Basic Sauce Connect Proxy Setup

The Basic Sauce Connect Proxy setup is ideal for non-enterprise users with network configurations that require a proxy to open up communication between Sauce Labs and their web or mobile app.

It is also a key step for any Sauce Connect deployment as a way to verify if you need help from network administrators to complete the configuration. For details, see Validating Your Basic Sauce Connect Proxy Setup.

See the following sections for more information:
What You'll Need

- Review System and Network Requirements for Sauce Connect Proxy to confirm that your system and network architecture will be compatible with Sauce Connect Proxy.
- Download the appropriate version of Sauce Connect Proxy for your operating system, if you haven't yet. For more information, see Downloading Sauce Connect Proxy.
- Your Sauce Labs username and access key, which you can find on your Sauce Labs dashboard under User Profile > User Settings.
  - As a best practice, we recommend setting your username and access key as environment variables to reference within your tests. For more information, see Best Practice: Use Environment Variables for Authentication Credentials.
Validating Your Basic Sauce Connect Proxy Setup

Once you’ve established your Sauce Connect proxy connection(s), you can validate that it works properly by following the steps below.

1. Launch a new tunnel with the following flags, per the Sauce Connect Proxy Command Line Reference:

   ```bash
   $ bin/sc -u $SAUCE_USERNAME -k $SAUCE_ACCESS_KEY -x $SAUCE_DC -i sc-proxy-tunnel
   ```

   For more information on the above variables, visit the section: Starting Sauce Connect Proxy for more information.

2. Select an example from Sauce Labs Demonstration Scripts, and follow the instructions to configure the test.

3. Navigate to the desired test script and add the following Test Configuration Option.

4. If the test succeeds, you should see Sauce Connect Proxy icon appear next to your test in the SauceLabs Dashboard!

Congratulations! You’re ready to begin automated testing with our Sauce Labs Continuous Testing Cloud.

**Test Not Working?**

If you’re unable to connect, your network administrator needs to examine the firewall setting(s) for any roadblocks. That person, or team, might need to adjust network rules for Sauce Labs domain names to allow Sauce Connect Proxy to make outbound connections to Sauce Labs.

**NOTE:** While some IT teams might prefer to use whitelisting IP addresses as an alternative to using Sauce Connect Proxy altogether, we strongly discourage this as explained in Why Sauce Labs Recommends Sauce Connect Proxy Over Whitelisting IP Addresses.

There could also be an issue with Sauce Labs certificate authentication. The server hosting Sauce Connect may need to connect to Online Certificate Status Protocol (OCSP) and/or Certificate Revocation List (CRL) services. Please see Sauce Connect Proxy Certificate Handling for more information.

For troubleshooting specific errors or common issues, refer to the Sauce Connect Proxy Troubleshooting guide and Sauce Connect Proxy FAQs.
Basic Network Configuration Diagram

**DIAGRAM: Basic Configuration for Sauce Connect Proxy**

![Diagram of network configuration]

**Diagram Legend**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC Host (Sauce Connect Host)</td>
<td>The machine in your network on which the Sauce Connect application is running. In this setup, it has a direct connection to the internet.</td>
</tr>
<tr>
<td>SUT (Site Under Test)</td>
<td>The site that you're testing. It is on the same local network as the SC Host machine.</td>
</tr>
<tr>
<td>Tunnel VM (Tunnel Virtual Machine)</td>
<td>Virtual machine that hosts Sauce Connect on the Sauce Labs side.</td>
</tr>
</tbody>
</table>

**REMINDER:** Sauce Connect must be on the same network as the website or mobile app you're testing, but it is not required to set it up on the same machine.
Starting Sauce Connect Proxy

First, download the Sauce Connect Application. After extracting the Sauce Connect download files onto your machine, go to the install directory and run sc with the command(s) below to authenticate against your Sauce Labs account and establish the Sauce Connect tunnel.

<table>
<thead>
<tr>
<th>MacOS/Linux Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ sc_download/bin/sc -u $SAUCE_USERNAME -k $SAUCE_ACCESS_KEY -x $SAUCE_DC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Windows Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; sc_download\bin\sc.exe -u %SAUCE_USERNAME% -k %SAUCE_ACCESS_KEY% -x %SAUCE_DC%</td>
</tr>
</tbody>
</table>

where:

- **SAUCE_USERNAME** is the username assigned to your Sauce Labs account
- **SAUCE_ACCESS_KEY** is the access key associated with that account
- **SAUCE_DC** is the url of the datacenter you need to use. By default, the `-x` option is not required if you're using the default US West data center. If you're using the Read Device Cloud or the European Data Center, `-x` **SAUCE_DC** is required.

