Connection Broker

Where Virtual Desktops Meet Real Business

Leostream™ Agent Administrator's Guide

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Overview

The Leostream Agent provides the Connection Broker with insight into the connection status of remote users to their desktops. Although installing the Leostream Agent is optional, it is an essential part of the Connection Broker product. The agent is required to use the following Leostream features.

- USB management
- Multi-monitor support
- Location-based printing
- Registry plans
- Automatic creation of Local users (Linux and Windows)
- Automatic addition of users to the Remote Desktop Group (Windows, only)


The Leostream Agent for Linux operating systems does not currently support the Leostream multi-monitor, location-based printing, or registry plans features.

There are two versions of the Leostream Agent.

1. The Leostream Agent for Microsoft® Windows® operating systems can be installed on the following operating systems:

   - Windows 2000
   - Windows XP
   - Windows Server® 2003
   - Windows Vista®
   - Windows Server 2008
   - Windows 7

2. The Leostream Agent for Linux operating systems can be installed on the following operating systems:

   - CentOS
   - Debian
   - Fedora
   - Novell SUSE Linux Enterprise
   - Red Hat Enterprise Linux
   - Ubuntu
   - Solaris

Why Do I Need the Leostream Agent?

The Connection Broker allows you to control and configure the user's session, even without a Leostream Agent installed on the remote desktop. To have the most control over the user's session, however, Leostream recommends that you install the Leostream Agent on every desktop managed by your Connection Broker.

When installed on a desktop, the Leostream Agent provides the Connection Broker with additional information about the user's session, including:

- When the user logs into the remote desktop
- When the user disconnects from the remote session
- When the user logs off of the remote desktop
- What processes are running on the desktop

In addition, the Connection Broker requires the Leostream Agent to enforce certain role and policy options, including:

- Adding Local Users or adding users to the Remote Desktop Users group, based on the user's role setting
- Taking actions when the user disconnects from their remote session

- Managing USB devices
- Enabling extended multi-monitor support.
- Attaching network printers specified by Connection Broker printer plans
- Using registry plans to modify or create registry keys on the remote desktop
- Performing single sign-on for Teradici™ PC-over-IP® connections (see **Single Sign-On for Teradici PC-over-IP**).

The Connection Broker also uses the Leostream Agent to communicate with certain resource centers. In particular, the Connection Broker requires a Leostream Agent on all Microsoft System Center Virtual Machine Manager (SCVMM) servers, in order to manage virtual machines hosted in a Microsoft Hyper-V™ host.

Optimizing the End-User Experience

The Leostream Agent end-user experience extension provides features for USB management, multiple monitor support, and location-based printer assignment when using the Leostream Agent on a Windows desktop. You must install the Leostream Agent on the remote desktop if you plan to use any of these features.

- To support multiple monitors and location-based printer assignment, ensure that you install the Leostream Agent with the **Install end-user experience extension** task selected.

- To use USB management, ensure that the **Enable USB over IP** task is selected when installing the Leostream Agent, as well as when installing Leostream Connect on the user's client device.

 Do not install the Leostream Agent's USB component if you have another USB over IP solution installed on the desktop, for example, the HP® RGS solution. If two USB solutions are installed side-by-side, you may not be able to predict which solution is managing the USB devices.

 Leostream Agent 5.1 for Windows and Leostream Agent 1.4 for Linux introduce new USB drivers that are not backwards compatible. If you install these Leostream Agents on your remote desktops, ensure that all your client devices use Leostream Connect 2.8 for Windows and Leostream Connect 2.2 for Linux. Otherwise, your USB devices will not successfully pass through to your remote desktops.

Registering Desktops with the Connection Broker

The Connection Broker natively manages virtual machines in VMware ESX/ESXi, VMware vSphere, Citrix XenServer, and Microsoft Hyper-V. To manage virtual machines from any other hypervisor, you can install the Leostream Agent on the each virtual machine. Use the Leostream Agent to register desktops *only* if that desktop is not already registered from another center, such as Microsoft Active Directory center.

The Connection Broker inventories these virtual machines in the **Uncategorized Desktops** center. See the "Uncategorized Desktops" section of the Connection Broker Administrator's Guide for more information.

 You can reboot and shutdown VMs with installed Leostream Agents. However, no other power control is available for these VMs. To start a shutdown VM, use the Connection Broker Wake-on-LAN feature or 1E WakeUp integration.

What's New in this Release

Leostream Agent for Microsoft® Windows® Operating Systems

Version 5.1 is the current version of Leostream Agent for Windows operating systems. This release contains the following enhancements.

- **USB drivers**: Leostream Agent 5.1 includes a new version of the USB drivers used for USB device redirection. These new drivers are compatible with the USB drivers in version 2.8 of Leostream Connect for Windows desktops and version 2.2 of Leostream Connect for Linux desktops, enabling USB device redirection from Linux clients to Windows remote desktops.

   These new drivers are not backwards compatible. You must upgrade Leostream Connect on all clients, if you use Leostream USB redirection.

- **Installation:**
  - New `/AGENTPORT` and `/USESSL` installer command line parameters to specify the Leostream Agent port and to indicate if the Leostream Agent communicates with the Connection Broker using SSL.
  - New option to disable installing the Leostream GINA after enabling the end-user experience task.
  - During an upgrade, if the installer for the new version does not install the Leostream GINA and the previous installation included the GINA, the installer now uninstalls the Leostream GINA during the upgrade.
- The Leostream Agent now honors the TTL setting for the Connection Broker DNS SRV record when the **Obtain Connection Broker address automatically** option is selected.

Leostream Agent for Linux® Operating Systems

Version 1.4 is the current version of Leostream Agent for Linux operating systems.

