# Decryption Rule Examples



## Decryption Rule Examples

This chapter provides an example of decryption rule that illustrate our best practices.

## Traffic to Prefilter

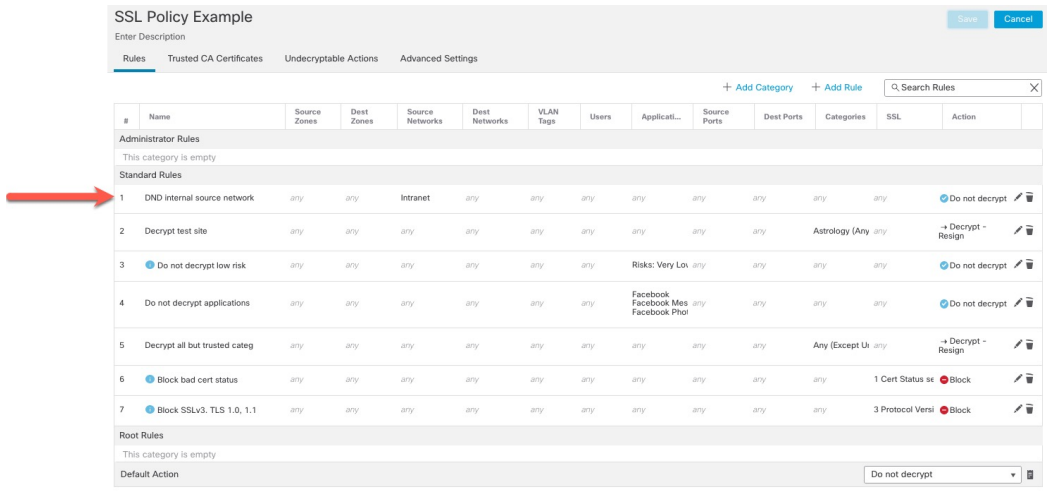
*Prefiltering* is the first phase of access control, before the system performs more resource-intensive evaluation. Prefiltering is simple, fast, and early compared to subsequent evaluation, which uses inner headers and has more robust inspection capabilities.

Based on your security needs and traffic profile, you should consider prefiltering and therefore excluding from any policy and inspection the following:

- Common intraoffice applications such as Microsoft Outlook 365
- Elephant flows, such as server backups

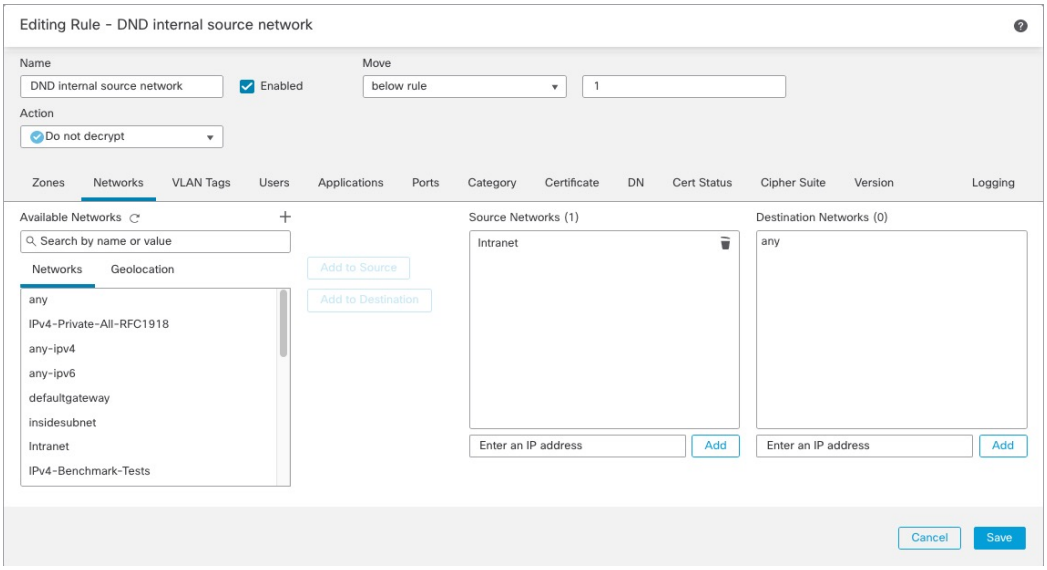
## First Decryption Rule: Do Not Decrypt Specific Traffic

The first decryption rule in the example does not decrypt traffic that goes to an internal network (defined as **intranet**). **Do Not Decrypt** rule actions are matched during ClientHello so they are processed very fast.



