servers are added to the system.

Below is a schematic diagram of the Single Server Edition configuration for RecordTS v3.



RecordTS v3 Single Server Edition - internal logical framework

The next section will discuss the individual components in detail.

# Quick Overview

Below is the list of basic components of RecordTS Single Server Edition. Each component will be discussed more in depth further into the manual.

- **Recording Service (Recorder)**
- **Configuration Console**
- **License Service**
- **Database**

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## Recorder

The basic component of RecordTS is the Recording Service or Recorder. Its main job is to record user sessions and store the recording video to a database. From the time RecordTS Recorder is installed and properly configured on the server or workstation, each user session will be recorded and saved to a database in the native RecordTS video format. Recorded sessions will contain additional information about each session such as computer name, IP address, user name, connection time and duration, etc. For each individual user, recorded sessions are stored separately in the database.

The recorded sessions can be viewed or played as a video using the RecordTS WebPlayer.

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## Configuration Console

The RecordTS Configuration utility is a web-based console that allows the admin to centrally manage the recorder, licensing and stored recorded sessions. There are also statistics reports available for user and server usage.

The main purpose of the configuration console is to allow configuration of the various RecordTS modules and to view sessions.



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## License Service

RecordTS can be licensed for perpetual (one time payment) or subscription (pay as you go) based licensing. Software assurance can be purchased with perpetual licensing.

Subscription licensing is much less expensive alternative and allows products to be purchased for use for a period of time. Free trial subscriptions are available for download to allow advance testing of RecordTS on-site prior to purchase.

The RecordTS License Service will be installed automatically and is used to authorize RecordTS components for use. The License Service will be configured during installation and allow the customer to either run in trial mode for 30 days or enter a purchased license or subscription ID. The license or ID can always be entered later.

### Subscription Licensing Details:

For customers interested in subscription licensing, the license server will need to be authenticated to the TSFactory license service. It is a simple process and requires a subscription ID to authenticate.

### Obtaining a subscription ID

The customer will need to create a free customer account on the TSFactory website (no credit card is required). The customer account will have subscription information, links to download the software and pertinent documentation. A TSFactory partner or one of our sales associates can assist you with this process. Once you have a customer account, you will log in and locate your subscription ID. You will need to copy and paste it into the appropriate field in the Dashboard license service configuration when required.

Once the License Service is authenticated, it will authorize the RecordTS components and enable extended functionality of the Configuration console as well as other components and products when they become available. The License service will solicit the TSFactory website for subscription information based on which products the customer has purchased. If none have been purchased and a trial period has been authorized for the customer, then the License server will allow as many servers and users as needed for the trial period (usually 30 days). Once the trial expires, the system will stop recording until additional time is purchased. **NOTE: It is strongly suggested to purchase or renew subscriptions prior to expiration to avoid disruption of service.**

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## Database

The RecordTS records stream session data to a central database for safe keeping. Sessions can be played back immediately once a user's session has been established. This allows real-time viewing of session activity and does not require the user to log off to view their session.

For RecordTS v3 - Single Server Edition, the database engine, PostgreSQL v9 (with appropriate ODBC database drivers) will be installed automatically.

Session recording can be buffered in case the database becomes temporarily unavailable, slows down or the network becomes unstable, etc. Once connectivity to the database is restored, buffered session data will be dumped to the database and normal operation will continue. If connectivity to the database is disrupted for extended periods of time, the buffers may fill completely and sessions will be suspended until connectivity to the database is restored.

# Installation

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## Overview

RecordTS Single Server Edition is designed to be installed completely onto one machine only, preferably a Windows terminal server.

It is made up of four major components:

- License service – handles licensing components
- Configuration console – centralized management
- Database server – storage for session data
- Recorder service – records sessions

It is assumed that the prerequisite software and configurations have been made prior to installing this software.

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## Prerequisites

For all users installing the software:

- Download the product software and store to a convenient location.
- You will need a Windows 2008R2 or higher server-grade machine to install RecordTS, preferably with the latest updates installed, with at least 4gig of RAM and 100gig of drive space. Storage requirements are dictated by the database, so plan accordingly.
- At least one other Windows machine that can log in remotely to the RecordTS machine. (act as a remote desktop client)
- A domain or system admin account (or equiv) that has access to all machines in the test.
- Active Directory is not required for RecordTS Single Server Edition.

For trial software testing:

- No licensing is required for the trial period.

For customers using subscription licensing:

- Create a customer account on [www.tsfactory.com](http://www.tsfactory.com).
- Locate your subscription ID – you will need this during configuration. It can be found in your customer account.
- Continuous internet connection is required to the RecordTS machine.

**WARNING:**

Certain programs such as antivirus and backup software can interfere with the proper installation and operation of RecordTS software, especially the recorders. It is strongly recommended to completely disable these programs on the recorded machine prior to installation. The antivirus and backup programs should be configured to ignore the RecordTS working folders and the RecordTS program processes if they are to be enabled after installation.