- **USB drivers**: Leostream Agent 1.4 includes a new version of the USB drivers used for USB device redirection. These new drivers are compatible with the USB drivers in version 2.2 of Leostream Connect for Linux desktops and version 2.8 of Leostream Connect for Windows desktops, enabling USB device redirection from Windows clients to Linux remote desktops.

   These new drivers are not backwards compatible. You must upgrade Leostream Connect on all clients, if you use Leostream USB redirection.

- **NoMachine NX Session Shadowing:** Provides new necessary functionality in support of Connection Broker feature for shadowing NoMachine NX sessions.
- The installer now displays the path to the Linux kernel.
- Installer no longer creates the `install.log` file. Instead, run the installer with the command line parameter `-DTRACE=true` to obtain an installation log.
- Leostream Agent start script and `leostreamagentd` scripts first look for Java in the Java path specified during installation. As a result, if Java is upgraded on the desktop, either the Leostream Agent must be reinstalled or the directory for the older version of Java must be deleted.

Installation

See the Leostream Installation Guide for details on installing the Leostream Agent.

Upgrades

The Connection Broker can automatically upgrade previously installed Leostream Agents to the version shown on the Connection Broker **> Status > Downloads** page. For instructions on automatically upgrading the existing Leostream Agents, see "Upgrading Leostream Agents" in Chapter 20 of the Connection Broker Administrator's Guide.

Leostream Agent for Windows Operating Systems

Multiple Display Support

The Leostream Agent enables multiple display support when used with Connection Broker display plans. See the Connection Broker Administrator's Guide for a description of display plans.

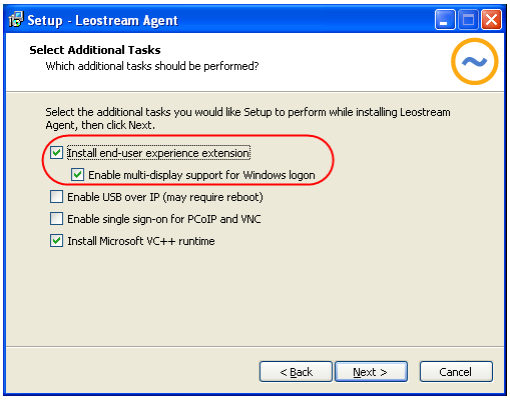
Multiple display support is available when the remote session is invoked with any display protocol that supports multiple displays, including Microsoft RDP and HP® RGS. Different display protocols have different physical constraints when working with multiple displays.

If a client adheres to the display protocol's requirements and is assigned a display plan, and the remote desktop is running the Leostream Agent, your end user experiences true multi-monitor behavior when they log into their remote session.

The Leostream multiple display support allows end users to do the following:

- Split or span remote desktop connections over multiple monitors.
- Restrict the taskbar to the primary monitor
- Center the Windows login and logout dialogs, along with most message boxes, in the middle of the primary monitor.
- Maximize application windows intuitively. For example, if the user places the majority of an application window within one monitor, maximizing the windows fills that monitor. If, on the other hand, the window is resized to cover a large percentage of two monitors, maximizing the windows fills both monitors.
- Return to single monitor mode if the extra monitors are disconnected from the client

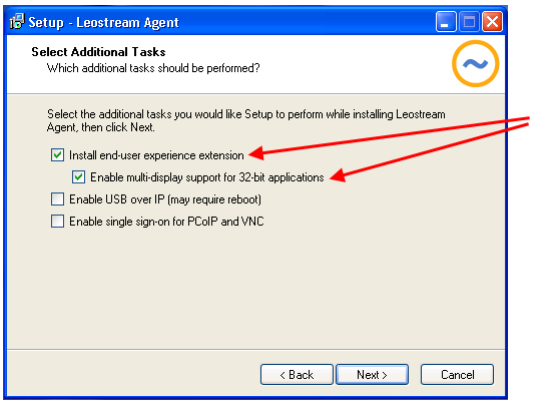
To enable window management, install the Leostream Agent with the **Install end-user experience extension** task, as shown in the following figure. In addition, if you are installing the Leostream Agent on a desktop running a Windows XP operating system, select the **Enable multi-display support for Windows logon** task.



See the Leostream Multiple Display Support document for more information on configuring display plans and using the Leostream multiple display feature.

WoW64 Support

If you install the Leostream Agent onto a desktop running a 64-bit Windows operating system *and* the user runs legacy 32-bit applications, you must install the Leostream Agent with the **Enable multi-display support for 32-bit applications** task selected, as shown in the following figure.



Location-Based Printing Support

Connection Broker 6.2 and later allows you to attach network printers to remote desktops based on the location of the end user's client device. To use the Leostream location-based printing feature, the remote desktop must have an installed Leostream Agent version 4.3, or higher. In addition, during installation, ensure that you select the **Install end-user experience extension** task.

See "Attaching Network Printers" in the Connection Broker Administrator's Guide for information on configuring printers to attach to remote desktops.