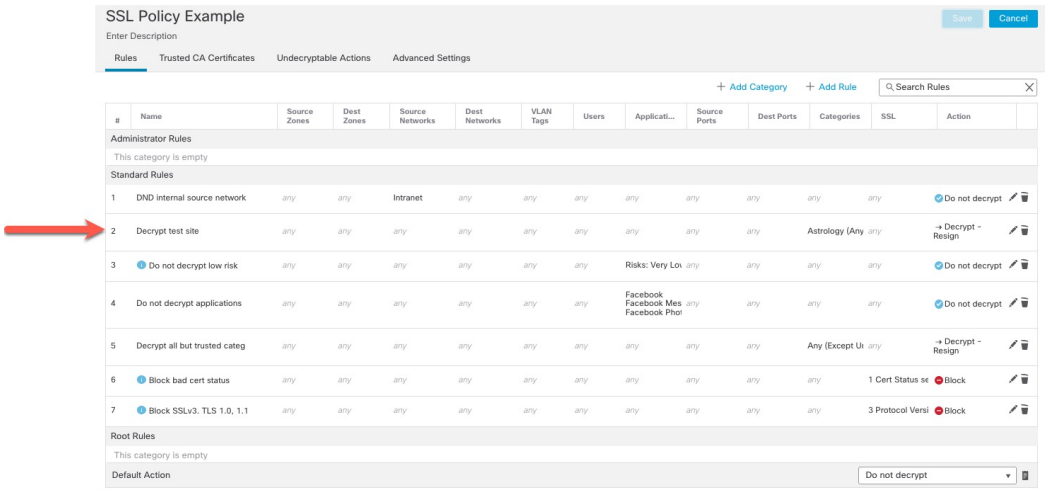

**Note** If you have traffic going from internal DNS servers to internal DNS resolvers (such as Cisco Umbrella Virtual Appliances), you can add **Do Not Decrypt** rules for them as well. You can even add those to prefiltering policies if the internal DNS servers do their own logging.

However, we strongly recommend you *do not* use **Do Not Decrypt** rules or prefiltering for DNS traffic that goes to the internet, such as internet root servers (for example, Microsoft internal DNS resolvers built into Active Directory). In those cases, you should fully inspect the traffic or even consider blocking it.

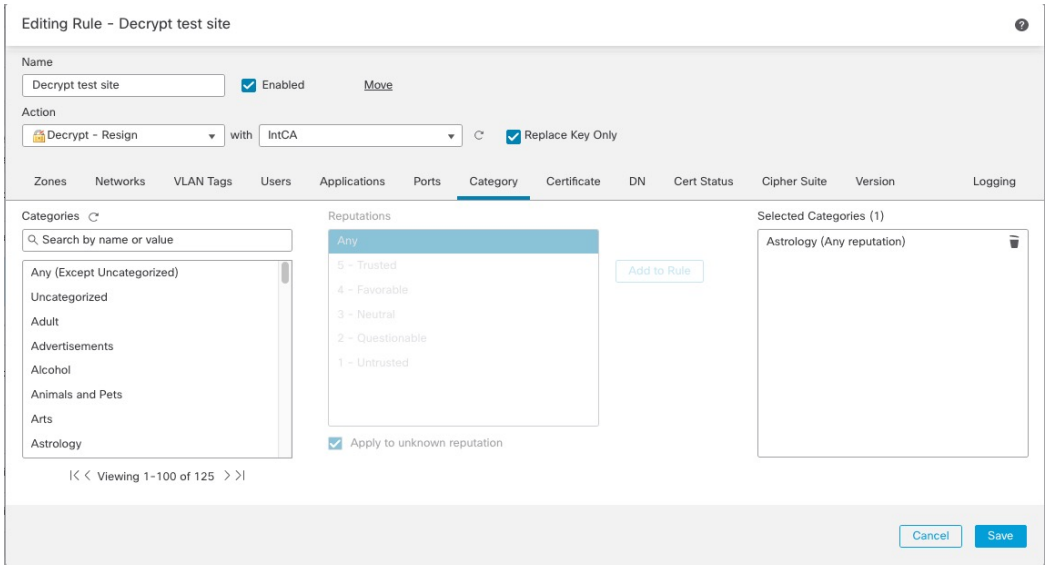



# Next Decryption Rules: Decrypt Specific Test Traffic

The next rule is *optional* in the example; use it to decrypt and monitor limited types of traffic before determining whether or not to allow it on your network.