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## Installing RecordTS Single Server Edition

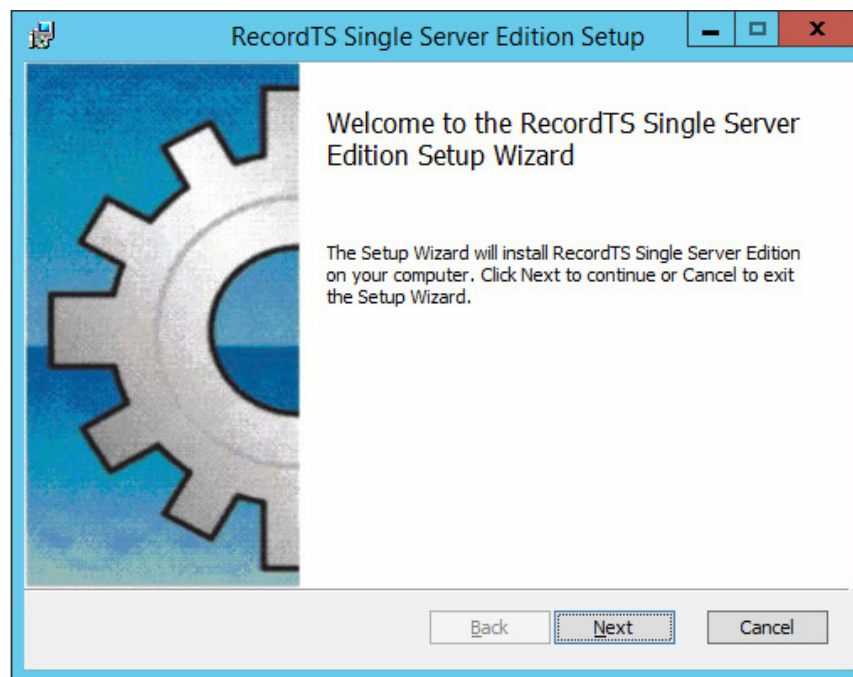
The RecordTS Single Server Edition installation file must be installed on a Windows 2008, 2012 or 2016 Server or Workstation machine. Best practice is to copy the installation file to a folder on the target machine and install locally.

**NOTE:** a REBOOT is required after installing RecordTS Single Server Edition

Several RecordTS services will appear in the Windows Services applet after installation.

### Step by Step Instructions

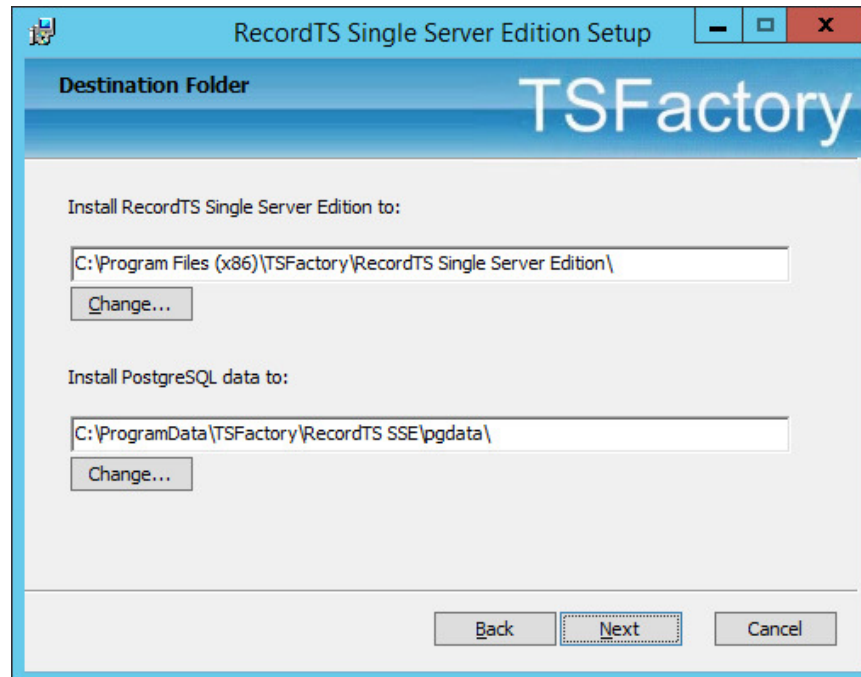
1. Download and run the RecordTS-Single-Server-Edition-3.x.xxx.msi installation file on the machine that is to be recorded. The installation wizard will appear. Close all other programs and then click Next.



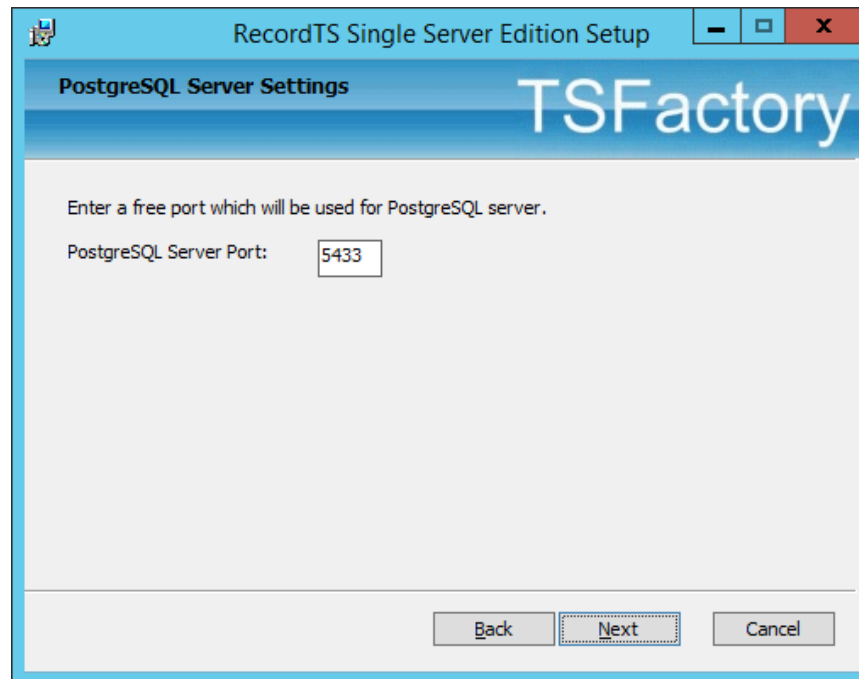
- Carefully read the license agreement. If you agree to the terms, select the check box to confirm acceptance of the agreement. Click Next to continue installing. To exit Setup, click Cancel.



