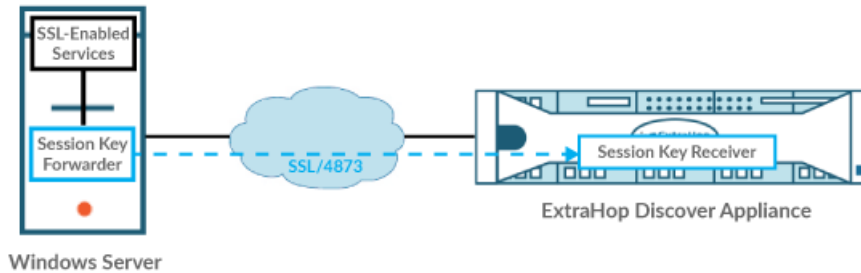


# Install the ExtraHop session key forwarder on a Windows server

Published: 2018-07-07

The ExtraHop session key forwarder runs as a process on a monitored Windows server running SSL services. The forwarder establishes an SSL-secured connection to an ExtraHop Discover appliance to send all SSL session keys. The session keys enable the Discover appliance to decrypt SSL/TLS sessions that otherwise could not be decrypted, either because the session is encrypted with Perfect Forward Secrecy (PFS) ciphers or the Discover appliance does not have the private key for RSA handshakes.




After the session keys are forwarded, they are immediately deleted from memory on the Windows server.

## Before you begin

- Read our blog post: [What is Perfect Forward Secrecy?](#)
- See the list of [supported cipher suites](#) that can be decrypted by the Discover appliance when session key forwarding is configured.
- Make sure that the Discover appliance is running firmware version 7.1 or later.
- Make sure that the Discover appliance is licensed for SSL Decryption.
- Install the session key forwarder on one or more Windows 2008 or Windows 2012 servers running SSL-based services with the native Windows SSL framework. OpenSSL on Windows is not currently supported.
- Session key processing on the Discover appliance requires that you upload the server certificate and private key file for any monitored SSL-encrypted service to the Discover appliance. Go to the **Capture > SSL Decryption Keys** page in the Admin UI to upload a .pem file that includes both a private key and certificate. You can also upload a password-protected PKCS#12 (.PFX) file.
- Make sure that the server certificates have an RSA public key. DSA and ECDSA public keys are not currently supported.
- The session key forwarder on the Windows server must be able to access a trusted CA certificate from the Windows certificate store to validate the certificate (or chain of certificates) that the Discover appliance presents.
- The traffic for each monitored SSL server must be part of the data feed to the Discover appliance.

## Install the software with the installation wizard


 **Warning:** The installation requires a restart of the server. Do not start the installation unless you are able to restart the server after the installation completes.

1. Log into the Windows 2008 or 2012 server.
2. [Download](#) the latest version of the session key forwarder software.
3. Double-click the `ExtraHopSessionKeyForwarder.msi` file and click **Next**.

4. Select the box to accept the terms of the license agreement and then click **Next**.
5. Type the name of the Discover appliance where you want to forward session keys and then click **Next**.
6. Click **Install**.
7. When the installation completes, click **Finish**, and then click **Yes** to reboot the server.

## Command-line installation option

The following steps show you how to install the session key forwarder from a Windows command prompt or Windows PowerShell.

 **Warning:** The installation requires a restart of the server. Do not start the installation unless you are able to restart the server after the installation completes.

1. Log into the Windows 2008 or 2012 server.
2. [Download](#) the latest version of the session key forwarder software.
3. Run the following command:

```
msiexec /i C:\ExtraHopSessionKeyForwarder.msi EDA_HOSTNAME=<hostname or IP address of Discover appliance>
```

Where C:\ExtraHopSessionKeyForwarder.msi is the path to the installer file.

If required for your configuration, you can add up to two optional parameters to the command:

```
msiexec /i C:\ExtraHopSessionKeyForwarder.msi EDA_HOSTNAME=<hostname or IP address of Discover appliance> EDACERTIFICATEPATH=<path to .pem file> SERVERNAMEOVERRIDE=<Common Name>
```

For more information, see Installation parameters in the [Appendix](#).

4. When the installation completes, click **Yes** to reboot the server.

## Enable the SSL session key receiver service

You must enable the session key receiver service on the Discover appliance before the appliance can receive and decrypt sessions keys from the session key forwarder. By default, this service is disabled.

