

# Sauce Connect Proxy with an Additional Proxy Setup

## The Situation

The Sauce Connect proxy setup is for situations in which there is a proxy server between the Internet and the machine hosting Sauce Connect, or between the machine hosting Sauce Connect and the machine hosting the website you want to test. In these cases you will want to use the [Sauce Connect proxy commands](#) to configure the proxy host and port that Sauce Connect can use to either reach the Internet or the site you want to test.

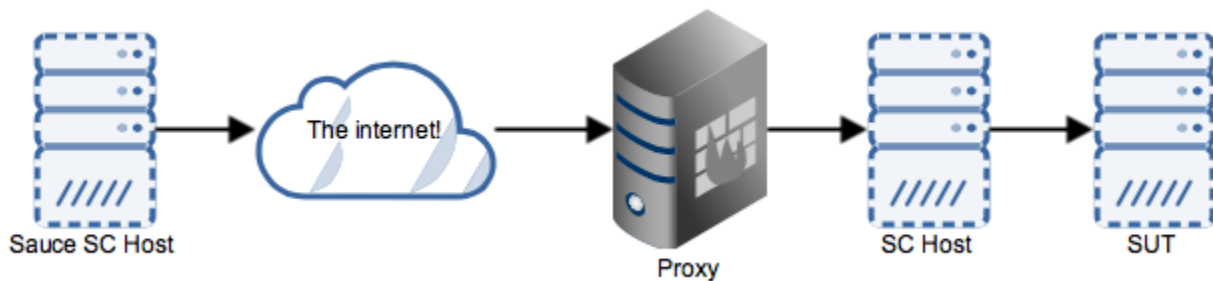
## Network Diagrams

### Sauce Connect and MitM Proxies

If you use a Man-in-the-Middle proxy to monitor network traffic, it must be configured to allow the TLS connection and proprietary protocol that Sauce Connect uses to communicate with the Sauce Labs virtual machines that are running your tests. If it will allow only HTTP or HTTPS sessions, it will drop the inbound Sauce Connect connection. Check out [Sauce Connect Start Up and Tear Down Process](#) for more information about how Sauce Connect starts up and maintains the connection with the Sauce Labs browser cloud.

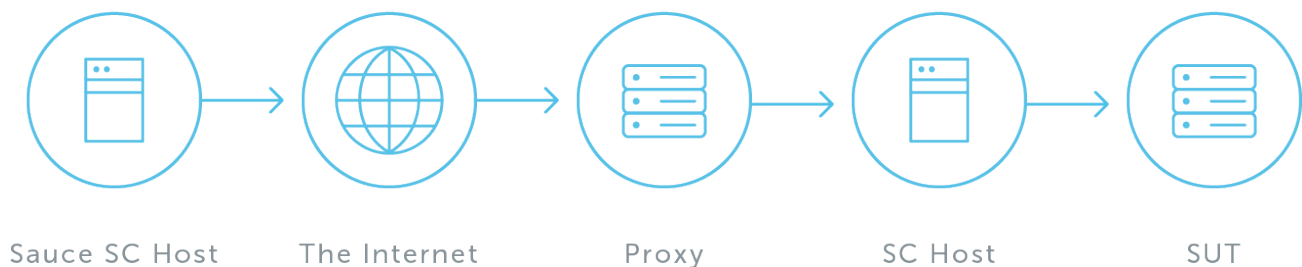
### Internet Control/Transaction Monitoring with a Proxy Configuration

You may have a network configuration in which you use a proxy to control the flow of traffic from your internal network to the external Internet, either as a means of adding security to your network, or whitelisting or blacklisting certain sites. In this situation you could set up Sauce Connect behind a proxy like BrowserMob, which records all traffic that passes through it, and which can later provide a history of that traffic.



### Proxied Site Under Test (SUT)

In this configuration the SUT is behind a proxy, to allow even more control over traffic before it reaches the SUT. Typical this setup is used to control access to the SUT by means of IP whitelisting, or requiring a username and password to access the proxy.