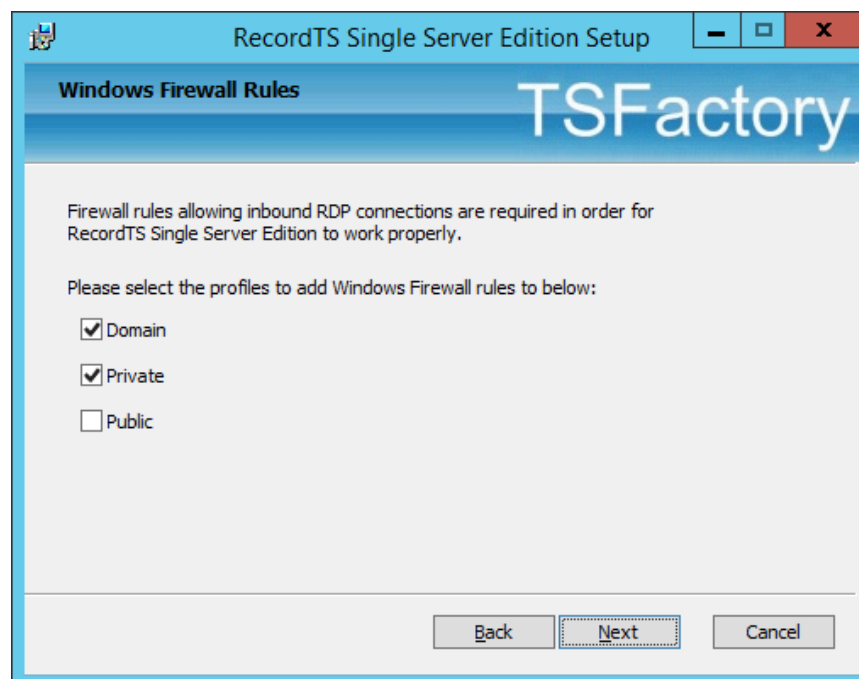
- Select the folder where the RecordTS program files will be installed and the database data file. Only folders on the local machine can be used. Mapped network drives will fail. If you do not want to use the default directory suggested by the installer, click Browse... to choose another directory. Then click Next.



4. You can change the port that the PostgreSQL database server uses. It is recommended to keep the default value. Click Next to continue.