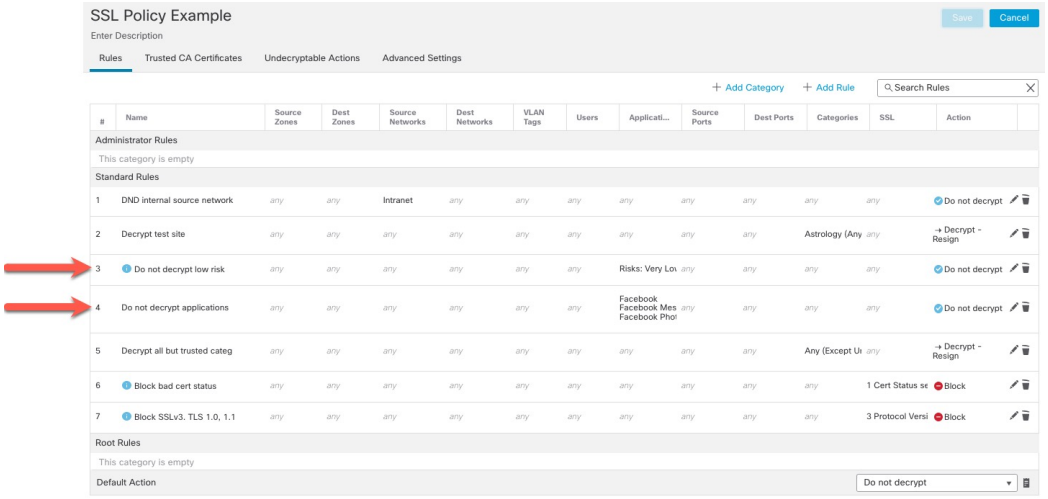

Rule detail:



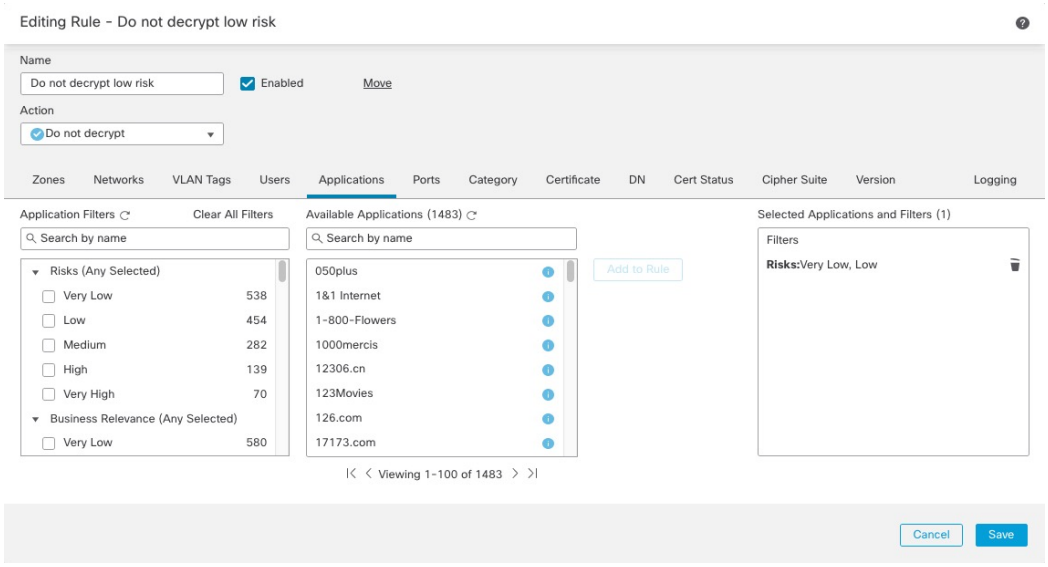

# Do Not Decrypt Low-Risk Categories, Reputations, or Applications

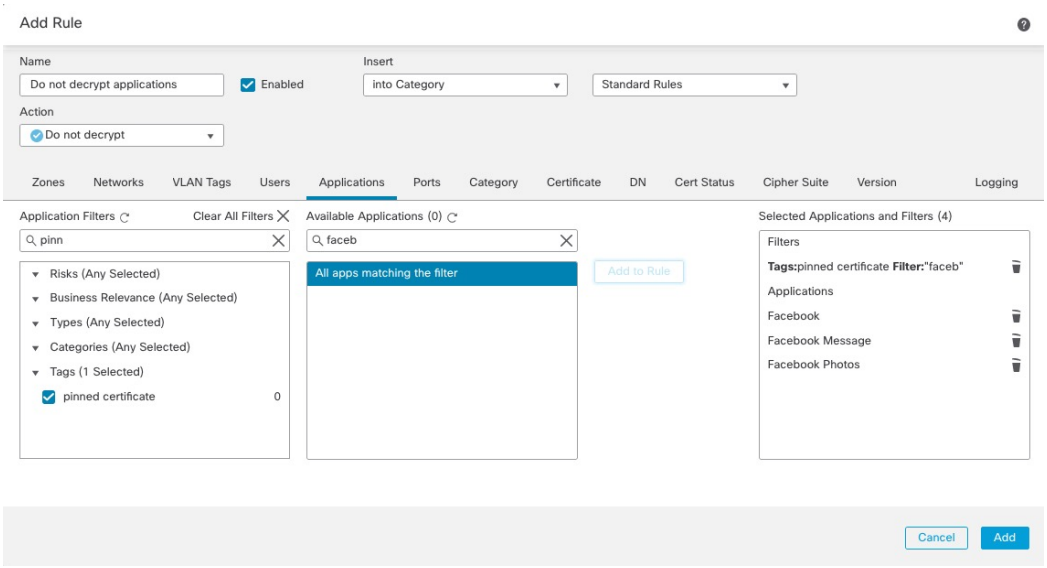
Evaluate the traffic on your network to determine which would match low-risk categories, reputations, or applications, and add those rules with a **Do Not Decrypt** action. Put these rules *after* other more specific **Do Not Decrypt** rules because the system needs more time to process the traffic.