### Diagram Legend

Shorthand	Longhand
SC Host	Machine in your network that the Sauce Connect application is running on.

<b>SUT</b>	Site Under Test, the site that you're testing.
<b>Tunnel VM</b>	The virtual machine that hosts Sauce Connect on the Sauce Labs side.

### Different Machine, But Same Network

The most important thing to understand about setting up Sauce Connect is that while it doesn't need to be set up on the same machine as the site or application you're testing, it **must** be on the same network. [What Not to Do: Dysfunctional Sauce Connect Proxy Network Configurations](#) illustrates some examples of network architectures in which Sauce Connect will not be able to create a tunnel, or will be too slow to carry out effective testing.

### Sauce Connect IP and Virtual Machine Range

Sauce Connect Proxy makes outbound connections to Sauce Labs using the following IP ranges:

- 162.222.72.0/21 (this is equivalent to the range 162.222.72.1 – 162.222.79.254)
- 66.85.48.0/21 (this is equivalent to the range 66.85.48.0 – 66.85.55.255)
- 185.94.24.0/22 (this is equivalent to the range 185.94.24.0 – 185.94.27.255)

For [saucelabs.com](#) certificate authentication, the server hosting Sauce Connect may need to connect to Online Certificate Status Protocol (OCSP) or Certificate Revocation List (CRL) services as well. Check out [Sauce Connect Certificate Handling](#) for more info.

### IP Ranges and Data Center Endpoints

Sauce Labs has data centers in both the US and EU. You can access Sauce Labs services from either location by providing the appropriate URL endpoints, and whitelisting their associated IP ranges.

- **Status Page for the US Data Center:** <https://status.saucelabs.com>
- **Status Page for the EU Data Center:** <http://status.eu-central-1.saucelabs.com/>

#### ▼ [Click here to view US Data Center Endpoints](#)

**Virtual Device Cloud:** <https://ondemand.saucelabs.com/wd/hub>

**Sauce Connect Proxy:** <https://saucelabs.com/rest/v1> (do not need to specify, Sauce Connect Proxy will use this by default)

**SSO:**

- <https://saucelabs.com/sso/metadata> for **Signing/Encryption Certificate**
- <https://saucelabs.com/sso/acs> for **Entity AssertionConsumeURL**

**REST API:**

- Virtual Devices and Desktops: [api.us-west-1.saucelabs.com/v1](https://api.us-west-1.saucelabs.com/v1)
- Real Devices: [api.us-west-1.saucelabs.com/v1/rdc](https://api.us-west-1.saucelabs.com/v1/rdc)

**IP Ranges:**

162.222.72.0/21 (this is equivalent to the range 162.222.72.1 – 162.222.79.254)  
66.85.48.0/21 (this is equivalent to the range 66.85.48.0 – 66.85.55.255)

#### ▼ [Click here to view EU Data Center endpoints](#)

For more information, including framework configuration for the European data center, check out [Sauce Labs European Data Center Configuration Information](#).

**Virtual Device Cloud:** <https://ondemand.eu-central-1.saucelabs.com/wd/hub>

**Sauce Connect Proxy:** <https://eu-central-1.saucelabs.com/rest/v1> (specify with **-x** argument)

**SSO:**

- <https://eu-central-1.saucelabs.com/sso/metadata> for **Signing/Encryption Certificate**
- <https://eu-central-1.saucelabs.com/sso/acs> for **Entity AssertionConsumeURL**

**REST API:** <https://eu-central-1.saucelabs.com/rest>

**IP Range:**

185.94.24.0/22 (this is equivalent to the range 185.94.24.0 - 185.94.27.255)

## Prerequisites

- Make sure you've reviewed the [System Requirements for Sauce Connect Proxy](#)
- You should read [Sauce Connect and Network Security](#) to understand how Sauce Connect uses tunnels to connect your site or application under test to a browser running on a virtual machine in the Sauce Labs data center, and to understand how that tunnel is secured
- You should review the [Sauce Connect Best Practices](#) and [Sauce Connect Proxy FAQs](#)