1. Log into the Admin UI on the Discover appliance.
2. In the Appliance Settings section, click **Services**.
3. Select the **SSL Session Key Receiver** checkbox.  
If you do not see the checkbox, and you have purchased the SSL Decryption license, contact [ExtraHop Support](#) to update your license.
4. Click **Save**.

## View connected session key forwarders

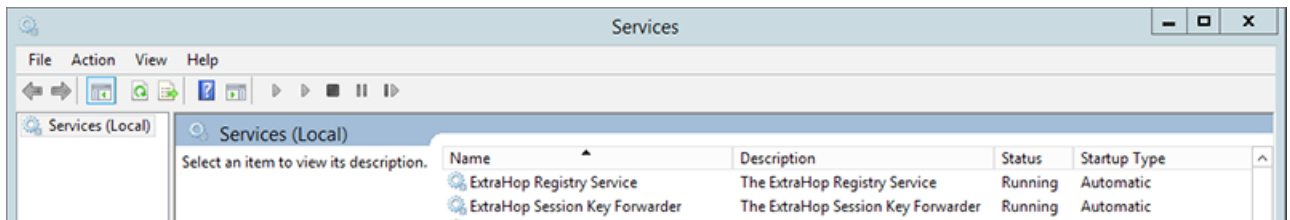
You can view recently connected session key forwarders after you install the session key forwarder on your server and enable the SSL session key receiver service on the Discover appliance. Note that this page only displays session key forwarders that have connected over the last few minutes, not all session key forwarders that are currently connected.

1. Log into the Admin UI on the Discover appliance.
2. In the System Configuration section, click **Capture**.
3. Click **SSL Shared Secrets**.

## Validate session key forwarding

Perform these steps to make sure that the installation was successful and the session key forwarder is forwarding the keys to the Discover appliance.

1. Log into the Windows 2008 or 2012 server.
2. Open the Services MMC snap-in.
3. Ensure both services, "ExtraHop Registry Service" and "ExtraHop Session Key Forwarder" show the status as "Running".



4. If either service is not running, troubleshoot the issue by completing the following steps.
  - a) Open the Event Viewer MMC snap-in and navigate to Windows Logs > Application.
  - b) Locate the most recent entries for the ExtraHopAgent source. Common reasons for failure and their associated error messages are listed in the [Troubleshoot common error messages](#) section below.
5. If the Services and Event Viewer snap-in do not indicate any issues, apply a workload to the monitored services and go to the Discover appliance to verify that secret-based decryption is working.

## Test mode

In cases where you might have problems with the configuration, the session key forwarder binary includes a test mode that you can access from a Windows command prompt to test your configuration.

1. Log into your Windows server.
2. Open a command prompt and run the following command:

```
"c:\Program Files\ExtraHop\extrahop-agent.exe" -t
```

The following output should appear:

```
<date> <time> Performing connectivity test
<date> <time> No connectivity issues detected
```

If there is a configuration issue, troubleshooting tips appear in the output to help you correct the issue. Follow the suggestions to resolve the issue and then run the test again.

## Create a dashboard to see sessions decrypted with a shared secret

When the Discover appliance receives session keys and applies them to decrypted sessions, the Shared Secret metric counter (in **Applications > All Activity > SSL Sessions Decrypted**) is incremented. Create a dashboard chart with this metric to see if the Discover appliance is successfully receiving session keys from the monitored servers.

Region ▾	
All Activity SSL Sessions Decrypted with Shared Secret ▾	
Application	↓ Sessions Decrypted with Shared Secret
All Activity	14176

## Troubleshoot common error messages

The following table shows common error messages that you can troubleshoot. If you see a different error or the proposed solution does not resolve your issue, contact ExtraHop Support.