Following is the example.




Rule details:






# Create a Decrypt - Resign Rule for Categories

This topic shows an example of creating a decryption rule with a **Decrypt - Resign** action for all but uncategorized sites. The rule uses the optional **Replace Key Only** option, which we always recommend with a **Decrypt-Resign** rule action.

**Replace Key Only** causes the user to see a security warning in the web browser when they browse to a site that uses a self-signed certificate, making the user aware that they are communicating with an unsecure site.

By putting this rule near the bottom, you get the best of both worlds: you can decrypt and optionally inspect traffic while not affecting performance as much as if you had put the rule earlier in the policy.

**Step 1** Log in to the Secure Firewall Management Center if you haven't already done so.

**Step 2** If you haven't already done so, upload an internal certificate authority (CA) to the Secure Firewall Management Center (**Objects** > **Object Management**, then **PKI** > **Internal CAs**).

**Step 3** Click **Policies** > **Access Control** > **Decryption**.

**Step 4** Click **Edit** ( ) next to your SSL policy.

**Step 5** Click **Add Rule**.

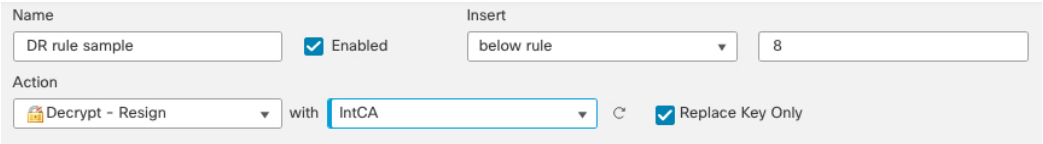
**Step 6** In the **Name** field, enter a name to identify the rule.

**Step 7** From the **Action** list, click **Decrypt - Resign**.

**Step 8** From the **with** list, click the name of your internal CA.

**Step 9** Check the **Replace Key Only** box.

The following figure shows an example.



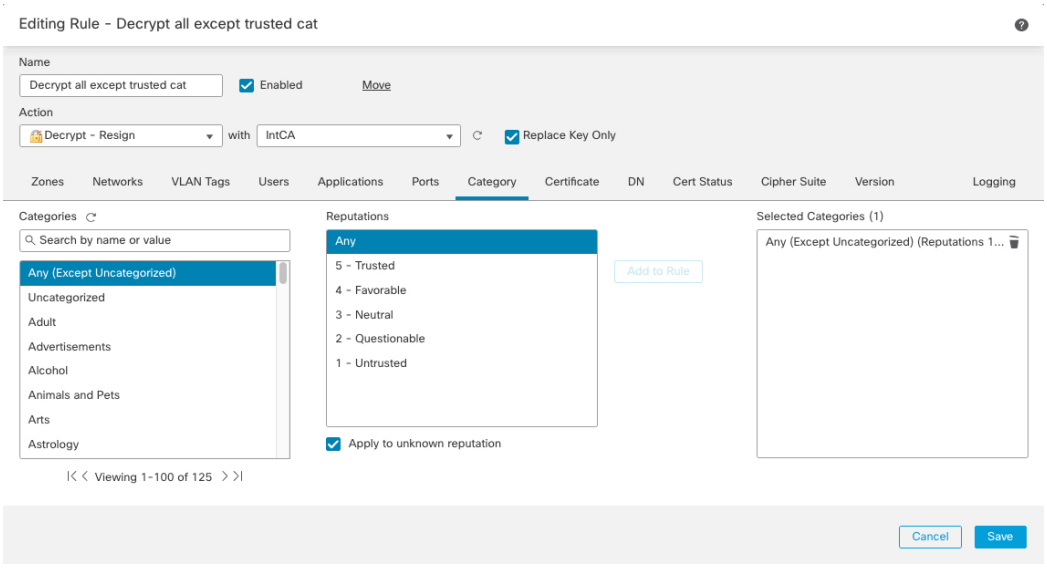
**Step 10** Click the **Category** tab page.