## Setting Up Sauce Connect

1. Download the appropriate version of Sauce Connect for your operating system.

### 4.5.3

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.5.3 for Mac OS 10.8+</a>	3f07a355ed454516688500054ac579741e3812a8
<a href="#">Download Sauce Connect v4.5.3 for Windows 7+</a>	6fa749b5273053dc261f8d9b122b02409e9377f9
<a href="#">Download Sauce Connect v4.5.3 for Linux</a>	c7ad595a2a42f837fab91de3c3f51b49f2af6b36
<a href="#">Download Sauce Connect v4.5.3 for Linux 32-bit</a>	1727d35fe9ad10f891aa21f853aaf119f4f43adb

### Previous versions of Sauce Connect Proxy

▼ [Click here to expand...](#)

### 4.5.2

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.5.2 for Mac OS 10.8+</a>	04d3aed5dd2391dba5ffb4ef7c07ebed2da0720d
<a href="#">Download Sauce Connect v4.5.2 for Windows 7+</a>	03f8106ad947ecfa187ca31d355b55c89ae92d42
<a href="#">Download Sauce Connect v4.5.2 for Linux</a>	2a923ca09bab5d8096844ace36f4a89994364482
<a href="#">Download Sauce Connect v4.5.2 for Linux 32-bit</a>	57dba5324515157f0954ef47871a9963b2f5fc8e

### 4.5.1

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.5.1 for Mac OS 10.8+</a>	adb6c71c091a970a7126ccfa4157218a0e608174
<a href="#">Download Sauce Connect v4.5.1 for Windows 7+</a>	a74d632a8f90763a98759e82200c9f8dca08e45b
<a href="#">Download Sauce Connect v4.5.1 for Linux</a>	5ca9328724c5ff16b12ea49e7a748d44f7305be5
<a href="#">Download Sauce Connect v4.5.1 for Linux 32-bit</a>	ad0359956e1cbb6fd45ad691d050b50534bff765

### 4.5.0

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.5.0 for Mac OS 10.8+</a>	24913e3b442af323d62b94fbdd7ad218cec58534
<a href="#">Download Sauce Connect v4.5.0 for Windows 7+</a>	f4668b9a4b7834c3aedf73a930695e3b9f492d06
<a href="#">Download Sauce Connect v4.5.0 for Linux</a>	06e52acbbde3668a8effbf0dc970b40e32763fa6
<a href="#">Download Sauce Connect v4.5.0 for Linux 32-bit</a>	2473df68b567098e14ac2199d14813c2be389867

**4.4.11**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.11 for OS X 10.12+</a>	9b8fe1342b94518b9a4e3bc7933cf93873461910  Note: Contains a major bug on OS X 10.11 and below, please use SC 4.4.12 instead.
<a href="#">Download Sauce Connect v4.4.11 for Windows 7+</a>	c6e9f3f2a99411da00e22147918d50360af5f989
<a href="#">Download Sauce Connect v4.4.11 for Linux</a>	4a70c3a559913274a35b056a6e5d274cdb4efdec
<a href="#">Download Sauce Connect v4.4.11 for Linux 32-bit</a>	d9c8bfeffecf9244eb0f543b60496d9a0f007437

**4.4.10**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.10 for OS X 10.8+</a>	d02832aa7879ee44722d6f65a7c7730696a41d09
<a href="#">Download Sauce Connect v4.4.10 for Windows 7+</a>	7da842be68ac8391697d3dee8b231a6caf372a76
<a href="#">Download Sauce Connect v4.4.10 for Linux</a>	dc0210fbc99a609f01c1a50a9fb6e77c2293cfd8
<a href="#">Download Sauce Connect v4.4.10 for Linux 32-bit</a>	7da842be68ac8391697d3dee8b231a6caf372a76