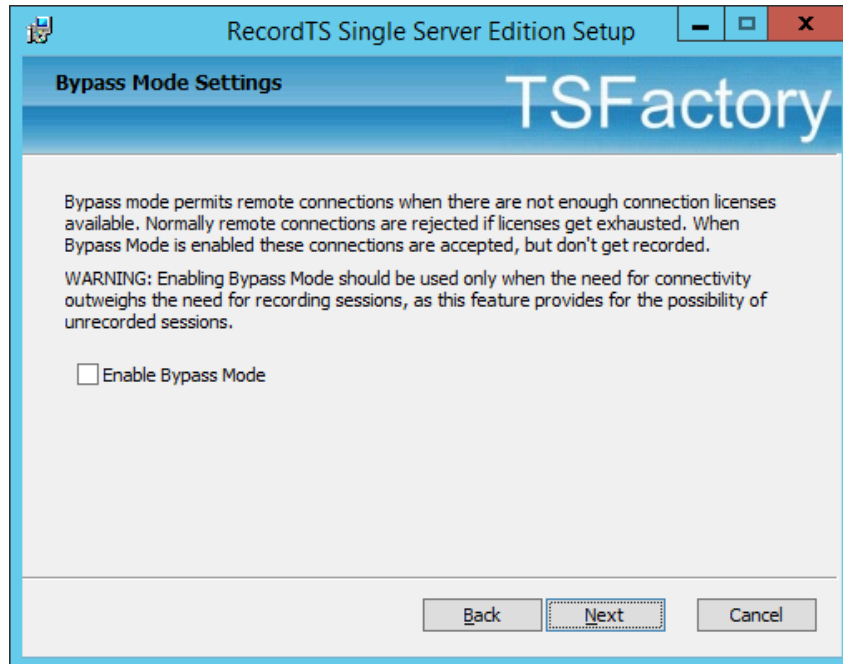


5. Select the profiles to add firewall rules for RecordTS. You can leave the default selections. Click Next to continue.

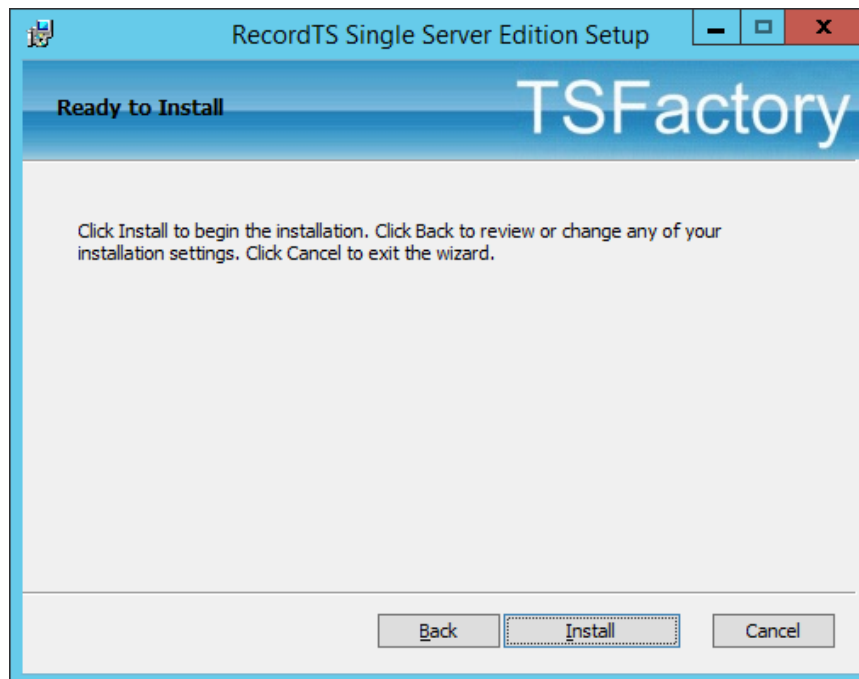


6. Enable Bypass Mode or leave the default setting to disable Bypass Mode. This feature allows remote connections to occur when licenses cannot be obtained from the RecordTS License Service. Use this feature with great caution!

**Warning:** Bypass Mode should only be used in extreme cases where connectivity outweighs the need to record every session.



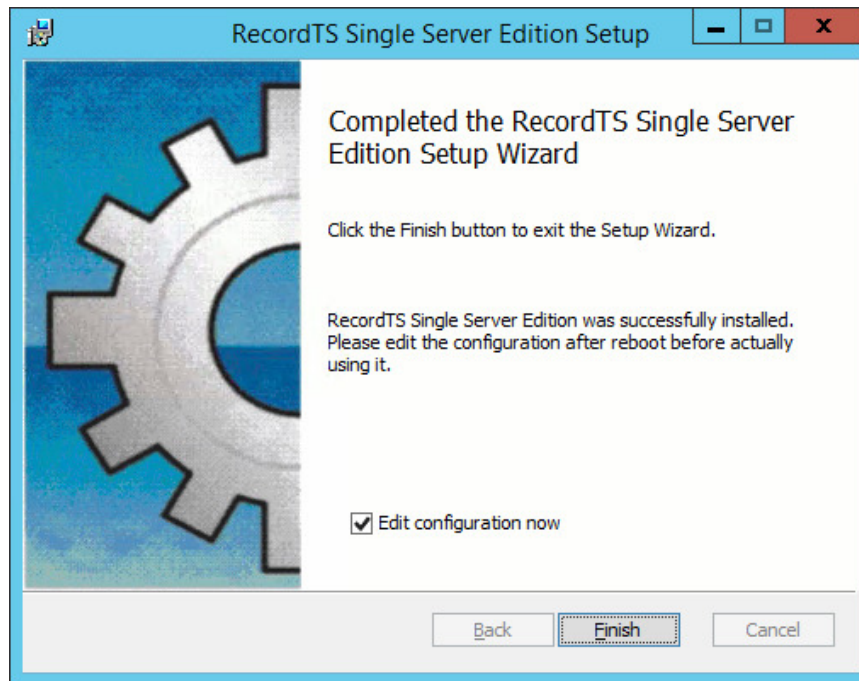
7. To start the installation program, click Install. To modify the installation options that are mentioned in the previous steps, click Back. To exit Setup, click Cancel.



Once the installation program finishes copying the necessary files to the system, the installation process has successfully completed. You may



leave the “Edit configuration now” box checked to configure RecordTS after exiting. To exit the installation wizard, click Finish.



8. The RecordTS Configuration web console will appear after exiting the installation wizard (if you left “Edit configuration now” checked). If not, then you should see the reboot request window instead.

**NOTE:** **REBOOT** is required for the ports to be reassigned. RecordTS will not work properly until this happens. If you are logged in remotely, you may lose connection during the reboot. You may reboot after configuration if you prefer.

#### **FOR SUBSCRIPTION USERS ONLY:**

You may see a yellow warning message indicating failure to allocate a server lease. This is normal if you have entered a subscription ID license and can be fixed by logging onto your online customer account, locating your subscription and authorizing this server by clicking on the Authorize button.