Message	Cause	Solution
<code>connect: dial tcp &lt;IP address&gt;:4873: connectex: A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond</code>	The monitored server cannot route any traffic to the Discover appliance.	Ensure firewall rules allow SSL connections to be initiated from the monitored server to the Discover appliance.
<code>connect: dial tcp &lt;IP address&gt;:4873: connectex: No connection could be made because the target machine actively refused it</code>	The monitored server can route traffic to the Discover appliance, but the receiving process is not listening.	Ensure that the Discover appliance is licensed for both the SSL Decryption and SSL Shared Secrets features.
<code>connect: x509: certificate signed by unknown authority</code>	The monitored server is not able to chain up the Discover appliance certificate to a trusted Certificate Authority (CA).	Ensure that the Windows certificate store for the computer account has trusted root certificate authorities that establish a chain of trust for the Discover appliance.
<code>connect: x509: cannot validate certificate for &lt;IP address&gt; because it doesn't contain any IP SANs</code>	An IP address was supplied as the EDA_HOSTNAME parameter when installing the forwarder, but the SSL certificate presented by the Discover appliance does not include an IP address as a Subject Alternate Name (SAN).	Select from the following three solutions. <ul style="list-style-type: none"> <li>If there is a hostname that the server can connect to the Discover appliance with, and that hostname matches the</li> </ul>

Message	Cause	Solution
		<p>subject name in the Discover appliance certificate, uninstall and reinstall the forwarder, specifying that hostname as the value of EDA_HOSTNAME.</p>
		<ul style="list-style-type: none"> <li>If the server is required to connect to the Discover appliance by IP address, uninstall and reinstall the forwarder, specifying the subject name from the Discover appliance certificate as the value of SERVERNAMEOVERRIDE.</li> </ul>
		<ul style="list-style-type: none"> <li>Re-issue the Discover appliance certificate to include an IP Subject Alternative Name (SAN) for the given IP address.</li> </ul>

## Uninstall the software

If you no longer want the ExtraHop session key forwarder software installed, or if any of the original installation parameters have changed (Discover appliance hostname or certificate) and you need to reinstall the software with new parameters, do the following:

 **Important:** You must restart the server for the configuration changes to take effect.

- Log into the Windows server and choose one of the following options to remove the software:
  - Open the Control Panel and click **Uninstall a program**. Select **ExtraHop Session Key Forwarder** from the list and then click **Uninstall**.
  - Run the following command to remove the software and associated registry entries:

```
msiexec /x C:\ExtraHopSessionKeyForwarder.msi
```

Where `C:\ExtraHopSessionKeyForwarder.msi` is the path to the installer file.

- Click **Yes** to confirm.
- After the software is removed, click **Yes** to restart the system

## Appendix

### Installation parameters

The session key forwarder software is provided as an MSI package. A complete installation of the forwarder requires specifying the EDA\_HOSTNAME parameter. Two additional parameters, EDA\_CERTIFICATEPATH or SERVERNAMEOVERRIDE, might be required and are described in the tables below.

MSI Installation Parameter	EDA_HOSTNAME
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Registry Entry	HKEY_LOCAL_MACHINE\SOFTWARE\ExtraHop\EDAHost
Description	<p>The Discover appliance hostname or IP address where SSL session keys will be sent.</p> <p>This parameter is required.</p>
MSI Installation Parameter	EDA_CERTIFICATEPATH
Registry Entry	N/A
Description	<p>The monitored server must trust the issuer of the Discover appliance SSL certificate through the server's certificate store.</p> <p>In some environments, the Discover appliance works with the self-signed certificate that the ExtraHop firmware generates upon installation. In this case, the certificate must be added to the certificate store. The EDA_CERTIFICATEPATH parameter enables a file-based PEM-encoded certificate to be imported into the Windows certificate store at installation.</p> <p>If the parameter is not specified at installation and a self-signed or other CA certificate must be placed into the certificate store manually, the administrator must import the certificate to Certificates (Computer Account) &gt; Trusted Root Certification Authorities on the monitored system.</p> <p>This parameter is optional if the monitored server was previously configured to trust the SSL certificate of the Discover appliance through the Windows certificate store.</p>
MSI Installation Parameter	SERVERNAMEOVERRIDE
Registry Entry	HKEY_LOCAL_MACHINE\SOFTWARE\ExtraHop\ServerNameOverride
Description	<p>If there is a mismatch between the Discover appliance hostname that the forwarder knows (EDA_HOSTNAME) and the common name (CN) that is presented in the SSL certificate of the Discover appliance, then the forwarder must be configured with the correct CN.</p> <p>This parameter is optional.</p> <p>We recommend that you regenerate the SSL self-signed certificate based on the hostname from the SSL Certificate section of the Admin UI instead of specifying this parameter.</p>