Using Registry Plans

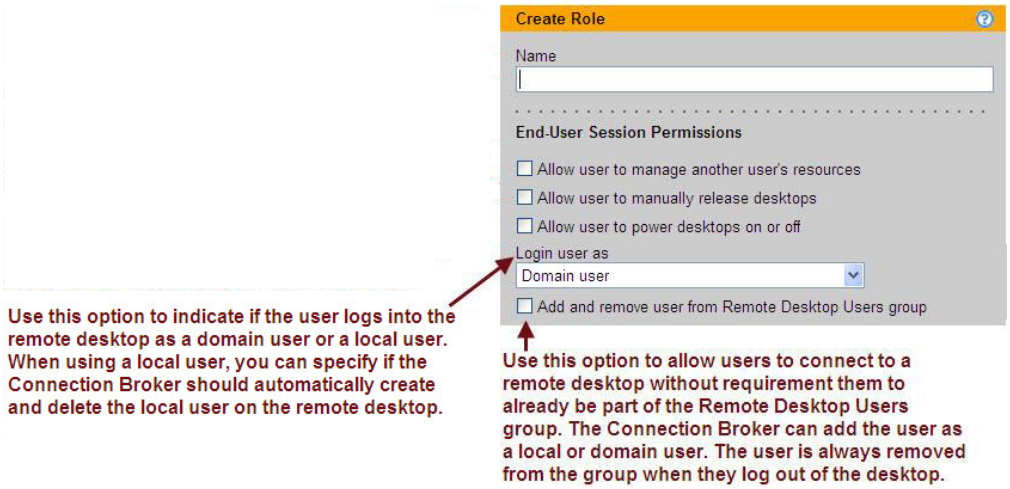
Connection Broker 6.3 and later allows you to create and modify registry keys on the remote desktop based on the location of the end user's client device. To use the Leostream feature for setting registry keys, the remote desktop must have an installed Leostream Agent version 4.4, or higher.

See "Manipulating Registry Keys" in the Connection Broker Administrator's Guide for information on configuring registry plans to create and modify registry keys on the remote desktop.

Adding Local Users and Remote Desktop Users

You can use the Leostream Agent to automatically add Local Users to the remote desktop, and add these user, or domain users, to the desktop's Remote Desktop Users group. You do not need to select any additional tasks when installing the Leostream Agent to use the feature for adding Local Users or Remote Desktop Users.

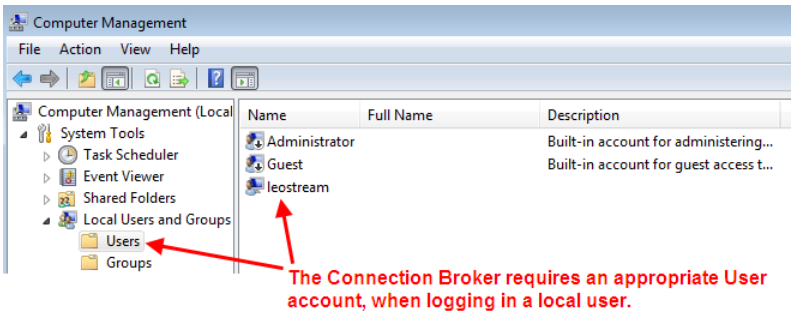
The Leostream Agent adds the user to the Users group and/or Remote Desktop Users group, based on the user's Connection Broker role settings. The following figure shows the available role options.



Use the **Login user as** drop-down menu to indicate if the Connection Broker should log the user into the remote desktop using a domain account or local user account. Use local users to support, for example, LDAP or non-domain users that need to login to remote desktops. Options in the **Login user as** drop-down include:

- **Domain user**: When using an Active Directory domain user account, the Connection Broker uses the domain name specified by the authentication server on the **> Users > Authentication Servers** page that authenticated the user when they logged into the Connection Broker.

- **Local user:** When logging in as a local user, the Connection Broker requires an existing user account on the remote desktop. This user account must have the same login name as the user that logged into the Connection Broker. When using this option, you must manually create the appropriate account in the **Users** section of the **Local Users and Groups** node in the **Computer Management** dialog, shown in the following figure.



  If you want the Connection Broker to manage the local user account, use one of the following two options.

- **Local user (create on login):** You can instruct the Connection Broker to automatically create local user accounts, to avoid having to manually create the accounts on each remote desktop. When this option is selected, the Connection Broker automatically creates an appropriate local user on the desktop the first time the user logs in. If an appropriate user account already exists, the Connection Broker uses that account.

  If a user account exists on the remote desktop, the Connection Broker uses that account. If that user account has a different password from the password used to log into the Connection Broker, the Connection Broker changes the password for the local user on the remote desktop.

- **Local user (create on login; delete user on logout):** You can instruct the Connection Broker to automatically create and delete local user accounts, to avoid having to manage the accounts on each remote desktop. When this option is selected, the Connection Broker automatically creates an appropriate local user account on the desktop the first time the user logs in. The Connection Broker removes the user account as soon as the user logs out of the desktop.

  The Connection Broker does not delete the profile folder associated with the user. Any information stored in the profile folder can be recovered by the desktop's administrator.

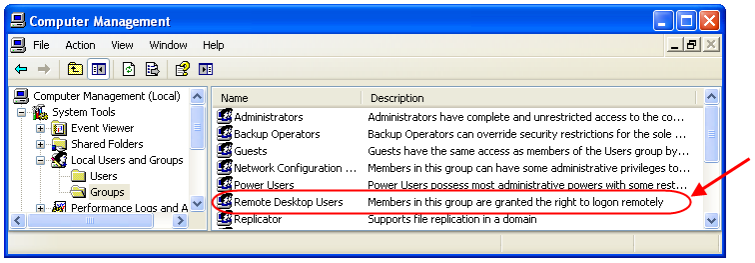
  When the user subsequently logs into the desktop, the Connection Broker creates a new local user account. Because this is a new account, the Windows desktop does not associate this user with the profile created the last time the user logged in. If user's need persistent access to their profile, use the **Local user (create on login)** option.

- **Local user (create on login; delete user and profile on logout):** When this option is selected, the Connection Broker automatically creates an appropriate local user account on the desktop the first time the user logs in. The Connection Broker removes the user account and the user's profile folder as soon as the user logs out of the desktop.

  Because the user's profile folder is deleted, the user loses all information stored locally in their profile folder.

After you indicate if the user logs into the remote desktop as a local or domain user, you can use the **Add and remove user from Remote Desktop Users group** option to automatically add these users to the Remote Desktop Users group on their offered Windows desktops.

By default, Windows desktops do not provide remote access. After you enable remote access for a particular desktop, you must indicate which users are allowed to remotely log into that desktop by placing those users (or one of their group memberships) in the Remote Desktop Users group, shown in the following figure.