**Step 11** From the top of the **Categories** list, click **Any (Except Uncategorized)**.

**Step 12** From the **Reputations** list, click **Any**.

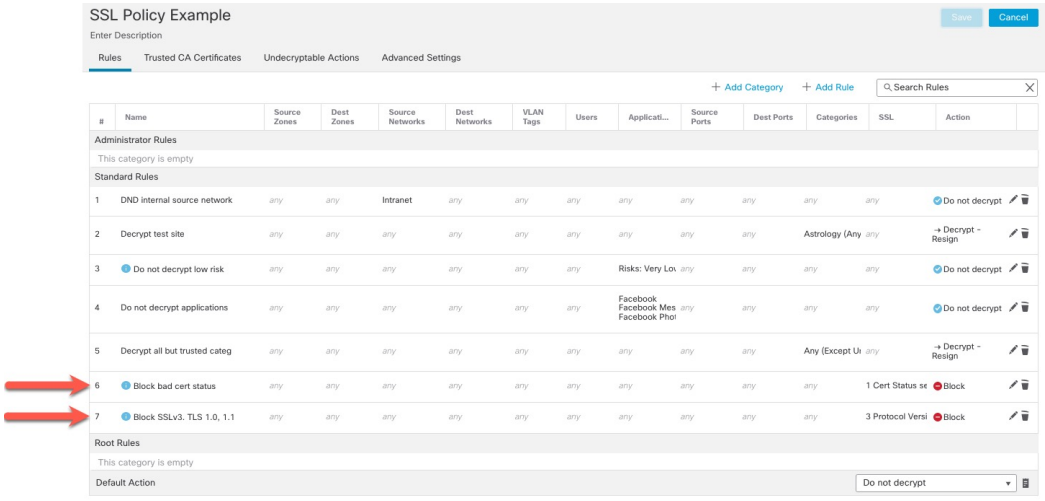
**Step 13** Click **Add to Rule**.

The following figure shows an example.