**4.4.9**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.9 for OS X 10.8+</a>	80720ce6640a000d6d0fa84e8f4d692b90918f91
<a href="#">Download Sauce Connect v4.4.9 for Windows 7+</a>	4ecdacbb8b25f62308a4a39c624bf1e1dc3fde45
<a href="#">Download Sauce Connect v4.4.9 for Linux</a>	733745d519cde6def195878140340ecb806cdf21
<a href="#">Download Sauce Connect v4.4.9 for Linux 32-bit</a>	7add5bee0fce38a008909cdc75522063e6f45f0b

**4.4.8**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.8 for OS X 10.8+</a>	8964dde5a902842f1f26e3a2e47094a9146b06e2
<a href="#">Download Sauce Connect v4.4.8 for Windows 7+</a>	ab61fc041f5d418eb9f3f75b4495f38cacfb35fd

<a href="#">Download Sauce Connect v4.4.8 for Linux</a>	e0ec01aba8bd523838349af54582a2674b107dbb
<a href="#">Download Sauce Connect v4.4.8 for Linux 32-bit</a>	779552aa573a675629bf42a9410454dc3286e958

**4.4.7**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.7 for OS X 10.8+</a>	6f3e693135294e536cd99fc9f9d3b55532c68172
<a href="#">Download Sauce Connect v4.4.7 for Windows 7+</a>	2ada3428a1f291c7c669f96009295582d2d7438b
<a href="#">Download Sauce Connect v4.4.7 for Linux</a>	edb6816c873cc4cdf1d099e1534778d35f184942
<a href="#">Download Sauce Connect v4.4.7 for Linux 32-bit</a>	adf56c6e098e9512179f0cc03848e948e5f9dbc2

**4.4.6**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.6 for OS X 10.8+</a>	b0a2307391e5606018437d9ec7aca41a48c8f6f0
<a href="#">Download Sauce Connect v4.4.6 for Windows 7+</a>	6e8523b674b01618098a89cde38a6eb127191b27
<a href="#">Download Sauce Connect v4.4.6 for Linux</a>	9c47e879ad504442a9a050f2bc1fca104d82b4da
<a href="#">Download Sauce Connect v4.4.6 for Linux 32-bit</a>	98a52ab215b62b649e0455b75a9cc598d0024812

**4.4.5**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.5 for OS X 10.8+</a>	49829d719e46a398504deda77dc3a13ac8b31dd9
<a href="#">Download Sauce Connect v4.4.5 for Windows 7+</a>	e8f84a1ec4ce1acabdbd489e22d577949dbfb61c
<a href="#">Download Sauce Connect v4.4.5 for Linux</a>	ee0f6d4a52975d55c4c005d9730f0bef533d1878
<a href="#">Download Sauce Connect v4.4.5 for Linux 32-bit</a>	aa42f7d16a59474efd950c604f996bdcc2d45544

**4.4.4**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.4 for OS X 10.8+</a>	71e4961900f7ad19c33ad59b543051a7524611da
<a href="#">Download Sauce Connect v4.4.4 for Windows 7+</a>	f6f258439cf86f5c54d1a990fecb6b5197eb073e
<a href="#">Download Sauce Connect v4.4.4 for Linux</a>	d0992449388560c89b25f996cc163a3ffd09922a
<a href="#">Download Sauce Connect v4.4.4 for Linux 32-bit</a>	ede12d6c95ef8b90bbba34ee2ab98d467cc229da

**4.4.3**

Download Link	SHA1 Checksum
<a href="#">Download Sauce Connect v4.4.3 for OS X 10.8+</a>	f5d6d0a8727e0b91225d3af03555092bd72a70a3

Download <a href="#">Sauce Connect v4.4.3 for Windows 7+</a>	4b4445c95d722e43c09c41eac5fa6659cacd2b45
Download <a href="#">Sauce Connect v4.4.3 for Linux</a>	c675da6d59da873502f87dfdfa76a528bd702d92
Download <a href="#">Sauce Connect v4.4.3 for Linux 32-bit</a>	fa668557a672200df86f4dc8e85d573fce5dc7c0