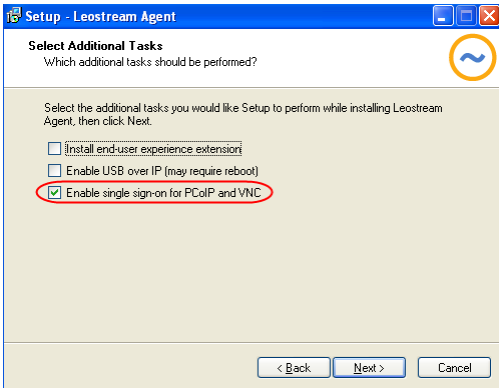


When a user is part of the Remote Desktop Users group, they can remotely log into the desktop from any client. To restrict the user to log in only through the Connection Broker, do not manually add users to the Remote Desktop Group and, instead, select the **Add and remove user from Remote Desktop Users group** option. With this option selected, the Connection Broker automatically adds the user to the Remote Desktop Users group when the log into the desktop from the Connection Broker. When the user logs out, the Connection Broker automatically removes the user from the Remote Desktop Users group.

When this option is selected, the Connection Broker essentially takes control of the Remote Desktop Users group. Therefore, if a user was part of the Remote Desktop Users group before they logged into the desktop, the Connection Broker still removes the user from that group when they log out of the desktop.

Single Sign-On for Teradici™ PC-over-IP®

Leostream Connect and the Leostream Agent natively support single sign-on by passing the user's credentials to the display protocol. For display protocols that sign on directly to the machine's console, for example, Teradici™ PC-over-IP® (PCoIP) or VNC, you must install Leostream Agent with the **Enable single sign-on for PCoIP and VNC** task selected, as shown in the following figure.

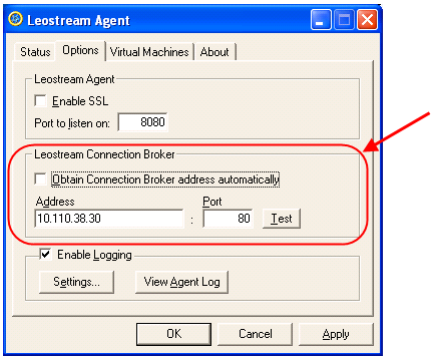


For remote desktops running a Windows XP, or earlier, operating system, the Leostream Agent performs GINA chaining, passing the user's credentials on to the standard `winlogon` GINA.

On Windows 7 and Vista, the single sign-on task installs the Leostream Credential Provider. When the Leostream Agent service starts, the Leostream Agent disables the `Ctrl-Alt-Del` key combination. The `Ctrl-Alt-Del` function is restored when the Leostream Agent service stops.

Configuring the Connection Broker Address

The Leostream Agent registers desktops with the Connection Broker entered in the **Leostream Connection Broker** section on the Leostream Agent Control Panel dialog, shown in the following figure.



By default, the **Obtain Connection Broker address automatically** checkbox is selected. With this box selected, the Leostream Agent looks for the following DNS SRV record.

```
_connection_broker
```

See the Leostream Installation Guide for instructions on setting up this DNS SRV record.

You can hard-code the Connection Broker address into the Leostream Agent, as follows:

1. Uncheck the **Obtain Connection Broker address automatically** checkbox.
2. Enter the Connection Broker IP address or fully qualified domain name into the **Address** edit field.
3. Enter the default port to use for non-SSL communications with this Connection Broker in the **Port** edit field (see **Outgoing SSL Communications**).
4. Click **Apply**.

To test if the DNS SRV record or entered Connection Broker address is valid, click the **Test** button. If the Leostream

Agent successfully communicates with the Connection Broker, the following dialog appears.

If the Agent cannot communicate with the broker, the following dialog appears.

Using SSL

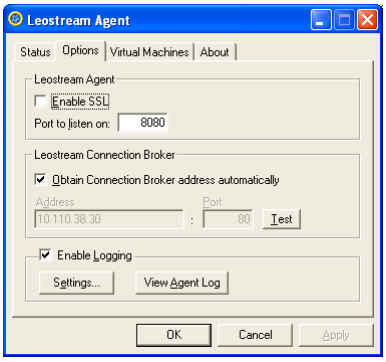
All Leostream components communicate peer-to-peer. By default, the Leostream Agent uses SSL when sending outgoing communications to the Connection Broker.

The Leostream Agent requires that MSVC runtime be installed in order to create an SSL certificate and key to use when communicating with the Connection Broker. If you uncheck this option, and do not have an MSVC runtime environment installed, the Leostream Agent will produce SSL errors. To resolve this issue, reinstall the Leostream Agent with the **Install Microsoft VC++ runtime** option selected.

Incoming SSL Communication

For incoming calls from the Connection Broker, you can specify if the communication uses SSL, or not. To enable incoming SSL communication *from* the Connection Broker *to* the Leostream Agent:

1. Open the Leostream Agent Control Panel dialog.
2. Go to the **Options** tab.
3. Select the **Enable SSL** option. (A dialog opens, indicating that you must restart your Leostream Agent for these changes to take effect.)
4. Enter a value for the **Port to listen on** edit field, as shown in the following figure.



When the **Enable SSL** flag is set, the Leostream Agent expects all communications on the incoming port to be in SSL. The Agent ignores incoming commands that are not in SSL.

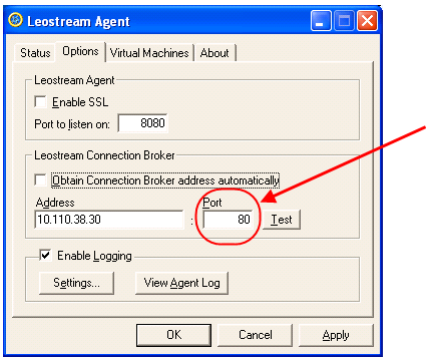
If you uncheck the **Enable SSL** option, the Leostream Agent continues to listen on the port entered in the **Port to**

listen on edit field. In this case, however, the Leostream Agent listens first for SSL communications, but will failover to non-SSL communications.