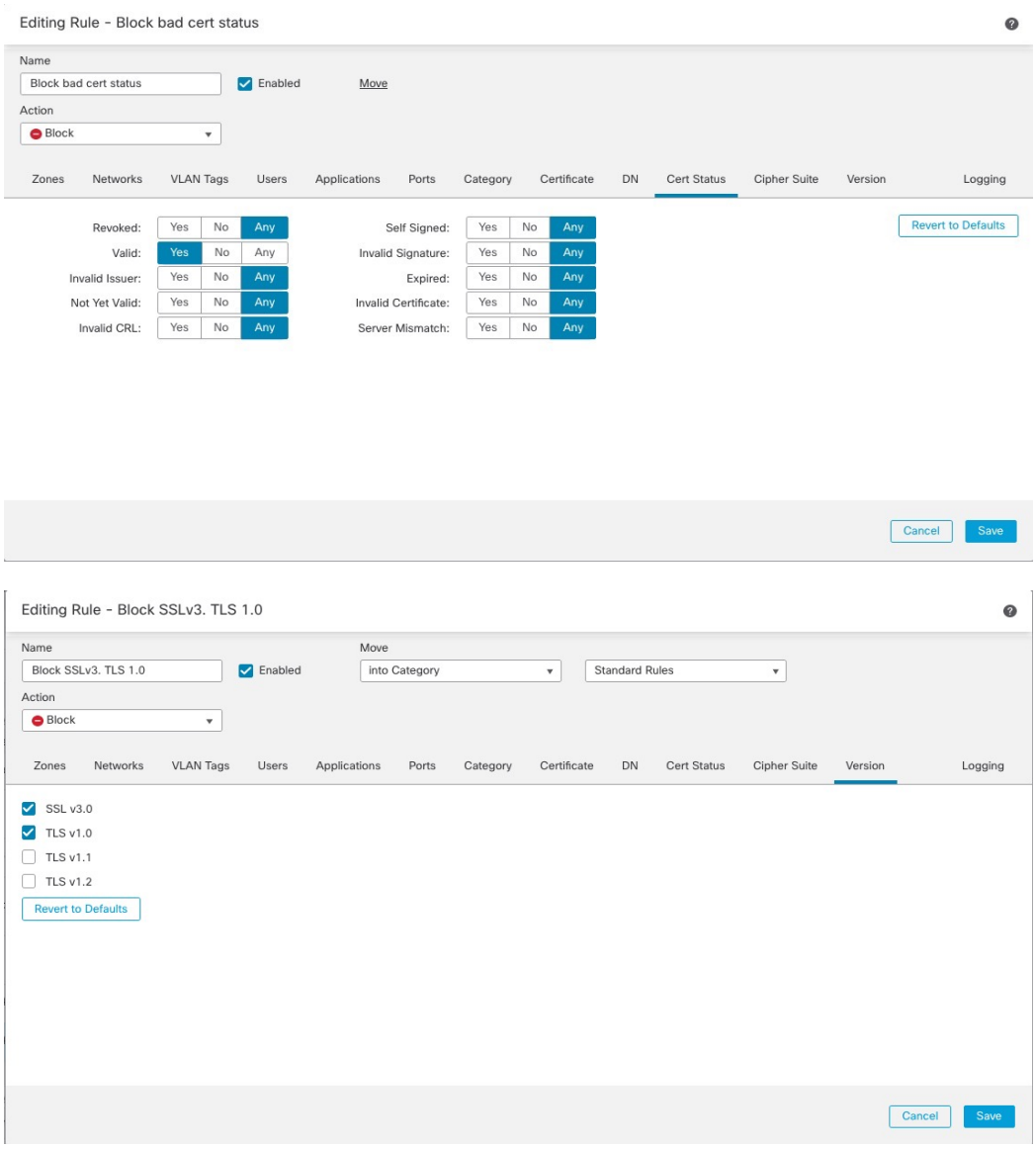



# Last Decryption Rules: Block or Monitor Certificates and Protocol Versions

The last decryption rules, because they are the most specific and require the most processing, are rules that either monitor or block bad certificates and unsecure protocol versions.



Rule details:




# Example: Decryption Rule to Monitor or Block Certificate Status

The last decryption rules, because they are the most specific and require the most processing, are rules that either monitor or block bad certificates and unsecure protocol versions. The example in this section shows how to monitor or block traffic by certificate status.

**Note** Use the **Cipher Suite** and **Version** rule conditions *only* in rules with either the **Block** or **Block with reset** rule actions. The use of these conditions in rules with other rule actions can interfere with the system's ClientHello processing, resulting in unpredictable performance.

**Step 1** Log in to the Secure Firewall Management Center if you haven't already done so.

**Step 2** Click **Policies** > **Access Control** > **Decryption**.

**Step 3** Click **Edit** ( ) next to your SSL policy.

**Step 4** Click **Edit** ( ) next to a decryption rule.

**Step 5** Click **Add Rule**.

**Step 6** n the Add Rule dialog box, in the **Name** field, enter a name for the rule.

**Step 7** Click **Cert Status**.

**Step 8** For each certificate status, you have the following options:

- Click **Yes** to match against the presence of that certificate status.
- Click **No** to match against the absence of that certificate status.
- Click **Any** to skip the condition when matching the rule. In other words, choosing **Any** means the rule matches whether the certificate status is present or absent.

**Step 9** From the **Action** list, click either **Monitor** to only monitor and log traffic that matches the rule or click **Block** or **Block with Reset** to block the traffic and optionally reset the connection.

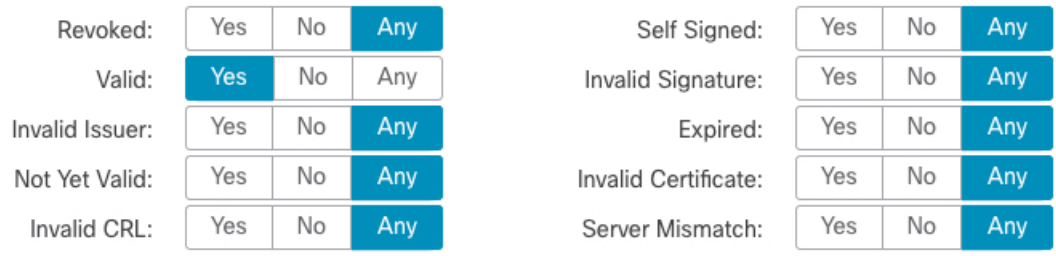
**Step 10** To save changes to the rule, at the bottom of the page, click **Save**.

