



Server Ssl

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Overview

Carbon Black makes heavy use of SSL Certificates for authentication and confidentiality between:

- your Carbon Black server and the Alliance server
- your Carbon Black server and the yum repository
- your sensors and your Carbon Black server
- your browser and your Carbon Black server

This document describes those communications, the location and configuration of each certificate and some Frequently Asked Questions on certificate management.

SSL Certificates

There are four different SSL certificates:

1. `/etc/cb/certs/alliance-client.crt` and `alliance-client.key`

These certificates are installed with your in carbon-black-release RPM. They are unique per organization and valid for the lifetime of your relationship with Carbon Black. These certificates are used when your Carbon Black server communicates with the Alliance Server or `yum.carbonblack.com`.

2. `/etc/cb/certs/cb-client-ca.crt` and `cb-client-ca.key`

This is the Certificate Authority used to issue client certificates to Cb sensors. These certificates are generated during `cbinit`, if and only if they do not already exist. This CA is used to sign sensor client certificates (see below) and authenticate sensor HTTP traffic. `nginx` validates any incoming sensor traffic was signed by this CA.

3. `/etc/cb/certs/cb-server.crt` and `cb-server.key`

This is a normal HTTPS server certificate, used by `nginx` on `tcp/443`. Browser clients, REST API clients and sensors validate this certificate when connecting to the Cb server. This certificate is generated during `cbinit`, if and only if they do not exist. It is burned into each sensor at sensor download time.

4. In postgres, there are two classes of certificates: In the `sensor_group` table, there is one client certificate/key per sensor group. It is issued by the Certificate Authority in `cb-client-ca.crt/cb-client-ca.key` at group creation time. For the default group, this during `cbinit`. There is also a list of revoked certificates. Using `/usr/share/cb/cbssl` any `sensor_group` client certificate suspected of being compromised can be revoked with `cbssl`.

SSL Certificate Usage

- Cb server to Alliance:
 - Server: Cb Alliance server authenticates incoming connection based on the SSL Client certification from `alliance-client.crt/key`
 - Client: Carbon Black server authenticates Alliance certificate via normal root CA verification procedures
- Cb server to `yum.carbonblack.com`:
 - Server: `yum.carbonblack.com` authenticates incoming connections based on the SSL client certificate from `alliance-client.crt/key`
 - Client: The yum client authenticates the Cb yum server via normal root CA verification procedures
- Browser / REST API clients to Cb server:
 - Server: Cb Enterprise sends `cb-server.crt` as his identity. By default it is self-signed.
 - Client: clients authenticate Cb Enterprise server via normal root CA verification procedures. Since the certificate is self-signed, this fails by default.
- Sensor to Cb server:
 - server sends `cb-server.crt` as his identity. sensor has `cb-server.crt` embedded at sensor download time and validates the two match.
 - at sensor download time, sensor has embedded client cert and key, issued by `cb-client-ca`. server validates sensor client cert was issued by `cb-client-ca`, the client cert has been issued before to a sensor and the client cert has not been revoked. If the client cert does not match the expected certificate for the sensor group, but is from the valid ca and is not revoked, the server sends (and the sensor replaces) the new, expected client certificate.

cbssl

This utility provides the tools for managing Carbon Black Enterprise Server's SSL certificates.

FAQ

- I want to upgrade my server SSL certificate to a real, signed one so the browser quits complaining.
Replace `cb-server.crt/key`. Any already deployed sensors must also be upgraded/re-installed out of band.
- I want to point an already-deployed sensor to another Cb server
Copy `cb-server.crt/key` and `cb-client-ca.crt/key` to the new Cb server. On the new server, there are two options:

- run `cbinit`
- run `cbssl`

stop `cb-enterprise`, run `cbinit` and then start `cb-enterprise`. `cbinit` is required to re-issue the sensor client certificates from the new CA.

Finally, change `server_url` in Group Settings on the old server to point to the new server.

Any sensors downloaded from the new server with the old keys will need to be upgraded/re-installed out of band.

- I believe a sensor client certificated was compromised, and my Carbon Black server has a interface in the DMZ. How do I ensure an attacker cannot use the sensor client certificate to push malicious data, compromising the integrity of the data in Carbon Black?
Use `cbssl` to revoke the certificate for the compromised `sensor_group`. The remaining sensors in the group must be upgraded/re-installed out of band.