Outgoing SSL Communications

The **Enable SSL** flag in the **Options** tab does *not* apply to communications going from the Leostream Agent to the Connection Broker.

For outgoing communications, the Leostream Agent always first attempts sending SSL communications to the Connection Broker on port **443**. If port 443 does not accept SSL communications, the Agent switches to non-SSL communications on the port indicated in the **Port** edit field in the **Leostream Connection Broker** section, shown below.

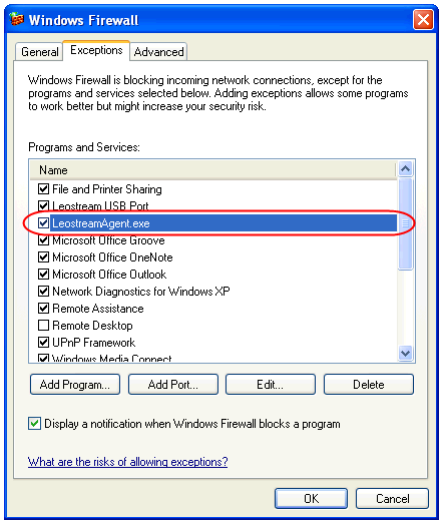


If you enter 443 into the **Port** edit field, and SSL communcations with the Connection Broker fail, the Leostream Agent defaults to non-SSL communications on port 80.

Working with Microsoft® Windows® Firewalls

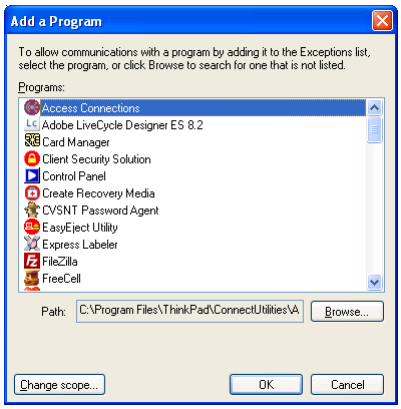
The Windows Firewall blocks incoming communication from the Connection Broker to the Leostream Agent. When the Connection Broker cannot communicate with the Leostream Agent, even though it is able to receive communications *from* the Leostream Agent, the Connection Broker marks the agent as **Unreachable**.

To avoid unreachable agents, when you install the Leostream Agent on a machine with an enabled Windows Firewall, the Leostream Agent automatically adds itself to the Windows Firewall exception list. When the Leostream Agent starts, it checks the **LeostreamAgent.exe** exception, as shown in the following figure.



When you stop the Leostream Agent, the agent automatically deselects its exception.

Leostream Agents prior to version 4.1.46 do not automatically create exceptions for Windows Firewalls. If you are running an older version of the Leostream Agent, you can manually create an exception by clicking the **Add Program** button on the **Exceptions** tab of the **Windows Firewall** Control Panel, shown in the previous figure. The following dialog opens.



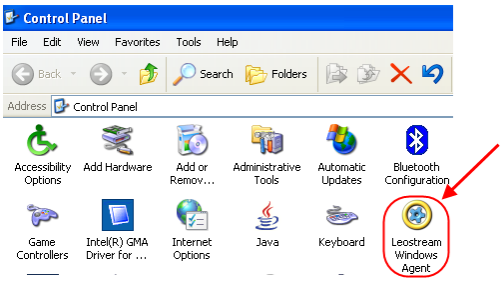
Click **Browse** to browse to the location of your LeostreamAgent.exe file. After you select the file, click **OK**.

Leostream Agent Control Panel Dialog

Opening the Leostream Agent Control Panel Dialog

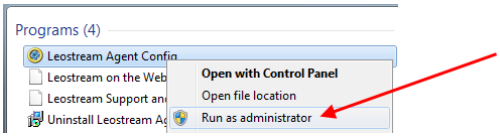
To open the Leostream Agent Control Panel dialog, double-click on the Leostream Agent icon in your machine's Control Panel.

For a 32-bit system, you can find the Leostream Agent icon in the machine's Control Panel, as shown in the following figure:



For a 64-bit system, the Leostream Agent icon is located in the x86 Control Panel.

To modify the Leostream Agent options, you must be logged into the desktop with administrator privileges, or run the Leostream Agent with administrator privileges. On desktops running Windows 7 operating systems, to run the Leostream Agent configuration with the necessary privileges, right-click on the Leostream Agent and select **Run as administrator**, as shown in the following figure.



Status Tab

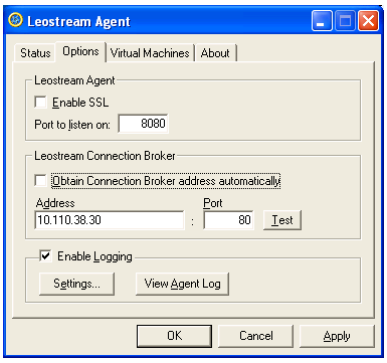
The **Status** tab, shown in the following figure, indicates if the Leostream Agent is running or stopped, and allows you to toggle between these two states.

The Leostream Agent must be running in order for the Connection Broker to perform policy-based assignment control on this desktop. To toggle the running state of the Leostream Agent:

- Click **Stop** to stop the Leostream Agent. The Leostream Agent prompts you for a confirmation. When the Agent is stopped, the **Status** tab displays **Leostream Agent is Not Running**.
- Click **Start** to start the Leostream Agent. When the Leostream Agent is running, the **Status** tab displays **Leostream Agent is Running** and the Leostream icon rotates.