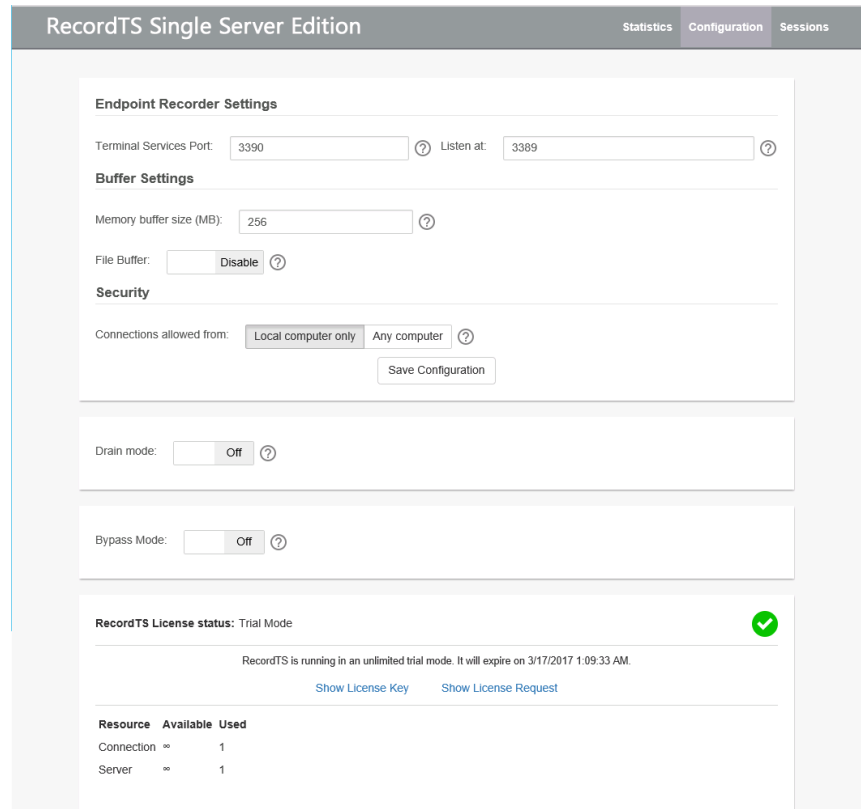
**NOTE:** It can take up to 5 minutes for the license service to update during the authorization process. You can refresh the Configuratoin web console often to check the status.

Once the license service has received subscription information from your customer account, all warning and error messages should go away. The license server status should change to “License server up and running” and the licenses should be listed below it.

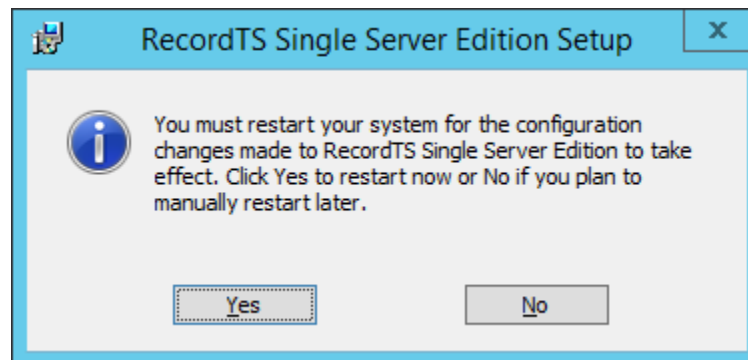
***If the warning message does not clear:*** this is most likely due to a firewall blocking communication between RecordTS and the TSFactory webservers out on the internet. RecordTS License

Service needs to be able to talk to the TSTFactory certificate license authority (CLA) server “cla.tsfactory.com” on port 27280. Even though your local firewall rules to allow this traffic, your perimeter or exterior firewalls may not.

The following diagram shows what the Configuration console should look like when once the license service has successfully been initialized: (your resource amounts may differ)



9. If you have not rebooted at this point, you may do so now.



# Configuring RecordTS

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## Overview of Configuration Console

The RecordTS Configuration Console is used to configure the RecordTS license service and various other components to do the following:

- ✓ Authorize RecordTS software components for use, such as the recorders, remote user connections along with future RecordTS integrated products and components.
- ✓ Display a list of recorded sessions for the user to browse and play back.
- ✓ Display statistical data.
- ✓ Display licensed resources and usage information.
- ✓ Display reports.
- ✓ Allow custom configuration of key features in RecordTS.
- ✓ Connect to the TSTFactory website servers to obtain subscription license information using a subscription ID supplied from your online customer account (you need to create one if you plan on using subscription licensing)

## RecordTS Configuration Console:

The screenshot shows the RecordTS Configuration Console interface. At the top, there are tabs for 'Statistics', 'Configuration', and 'Sessions'. The main content area is divided into several sections:

- Endpoint Recorder Settings:** Includes 'Terminal Services Port' (3390) and 'Listen at' (3389).
- Buffer Settings:** Includes 'Memory buffer size (MB)' (256) and 'File Buffer' (Disable).
- Security:** Includes 'Connections allowed from' (Local computer only) and a 'Save Configuration' button.
- Drain mode:** A toggle switch set to 'Off'.
- Bypass Mode:** A toggle switch set to 'Off'.
- RecordTS License status:** Shows 'Trial Mode' with a green checkmark. Below this, it states 'RecordTS is running in an unlimited trial mode. It will expire on 3/17/2017 1:09:33 AM.' and provides links for 'Show License Key' and 'Show License Request'.
- Resource Usage Table:**

Resource	Available	Used
Connection	∞	1
Server	∞	1

Here is a breakdown of the individual settings and what they are used for:

### Endpoint Recorder Settings

These are the ports that RecordTS and Terminal Services listen on. During installation, Terminal Services was moved from port 3389 to port 3390 and RecordTS was installed on port 3389.

RecordTS acts as a “man in the middle” service, intercepting traffic to port 3389 and passing it on to port 3390 (terminal services). If the RecordTS recorder service is turned off or disabled in any way, remote clients will not be able to connect.

**WARNING:** Changing ports may prevent recording and remote connections. Only do this under advice of TSFactory support personnel.