**Step 11** To save changes to the policy, at the top of the page, click **Save**.

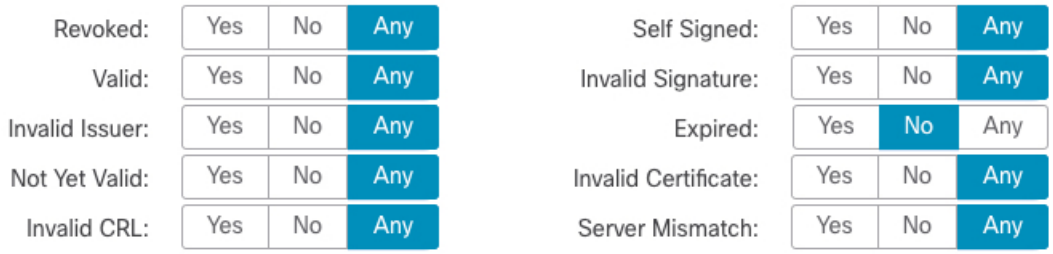
### Example

The organization trusts the Verified Authority certificate authority. The organization does not trust the Spammer Authority certificate authority. The system administrator uploads the Verified Authority certificate and an intermediate CA certificate issued by Verified Authority to the system. Because Verified Authority revoked a certificate it previously issued, the system administrator uploads the CRL that Verified Authority provided.

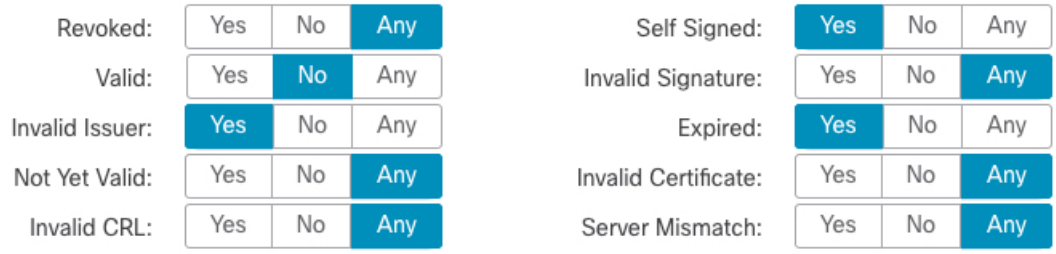
The following figure shows a certificate status rule condition checking for valid certificates, those issued by a Verified Authority, are not on the CRL, and still within the Valid From and Valid To date. Because of the configuration, traffic encrypted with these certificates is not decrypted and inspected with access control.



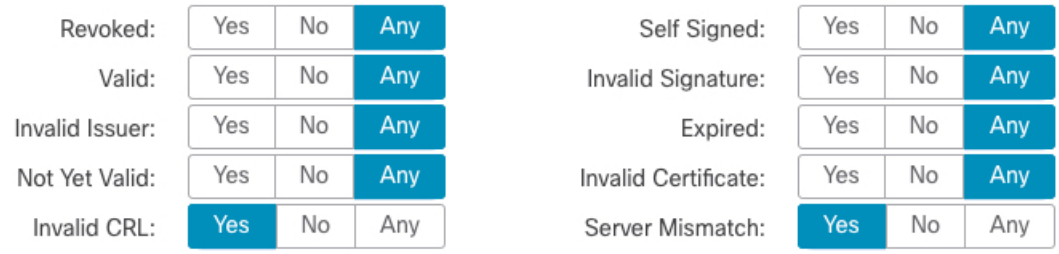

The following figure shows a certificate status rule condition checking for the absence of a status. In this case, because of the configuration, it matches against traffic encrypted with a certificate that has not expired and monitors that traffic.




In the following example, traffic would match this rule condition if the incoming traffic is using a certificate that has an invalid issuer, is self-signed, expired, and it is an invalid certificate.




The following graphic illustrates a certificate status rule condition that matches if the SNI of the request matches the server name or if the CRL is not valid.




# Example: Decryption Rule to Monitor or Block Protocol Versions

This example shows how to block TLS and SSL protocols on your network that are no longer considered secure, such as TLS 1.0, TLS 1.1, and SSLv3. It's included to give you a little more detail about how protocol version rules work.

You should exclude nonsecure protocols from your network because they are all exploitable. In this example:

- You can block some protocols using **Version** page on the SSL rule.
- Because the system considers SSLv2 as undecryptable, you can block it using the **Undecryptable Actions** on the SSL policy.
- Similarly, because compressed TLS/SSL is not supported, you should block it as well.

**Note** Use the **Cipher Suite** and **Version** rule conditions *only* in rules with either the **Block** or **Block with reset** rule actions. The use of these conditions in rules with other rule actions can interfere with the system's ClientHello processing, resulting in unpredictable performance.