Options Tab

The **Options** tab, shown in the following figure, allows you to configure network and logging configurations.



Enabling SSL

The **Leostream Agent** section allows you to enable the Leostream Agent to accept SSL communications. See **Using SSL** for more information.

Configuring the Connection Broker Address

The **Leostream Connection Broker** section allows you to enter the Connection Broker address and default port the Leostream Agent should use when initiating calls to the Connection Broker. See **Configuring the Connection Broker Address** for instructions on using this section.

By default, the Leostream Agent searches for a DNS SRV record associated with your Connection Broker. See the Leostream **DNS Setup Guide**, available on the Leostream Downloads and Documentation Web site, for instructions on creating an appropriate DNS entry for your Connection Broker. After the Leostream Agent starts and locates the record, it retains the record's information for the length of the TTL associated with the record. After the TTL expires, the Leostream Agent requeries the DNS SRV record.

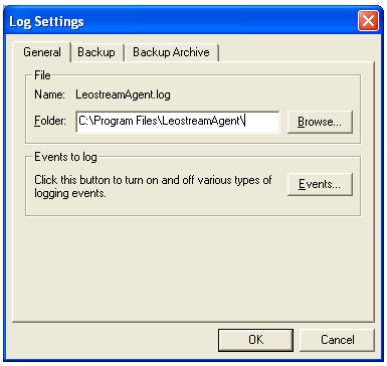
The Leostream Agent *initiates* calls to the Connection Broker indicated in the **Leostream Connection Broker** section. The Leostream Agent can *respond* to multiple Connection Brokers. When a Connection Broker initiates a call to the Leostream Agent, the Connection Broker provides the Leostream Agent with the address to use for any response. The Leostream Agent uses this address, instead of the value provided in the **Leostream Connection Broker** section when responding to that Connection Broker.

Logging

To enable Leostream Agent logging, select the **Enable Logging** checkbox. Ensure that you are maintaining logs before you contact Leostream Support with any issues that involve the Leostream Agent.

Configuring Logging Settings

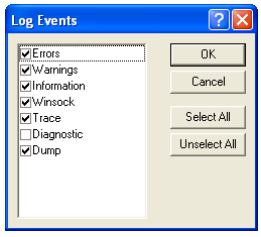
You can control logging options using the **Log Settings** dialog. To open this dialog, click the **Settings** button in the **Enable Logging** section. The following dialog opens.



By default, the Leostream Agent stores logs in the `LeostreamAgent.log` file, which is written to the first writable directory from the following list.

- The location specified in the **Folder** edit field on the **General** tab
- The Leostream Agent installation directory
- A directory named `temp` inside of the Leostream Agent installation directory
- The `temp` directory inside the user folder for the currently logged in user
- The system `root` directory

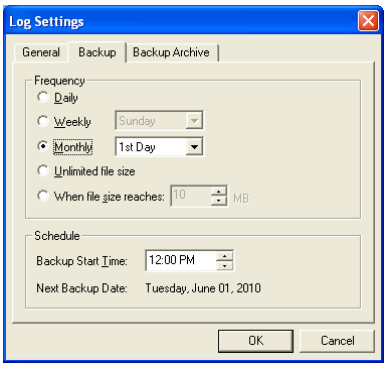
The **Log Events** dialog, shown in the following figure, sets the level of information stored in the logs.



To open this dialog, click the **Set Events** button in the **General** tab of the **Log Settings** dialog. To modify the list of events, select the desired checkboxes and click **OK**.

Backing up Logs

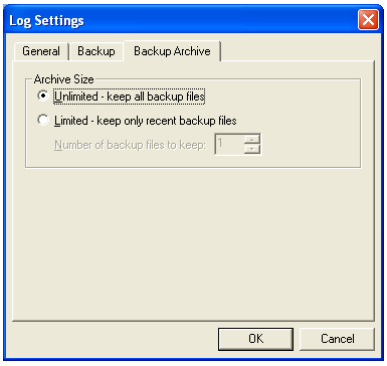
By default, the Leostream Agent maintains a single log file and continuously appends logs to that file. You can use the **Backup** tab, shown in the following figure, to break the log into multiple files, based on the date or file size.



To change the backup schedule:

1. Select an option from the **Frequency** section.
2. Select a **Backup Start Time** in the **Schedule** section. The **Next Backup Date** text updates.
3. Click **OK**.

If you select any backup frequency except **Unlimited file size**, the **Backup Archive** tab enables. Use this tab, shown in the following figure, to indicate how many backup files to retain.



- **Unlimited – keep all backup files:** Retains all backup files.
- **Limited – keep only recent backup files:** Deletes all but the last `n` backup files, where `n` is the number you enter in the **Number of backup files to keep** field.

Backup files are stored with `.bak` extensions.

Viewing Logs

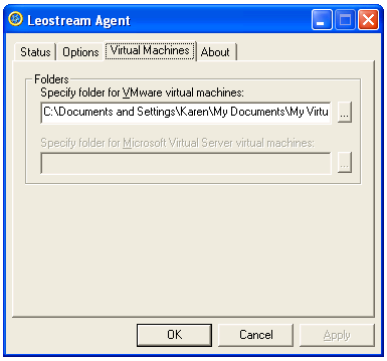
You can view the current Leostream Agent logs by clicking on one of the following two buttons.

- **View Agent Log**: Opens the `LeostreamAgent.log` file, containing the log information pertaining to Leostream Agent operations.
- **View Sign-On Log**: Opens the file that contains the current sign-on information. This button appears only if you installed the Leostream Agent with the single-sign on task selected.