**NOTE:** A reboot is required after changing ports.

### Buffer Settings

RecordTS streams session data to its local database. If during peak activity, the database becomes overwhelmed, bogged down or has a problem, RecordTS will buffer session data to prevent users from experiencing delays or lag in responsiveness during their sessions. This is handled in two ways: first, session data is buffered into memory. Once the memory buffer is exhausted, then session data can be stored locally to a file. Once the file buffer is exhausted, all sessions will be terminated to prevent non-recorded activity. Although not advised, this feature can be overridden to allow sessions to continue unrecorded.

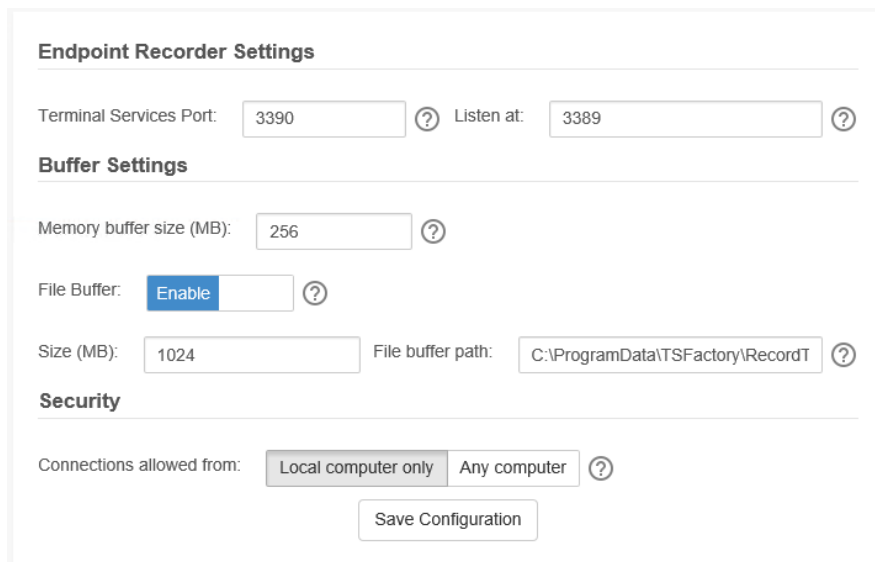
### Memory buffer size (MB)

RecordTS will buffer (temporarily store) session data to physical memory (RAM) if the database server becomes slow or intermittent. This can happen during times of high desktop activity amongst users and is normal. You may increase the buffer size if users are experiencing delays or latency during their sessions. Entering a value of zero will disable memory buffering.

### File buffer

When enabled, RecordTS will buffer (temporarily store) session data locally to a file. This is intended for times when the database becomes unavailable for longer periods of time. It is like an insurance policy or backup measure to ensure session reliability during times when the database is not responding or requires maintenance. Once the database is available again, buffered data will be flushed to the database and normal operation will continue. Users should not experience any delays or session latency during this time; in fact this feature prevents this problem from happening.

To configure File Buffering, click on the Disable button and a more detailed menu will appear:



The screenshot shows the 'Endpoint Recorder Settings' window. It is divided into three sections: 'Endpoint Recorder Settings', 'Buffer Settings', and 'Security'.  
- In the 'Endpoint Recorder Settings' section, there are two input fields: 'Terminal Services Port' with the value '3390' and 'Listen at' with the value '3389'.  
- In the 'Buffer Settings' section, there are three items: 'Memory buffer size (MB)' with the value '256'; 'File Buffer' with a dropdown menu currently set to 'Enable'; and 'Size (MB)' with the value '1024'.  
- In the 'Security' section, there are two radio buttons for 'Connections allowed from': 'Local computer only' (which is selected) and 'Any computer'.  
- At the bottom of the window is a 'Save Configuration' button.

The file buffer size defaults to 1 gigabyte (1024 MB). You can change value by entering another number in the Size (MB) box. The file name for the file buffer is displayed in the File buffer path box and can be changed if necessary (although not recommended). Click on Save Configuration to save your changes.

## Security

This setting by default restricts viewing of sessions and administration by local admins only. Selecting “Any computer” will allow remote computers to view sessions and allow remote configuration.

**NOTE:** Remote users will need to have security access to view sessions.

## Drain Mode

This setting is used to allow all users to gracefully log off before the system reboots.

## Bypass Mode

This setting should be used with ***extreme caution*** as it allows unrecorded connections to be made when the server cannot obtain user licenses from the RecordTS License Service. Enabling this feature will bypass security measures that ensure all remote sessions are recorded. Only use this feature when the need for remote connectivity outweighs the need for every session to be recorded.

# Using RecordTS

Once RecordTS has been properly configured and the server has been rebooted at least once, users may begin logging in remotely. Their sessions will be recorded to the database and may be viewed immediately.