Sauce Labs recommends setting all of the values above as environment variables to protect your username and api key from exposure, and also for future convenience.

Select the desired device option to view the relevant datacenter urls:

See Sauce Connect Proxy Setup for Real Device Cloud (RDC)-draft and Connection and Status Information for the Sauce Labs Data Centers for more general information about the datacenter urls.

When you see connected, log in to your Sauce Labs account and click the Tunnels dashboard link. Under Active Tunnels, you should see the tunnel you've just started.
Using Sauce Connect Proxy Tunnels for Automated Tests

When launching a Sauce Connect tunnel for automated web and mobile app tests, you have two options:

Launch a Sauce Connect tunnel as-is, without identifying it. That "default," unnamed tunnel will automatically be used for all automated tests run.

Assign a name to your tunnel – known as a Tunnel Identifier – which will give you control and monitoring capability over your tunnel. To accomplish this, you'll need to assign the Tunnel Identifier(s) when starting up Sauce Connect and launch a tunnel with the -i (--tunnel-identifier) command-line. Then, you'll need to use the tunnelIdentifier option in the desired capabilities of your automated tests. This will trigger your tests to request a specific Sauce Connect tunnel to run your tests through that tunnel.

We recommend the latter option. Here's how it works: Let's say your tunnel is named myTunnel01. You would need to set this option as "tunnelIdentifier": "myTunnel01". If you are starting and stopping Sauce Connect Proxy programmatically, ensure your tunnel always launches with the same name by passing the identifier flag, -i, with your authentication credentials, for example: bin/sc -u YOUR_USERNAME -k YOUR_ACCESS_KEY -i myTunnel01.

EXAMPLE: Automated Test with Sauce Connect Proxy Tunnel Identifiers

Below is an example of how to designate tunnels based on the tunnelIdentifier option that it works properly with an automated test with following the steps:

Launch a new tunnel on the SC_HOST with the following flags, per the Sauce Connect Proxy Command Line Reference:

**MacOS/Linux Example**

```
$ sc_download/bin/sc -u $SAUCE_USERNAME -k $SAUCE_ACCESS_KEY -x $SAUCE_DC -i sc-proxy-tunnel
```

**Windows Example**

```
> sc_download\bin\sc.exe -u %SAUCE_USERNAME% -k %SAUCE_ACCESS_KEY% -x %SAUCE_DC% -i sc-proxy-tunnel
```

- Ensure that your network configuration allows for communication between the SC Host, the Tunnel VM, and the SUT (site under test). See the above basic network configuration diagram for further explanation.
- Select an example from Sauce Labs Demonstration Scripts, and follow the instructions to configure the test in your dev environment.
- Navigate to the desired test script and add the following Test Configuration Option in the sauce:options capability.
Sauce Connect Proxy Tunnel Startup Process

Every Sauce Connect tunnel spins up a fresh virtual machine (VM) that is used only for your tests; VMs are destroyed once the tunnel is closed. A recommended Sauce Connect best practice is to create a new tunnel for each test suite or build and tear it down at the end of your test.

**DIAGRAM: Sauce Connect Proxy Tunnel Startup**

**STEP 1:** Sauce Connect Client calls REST API to start a tunnel.

**STEP 2:** REST API initiates a request to system to create a new Tunnel VM.

**STEP 3:** REST API tells the Sauce Connect Client DNS name of the Tunnel VM.

**STEP 4:** Sauce Connect Client makes connection request to Tunnel VM using its DNS name.

At this point, the tunnel is established between the Sauce Connect Client and the Tunnel VM.
Sauce Connect Communication When Test is Running

**DIAGRAM: Network Traffic Flow When a Test is Run Through a Sauce Connect Tunnel**

STEP 1: Selenium/Appium test code sends an HTTPS request to the VM or Real Device that was created for this test (for example, GET www.saucedemo.com).

STEP 2: Test VM or Device sends this request to Tunnel VM in order to access SUT.

STEP 3: Tunnel VM forwards this request to Sauce Connect client via the secure tunnel.

STEP 4: Sauce Connect Client forwards the request to Site Under Test (SUT).

STEP 5: Site Under Test returns response to Sauce Connect Client.

STEP 6: Sauce Connect client sends response to Tunnel VM via secure tunnel.

STEP 7: Tunnel VM sends response to Test VM.

STEP 8: Test VM sends results back to Selenium/Appium Test cloud.

Throughout the lifetime of a tunnel, Sauce Connect Client sends status information to Sauce Labs REST API.
More Information

Now that you're up and running with a Basic Sauce Connect Proxy Setup, we recommend reviewing the following topics:

- Set up monitoring for your Sauce Connect Proxy tunnels
- Set up an additional proxy for testing
- Set up High Availability Sauce Connect Proxy tunnels