Virtual Machines Tab

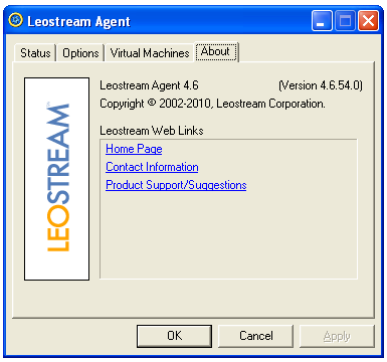
Connection Broker versions 5.2 and higher do not support the **Virtual Machines** tab in the Leostream Agent. To manage virtual machines from Microsoft Virtual Server, VMware GSX, VMware Server, or VMware Workstation, install the Leostream Agent on each virtual machine. These virtual machines appear in the Connection Broker **Uncategorized Desktops** center.

In older versions of the Connection Broker, you can manage virtual machines in Microsoft Virtual Server, VMware GSX, VMware Server, or VMware Workstation, by importing these machines into a center. To manage these virtual machines, enter the full path to the directory where the virtual machines for these servers reside in the **Virtual Machines** tab, shown in the following figure. This tab is shown and these fields are enabled only when the appropriate VMware and Microsoft products are installed.



About Tab

The **About** tab, shown in the following figure, provides information about your Leostream Agent installation.



Click on any of the provided links to navigate to the following pages of the Leostream Web site.

- Leostream Home Page
- Contact Information
- Product Support / Suggestions

Leostream Agent for Linux Operating Systems

The Leostream Agent for Linux provides the Connection Broker with information about the connection status of remote users to their desktops. In addition, the Leostream Agent allows you to automatically register any Linux desktop with the Connection Broker **Uncategorized Desktops** center.

The Leostream Agent allows you to:

- Discover Linux machines – If you have an **Uncategorized Desktops** center in your Connection Broker, Linux machines that are not categorized in another center will register with the Connection Broker when you install the Leostream Agent.
- View desktop attributes for Linux machines contained in the **> Resources > Desktop** page.
- Obtain information about the desktop and active user sessions by using **HD Status** option on the **> Resources > Desktop** page.
- Perform policy actions when a user logs out of their NoMachine NX or HP RGS session, providing additional policy control over the user's session.
- Perform policy actions when a user disconnects from a NoMachine NX session.
- Log out rogue users when a Connection Broker user connects to their remote desktop using NX.
- Obtain session information for users logging into their remote desktops using NX or RGS.
- Redirect USB devices from Leostream Connect clients.

This version of the Leostream Agent for Linux does not support Leostream multi-monitor or location-based printer assignment features.

The Leostream Agent for Linux is a Java application, which requires a Sun Java Run Time Environment (JRE). For optimal performance, Leostream recommends using JRE version 1.6 or higher. The Leostream Agent will run with JRE version 1.5

Configuring the Connection Broker Address

By default, the Leostream Agent contacts the Connection Broker at the address you provided during installation. If you do not provide an address during installation, the Leostream Agent can automatically discover the Connection Broker address from the following DNS SRV record.

```
_connection_broker
```

See the Leostream Installation Guide for instructions on setting up this DNS SRV record. If you do not want to use the DNS SRV record, set the `ConnectionBrokerAutoDetectionEnabled` parameter in the `leostreamagent.conf` file to `false`.

At any point, you can hard-code the Connection Broker address using the `ConnectionBrokerAddress` parameter in the `leostreamagent.conf` (see **Understanding the leostreamagent.conf File**).

If the Leostream Agent is not detecting the DNS SRV record, ensure that the `resolve.conf` file on the desktop where the Leostream Agent is installed contains information for the correct domain. If the DNS SRV record exists in a different domain from that specified in the `resolve.conf` file, the Leostream Agent cannot discover the Connection Broker address.

Using SSL

By default, the Leostream Agent sends communications to the Connection Broker using SSL on port 443. If the Connection Broker does not accept SSL communications, the Leostream Agent fails over to non-SSL on port 80. You can prohibit the Leostream Agent from failing over to non-SSL by setting the `ConnectionBrokerForceSSL` parameter in the `leostreamagent.conf` file to `true` (see **Understanding the leostreamagent.conf File**).

By default, the Leostream Agent listens for incoming communications from the Connection Broker on port 8080. These communications are non-SSL. To turn on SSL communications, set the `AgentServerSSLEnabled` parameter in the `leostreamagent.conf` file to `true`. The Leostream Agent listens on the same port, regardless of if SSL is turned on or off. You can change this port by setting the `AgentServerPort` parameter

Using USB Redirection

In order to use the Leostream Agent to accept USB devices redirected from Leostream Connect, the Leostream Agent installer must build USB drivers on the remote desktop. In order to build the drivers, the installer provides the following required header files:

- `hcd.h`
- `hub.h`

Leostream Agent provides these header files for a limited number of kernel versions. Currently, the following kernel versions are supported.

- 2.6.18
- 2.6.24
- 2.6.31
- 2.6.32

Other kernel versions may build correctly if the header files associated with those kernel versions are identical to the headers in the next highest supported kernel version. For example, if the remote desktop uses kernel version 2.6.30, the installer uses the header files for 2.6.31.

 USB redirection is not supported for kernel version 2.6.35.

To determine which kernel version your Linux desktop is running, execute the following command.

```
uname -r
```

The Leostream Agent uses files in the kernel source directory to execute the `make` command that builds the drivers. These files are typically located in `/usr/src/kernels`. Some operating systems, such as Ubuntu 10.04 provide the necessary directories. If your operating system does not provide the appropriate kernel files, you must download and install them, using the appropriate distribute method for your operating system.

For example, use the following commands for desktops running a CentOS operating system.

```
yum install kernel-devel
yum install gcc
```

If you installed the USB drivers, check that the daemon is live by running the following command:

```
cat /proc/modules |grep lsusbd
```

If the daemon is not Live, the remote desktop cannot accept USB devices. Contact support@leostream.com for a resolution.