**NOTE:** Users will not know that they are being recorded.

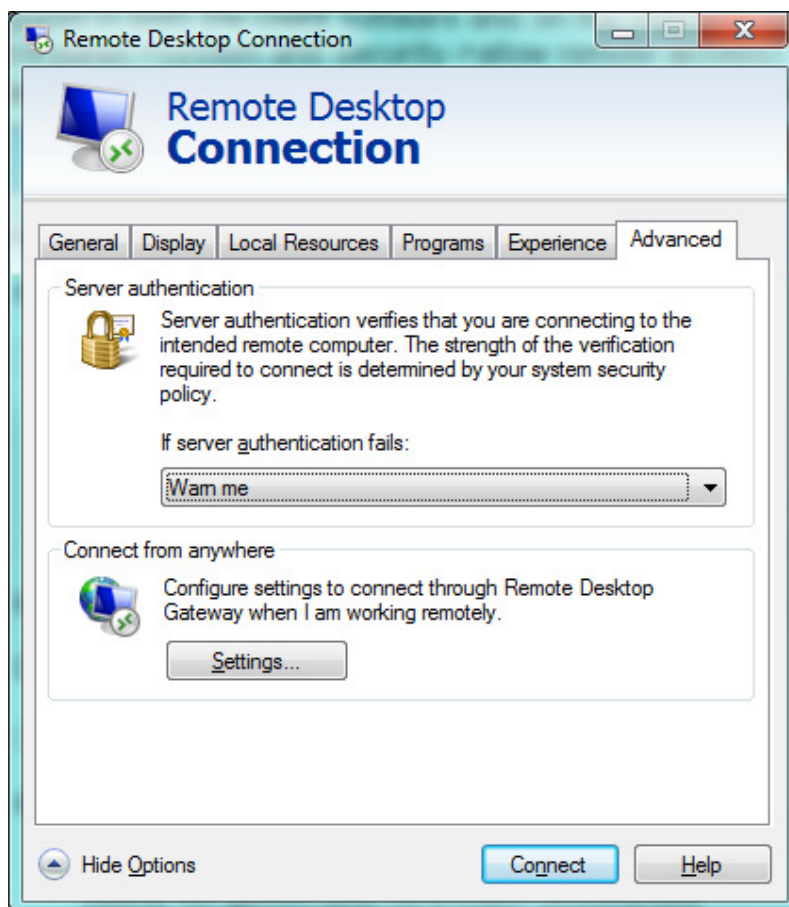
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## Connecting Remotely

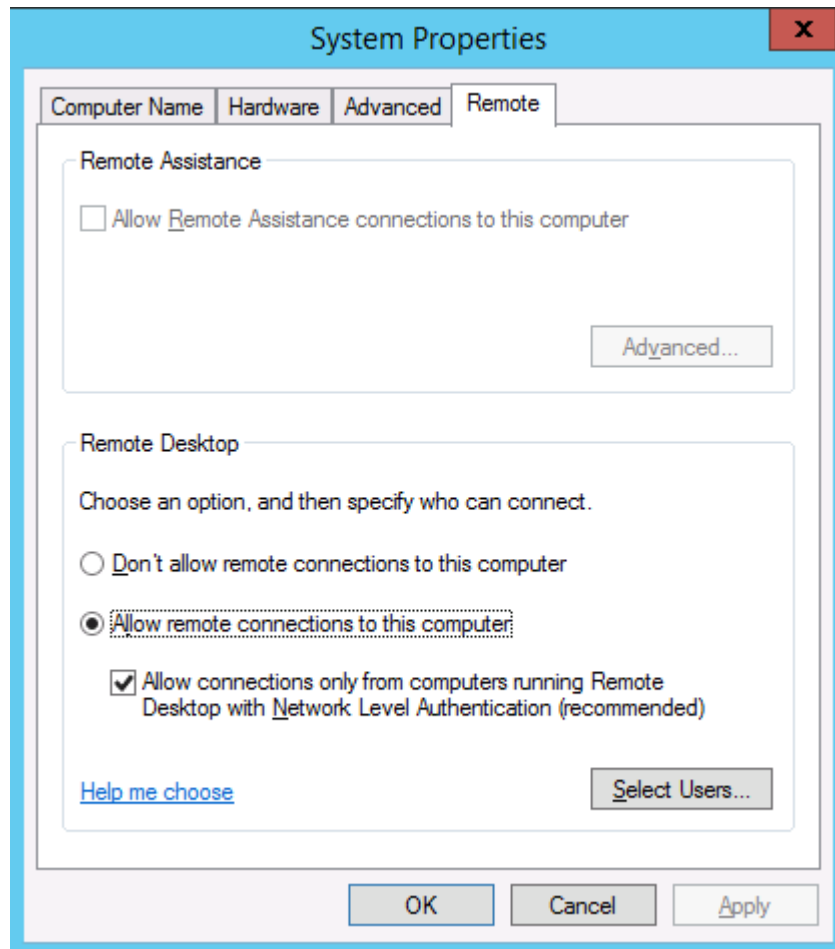
Users may connect to the machine remotely using most any client that supports RDP (remote desktop protocol).

RecordTS supports NLA (network level authority) security, which must be configured in both the client software and on the machine being recorded.

For the standard Windows remote desktop client, the security setting can be found under the Advanced tab, Server authentication, as pictured below.



On the recorded machine, the security configuration can be found in Control panel, System and security, Allow remote access, as depicted below.



If you are using an older client that does not support NLA, then uncheck the “Allow connections only from...” box and click OK to save your changes.

This screen is also where you would allow additional users to connect remotely. Administrators are automatically included by default. Windows Server allows up to two remote connections by default and Windows Workstation allows only one. You must purchase additional user CAL's (client access licenses) from Microsoft if you plan on hosting more desktops.


**NOTE:** RecordTS will not work properly when installed on home versions of Windows. The home versions do not allow remote access, but you can connection remotely *from* a home version of Windows, just not *to* it.



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## Licensing

RecordTS limits the number of users that can log in remotely by the amount of user licenses listed in the RecordTS Configuration found under the Configuration tab. (see below)

RecordTS License status: Trial Mode 

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RecordTS is running in an unlimited trial mode. It will expire on 3/17/2017 1:09:33 AM.