#### 4.4.2

Download Link	SHA1 Checksum
Download <a href="#">Sauce Connect v4.4.2 for OS X 10.8+</a>	a7e04143c3150975e72ae8fef38067d2752dec8f
Download <a href="#">Sauce Connect v4.4.2 for Windows 7+</a>	697646350a7ea0a446ac4c55853aa20514a7984c
Download <a href="#">Sauce Connect v4.4.2 for Linux</a>	57a07a14c5d95d72b6606ba34fcea5bf76c2865
Download <a href="#">Sauce Connect v4.4.2 for Linux 32-bit</a>	d45a7befba6355767d5ca868137ee9332628a790

#### 4.4.1

Download Link	SHA1 Checksum
Download <a href="#">Sauce Connect v4.4.1 for OS X 10.8+</a>	7962a635b66a7a015c7a5f62d6f36bca7c923062
Download <a href="#">Sauce Connect v4.4.1 for Windows 7+</a>	4942e4d4e050e218043f81f877034bbddf87f9dd
Download <a href="#">Sauce Connect v4.4.1 for Linux</a>	eb15689b0a3e23bee9737e36d6d925a77ae16989
Download <a href="#">Sauce Connect v4.4.1 for Linux 32-bit</a>	6542956db84eae9bcbe604a9054aa9079923fdad

- On the machine where you want to install Sauce Connect, open outbound port 443 for sending Selenium commands from Sauce Connect to the Sauce Labs virtual machine, and inbound port 4445 for receiving Selenium commands (inbound port 4445 only needs to be open for connections within your network from the machine where your test scripts are running, and only if you use Sauce Connect's Selenium Relay, which by default listens on port 4445).
- After extracting the Sauce Connect files onto your machine, go to the install directory and **run the -u and -k commands** to authenticate against your Sauce Labs account and establish the Sauce Connect tunnel.

#### When running in Mac or Linux:

```
bin/sc -u YOUR_USERNAME -k YOUR_ACCESS_KEY
```

#### When running in Windows:

```
bin\sc.exe -u YOUR_USERNAME -k YOUR_ACCESS_KEY
```

#### Defining the datacenter with -x command

```
bin/sc -u YOUR_USERNAME -k YOUR_ACCESS_KEY -x https://saucelabs.com/rest/v1
```

#### Finding Your Username and Access Key

You can find your Sauce Labs username and access key in the **User Profile > User Settings** section of your Sauce Labs dashboard. You should also check out our [topic on setting your username and access key as environment variables](#).

- 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 just started.

### Using the `tunnelIdentifier` Option for Automated Tests

Once you have launched a Sauce Connect Proxy tunnel, you need to use the `tunnelIdentifier` option in the desired capabilities of your automated tests to run your tests through that tunnel. For example, if 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, you can make sure 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`

You now have three options for proxy configuration:

#### Automatic Proxy Configuration

As of Sauce Connect 4.3.1, proxies and PAC settings are autoconfigured based on the settings of the operating system on the machine where it is installed.

- On Windows, Sauce Connect will use the proxy settings for Internet Explorer, as well as the system-wide proxy settings that set in the Control Panel.
- On Mac OS X, Sauce Connect will use the proxy settings in Preferences/Network. Both proxy and PAC settings are supported.
- On Linux, Sauce Connect looks for these variables, in this order:

- `http_proxy`
- `HTTP_PROXY`
- `all_proxy`
- `ALL_PROXY`. They can be in the form `http://host.name:port` OR `host.name:port`.

You can disable automatic proxy detection with the [command line option](#) `./sc -z --no-autodetect`.

#### Command Line Configuration

If automatic proxy configuration fails, you need to override the settings, or you need to enable proxies through a test script, there are several [command-line options](#) that you can use to configure proxies manually.