Adding Local Users to the Remote Desktop

You can use the Leostream Agent to automatically add local users to the remote desktop.

Use the **Login user as** drop-down in the user's role to indicate if the Connection Broker should automatically add a local user to the remote desktop when this user logs in. For users logging in to a Linux remote desktop, use one of the following options:

- **Local user (create on login):** You can instruct the Connection Broker to automatically create local user accounts, to avoid having to manually create the accounts on each remote desktop. When this option is selected, the Connection Broker automatically creates an appropriate local user on the desktop the first time the user logs in.

  If an appropriate user account already exists, the Connection Broker uses that account. If that user account has a different password from the password used to log into the Connection Broker, the Connection Broker changes the password for the local user on the remote desktop.

- **Local user (create on login; delete user on logout):** You can instruct the Connection Broker to automatically create and delete local user accounts, to avoid having to manage the accounts on each remote desktop. When this option is selected, the Connection Broker automatically creates an appropriate local user account on the desktop the first time the user logs in. The Connection Broker removes the user account as soon as the user logs out of the desktop.

  The Connection Broker does not delete the user's home directory. Any information stored in their home directory can be recovered by the administrator.

- **Local user (create on login; delete user and profile on logout):** When this option is selected, the Connection Broker automatically creates an appropriate local user account on the desktop the first time the user logs in. The Connection Broker removes the user account and the user's home directory as soon as the user logs out of the desktop.

   Because the user's home directory is deleted, the user loses all locally stored information.

Supporting Sun Ray Environments

The Leostream Agent is an integral part of a complete Sun Ray setup.

Before you begin, install your Connection Broker and note its IP address. Then, to set up your Sun Ray Server host:

1. Log into the Sun Ray Server host using the root account.
2. Ensure that a Java Run Time Environment (JRE) version 1.6 or higher is installed. Although Leostream Connect requires only JRE version 1.5 or higher, the Leostream Agent prefers version 1.6.
3. Install the Sun Ray Terminal Services client `uttsc` on the Sun Ray Server and ensure that your Sun Ray connections are working properly.
4. Install the java version of Leostream Connect on your Sun Ray servers (see "Leostream Connect Installation - Installing on Linux® Operating Systems" in the Leostream Installation Guide).
5. Install the java version of the Leostream Agent on your Sun Ray servers (see "Leostream Agent Installation - Installing on Linux® Operating Systems": in the Leostream Installation Guide).

   Install the Leostream Agent into a different directory than Leostream Connect. Leostream Connect and the Leostream Agent share some common Leostream libraries in the `lib` directory inside of their installation directories. If you do not install Leostream Connect and the Leostream Agent in different directories, you will not be able to upgrade one of the components without upgrading the other component. If you install the client and agent in different directories, you can safely upgrade one component without upgrading the other.

Starting, Restarting, and Stopping the Leostream Agent

The Leostream Agent service automatically starts after installation. Should you need to restart the service, use the associated `service` command for the given operating system on which the Leostream Agent is installed. For example, on CentOS, use the `service` command, as follows.

- To start the Leostream Agent: `service leostreamagentd start`
- To restart the Leostream Agent: `service leostreamagentd restart`
- To stop the Leostream Agent: `service leostreamagentd stop`

For a list of `leostreamagentd` input arguments, run the `service` command with no input arguments, as follows.

```
service leostreamagentd
```

Understanding the leostreamagent.conf File

To configure the Leostream Agent, edit the `leostreamagent.conf` file. During installation, this file is automatically created in the `/etc` directory.

- `AgentServerPort` – The Leostream Agent port for incoming calls. The default port is 8080.
- `AgentServerSSLEnabled` – If `true`, the Leostream Agent accepts only SSL communications. If `false`, the Leostream Agent accepts only non-SSL communications. In either case, the Leostream Agent listens for incoming calls on the port specified by the `AgentServerPort` parameter. The default is `false`.
- `ConnectionBrokerAddress` – The IP address or fully qualified domain name, if the system has DNS access, of your Connection Broker. The Leostream Agent always tries this Connection Broker address, first.

  If the Leostream Agent fails to establish communications with the Connection Broker at this address, and the `ConnectionBrokerAutoDetectionEnabled` parameter is set to `true`, the Leostream Agent tries the address in the Connection Broker DNS SRV record.

  If the `ConnectionBrokerAddress` parameter is empty or not included in the `leostreamagent.conf` file, and the `ConnectionBrokerAutoDetectionEnabled` parameter is set to `true`, the Leostream Agent tries the address in the Connection Broker DNS SRV record.
- `ConnectionBrokerAutoDetectionEnabled` – Determines if the Leostream Agent will try to use the Connection Broker DNS SRV record to auto-detect the Connection Broker address. To only use the DNS SRV record, remove the `ConnectionBrokerAddress` parameter from the `leostreamagent.conf` file. The default is `true`. If `false`, the Leostream Agent will not try to use the Connection Broker DNS SRV record.
- `ConnectionBrokerHTTPPort` – The port the Leostream Agent uses for outbound non-SSL communications with the Connection Broker. The default port is 80. The HTTP port cannot be 443.
- `ConnectionBrokerSSLPort` – The port the Leostream Agent uses for outbound SSL communications with the Connection Broker. The default port is 443. The SSL port cannot be 80.

  For outbound communications, by default, the Leostream Agent uses SSL on the port specified by `ConnectionBrokerSecurePort` to communicate with the Leostream Agent. If the SSL communication fails, the Leostream Agent fails over to non-SSL communications on the port specified by the `ConnectionBrokerHTTPPort` parameter.
- `TraceLevel` – Indicates the type of information to include in the Leostream Agent logs. Specify a comma-separated list including any of the following values: `error`, `warn`, `info`, `trace`, `diag`, `stack`, and `dump`.