[Show License Key](#)   [Show License Request](#)

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Resource	Available	Used
Connection	∞	1
Server	∞	1

In the diagram above, RecordTS is licensed for infinite servers and users where only one server is registered (used) and one user is currently remotely connected. This is trial mode and is used only for demonstration purposes. Your license/subscription may be different from this one.

It is typical to only have one Dashboard licensed, although you can have more than one for remote administration.

**NOTE:** RecordTS Single Server Edition is intended to record only ONE server or workstation. If you intend on recording more than one machine, then **this version is probably not for you**. Consider using one of the other RecordTS products for this purpose.

Additional licenses may be purchased at anytime and will automatically be updated to your license service if you have a subscription.

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## Sessions

Recorded sessions are stored in the database and are listed in the Configuration under the Sessions tab.

Id	Start date	Start time	End date	End time	User name	User domain	Session host	Client name	Data size	
6	07/23/16	09:54:29			administrator	CNSSW	SAED01.CNSSW.net	VERDE	170.50 KB	<a href="#">Play</a>
5	07/23/16	09:51:34	07/23/16	09:54:16	user1	CNSSW	SAED01.CNSSW.net	WS01	763.38 KB	<a href="#">Play</a>
4	07/23/16	09:51:01	07/23/16	09:54:09	user0	CNSSW	SAED01.CNSSW.net	WS00	211.89 KB	<a href="#">Play</a>
3	07/23/16	00:52:27	07/23/16	00:54:03	administrator	CNSSW	SAED01.CNSSW.net	VERDE	192.72 KB	<a href="#">Play</a>
2	07/23/16	00:51:02	07/23/16	00:53:45	administrator	CNSSW	SAED01.CNSSW.net	VERDE	481.52 KB	<a href="#">Play</a>
1	07/23/16	00:47:00	07/23/16	00:50:32	administrator	CNSSW	SAED01.CNSSW.net	VERDE	1.34 MB	<a href="#">Play</a>

25 50 100

Total disk space used by the RecordTS database is 10.59 MB.

In the diagram above, there are six sessions listed. The start and end times are listed for each session, along with the user name, domain and the client machine name. The first session does not have an end date and time because it is still connected and being recorded.

The session host is the name of the machine being recorded. In other versions of RecordTS, the session host may list other machines, but in the Single Server Edition only one machine will always be listed. The Data size column shows the size of each session as it is stored in the database.

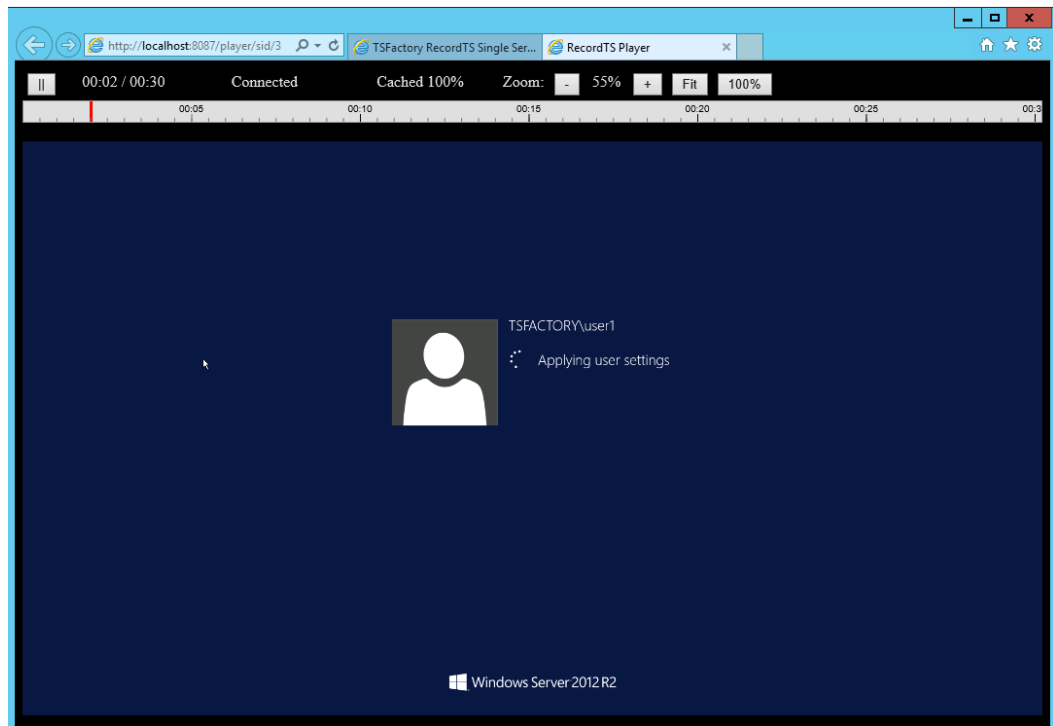
The total disk space used in the database is listed at the bottom of the page.

The [Play](#) link will start the RecordTS WebPlayer in a new tab to view the corresponding session on the same line.

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## Playing Back Recorded Sessions

Selecting the Play link located next to a session listed in Dashboard will start the RecordTS WebPlayer in a new browser tab and start playing the selected session.



You can navigate by using the red slider bar at the top to move through the video. The Zoom buttons (+/-) allow magnification of the video. You can pause the video by clicking on the || button. To end viewing, simply close the tab.