- `-p`
- `--proxy <host:port>`
- `-w`
- `--proxy-userpwd <user:pwd>`
- `-T`
- `--proxy-tunnel`
- `--pac <url>`

### Why are there `-p`, `--proxy` and a `-T`, `--proxy-tunnel` options?

Fundamentally, Sauce Connect makes [two separate outbound connections](#) for two separate purposes. The first, which `-p`, `--proxy <host:port>` uses, is a lightweight connection to our REST API that simply tells our servers basic information about the status of Sauce Connect's status (for example, starting up, ready, stopping).

The second connection is to the actual tunnel virtual machine (VM) created for your Sauce Connect instance. Enabling the `-T`, `--proxy-tunnel` flag will cause some proxy specified with `-p`, `--proxy` to be used for this connection as well. You should try to avoid using a proxy for this connection, since it is already TLS secured, and a large volume of data tends to go over this connection. Adding another step in the middle, in the form of a proxy, can hinder test performance.

Ideally you should only need to use `-p`, `--proxy <host:port>` (and perhaps `-w`, `--proxy-userpwd <user:pwd>` for credentials), but `-T`, `--proxy-tunnel` is available if your network doesn't allow outgoing connections on port 443. If your tests are slow, you may want to ask your network administrator about making an exception for this connection.

#### BrowserMob Proxy Configuration

You can use [BrowserMob Proxy](#) with Sauce Connect 4.2 and higher by using the Sauce Connect PAC feature.

Since BrowserMob bumps SSL connections, and Sauce Connect 4 verifies the certificate when connecting to the REST API, that means the `--proxy` option can't be used with a BrowserMob proxy. Sauce Connect will complain that the certificate received from the REST endpoint is invalid.

To choose a proxy in a dynamic fashion, however, you can create a PAC file that matches the REST and tunnel VM hostnames, and uses the local BrowserMob proxy for everything else.

1. Start BrowserMob Proxy.

```
$ ./browsermob-proxy --port 9000
```

2. Start another terminal and create a proxy instance in BrowserMob.

```
$ curl -X POST http://localhost:9000/proxy
{"port":9091}
```

3. Create a file, `browsermob.js`, with this content. This is what you will pass into Sauce Connect 4.

```
function FindProxyForURL(url, host) {
  if (shExpMatch(host, "*.miso.saucelabs.com") ||
      shExpMatch(host, "*.api.testobject.com/sc/rest/v1") ||
      shExpMatch(host, "saucelabs.com")) {
    // KGP and REST connections. Another proxy can also be
    specified.
    return "DIRECT";
  }

  // Test HTTP traffic, route it through the local BrowserMob proxy.
  return "PROXY localhost:9091";
}
```

4. Copy the file to the same directory as Sauce Connect 4, and start Sauce Connect 4.

```
$ ./sc -v --pac file://$(pwd)/browsermob.js
```

Sauce Connect 4 will print the proxy used for REST and the tunnel VM connection, which should be `Using no proxy for connecting to Sauce Labs REST API` and `Using no proxy for connecting to tunnel VM` if their hostnames are configured with DIRECT access.

#### WonderProxy

You can use WonderProxy for GeoIP website testing with Sauce Connect. Check out [the step-by-step setup guide on the WonderProxy website](#).

## After Setting Up Sauce Connect

- You can [set up monitoring](#) for your Sauce Connect tunnels
- You can [set up multiple tunnels by using tunnel identifiers](#)

## Command Line Examples

In its simplest form, Sauce Connect can be started from the command line with these commands.



```
#On Linux or Mac OSX you would use the following
>./sc -u YOUR_USERNAME -k YOUR_ACCESS_KEY --proxy host:port --proxy-tunnel

#On windows you would use the following
>sc.exe -u YOUR_USERNAME -k YOUR_ACCESS_KEY --proxy host:port --proxy-
tunnel
```

## Starting Sauce Connect Programmatically

To start Sauce Connect programmatically, there are many options, such as launching it via Maven when using Java. [The Sauce Connect Maven plugin](#) will do this for you automatically, and you can also [check out an example of how to set this up in a testing script](#).