**Step 1** Log in to the Secure Firewall Management Center if you haven't already done so.

**Step 2** Click **Policies** > **Access Control** > **Decryption**.

**Step 3** Click **Edit** ( ) next to your SSL policy.

**Step 4** Click **Edit** ( ) next to a decryption rule.

**Step 5** Click **Add Rule**.

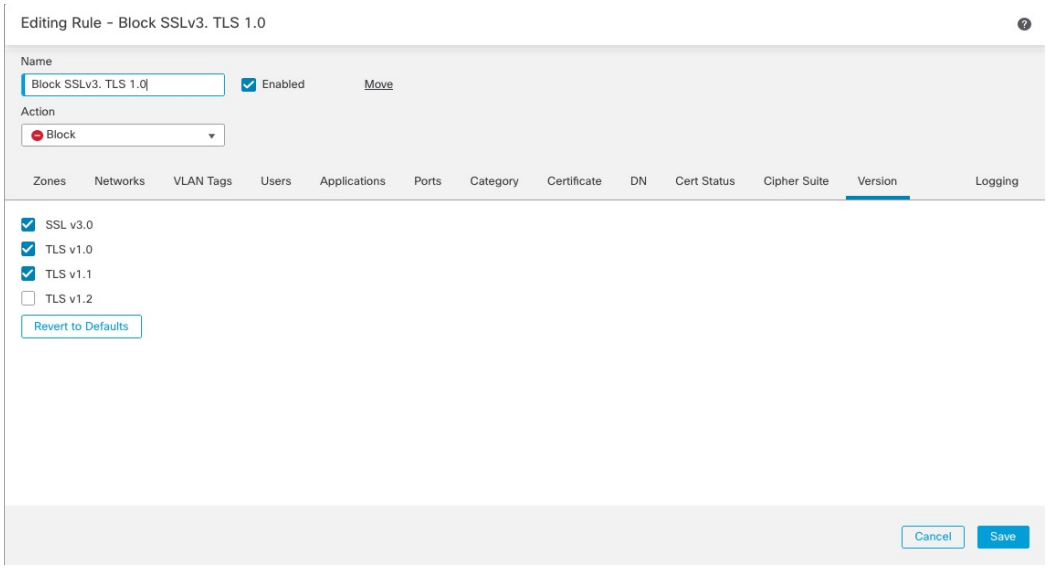
**Step 6** In the Add Rule dialog box, in the **Name** field, enter a name for the rule.

**Step 7** From the **Action** list, click **Block** or **Block with reset**.

**Step 8** Click **Version** page.

**Step 9** Check the check boxes for protocols that are no longer secure, such as **SSL v3.0**, **TLS 1.0**, and **TLS 1.1**. Clear the check boxes for any protocols that are still considered secure.

The following figure shows an example.




**Step 10** Choose other rule conditions as needed.

**Step 11** Click **Save**.

# Optional Example: Decryption Rule to Monitor or Block Certificate Distinguished Name

This rule is included to give you an idea about how to monitor or block traffic based on the server certificate's Distinguished Name. It's included to give you a little more detail.

The distinguished name can consist of country code, common name, organization, and organizational unit, but typically consists of a common name only. For example, the common name in the certificate for `https://www.cisco.com` is `cisco.com`. (However, it's not always this simple; the section on Distinguished Name Rule Conditions in the Cisco Secure Firewall Management Center Device Configuration Guide shows how to find common names.)

The host name portion of the URL in the client request is the Server Name Indication (SNI). The client specifies which hostname they want to connect to (for example, `auth.amp.cisco.com`) using the SNI extension in the TLS handshake. The server then selects the corresponding private key and certificate chain that are required to establish the connection while hosting all certificates on a single IP address.

**Step 1** Log in to the Secure Firewall Management Center if you haven't already done so.

**Step 2** Click **Policies** > **Access Control** > **Decryption**.

**Step 3** Click **Edit** ( ) next to your SSL policy.

**Step 4** Click **Edit** ( ) next to a decryption rule.

**Step 5** Click **Add Rule**.

**Step 6** In the Add Rule dialog box, in the **Name** field, enter a name for the rule.

**Step 7** From the **Action** list, click **Block** or **Block with reset**.

**Step 8** Click **DN**.

**Step 9** Find the distinguished names you want to add from the **Available DNs**, as follows:

- To add a distinguished name object on the fly, which you can then add to the condition, click **Add** ( ) above the **Available DNs** list.
- To search for distinguished name objects and groups to add, click the **Search by name or value** prompt above the **Available DNs** list, then type either the name of the object, or a value in the object. The list updates as you type to display matching objects.

**Step 10** To select an object, click it. To select all objects, right-click and then select **Select All**.

**Step 11** Click **Add to Subject** or **Add to Issuer**.

**Tip** You can also drag and drop selected objects.

**Step 12** Add any literal common names or distinguished names that you want to specify manually. Click the **Enter DN or CN** prompt below the **Subject DNs** or **Issuer DNs** list; then type a common name or distinguished name and click **Add**.

Although you can add a CN or DN to either list, it's more common to add them to the **Subject DNs** list.

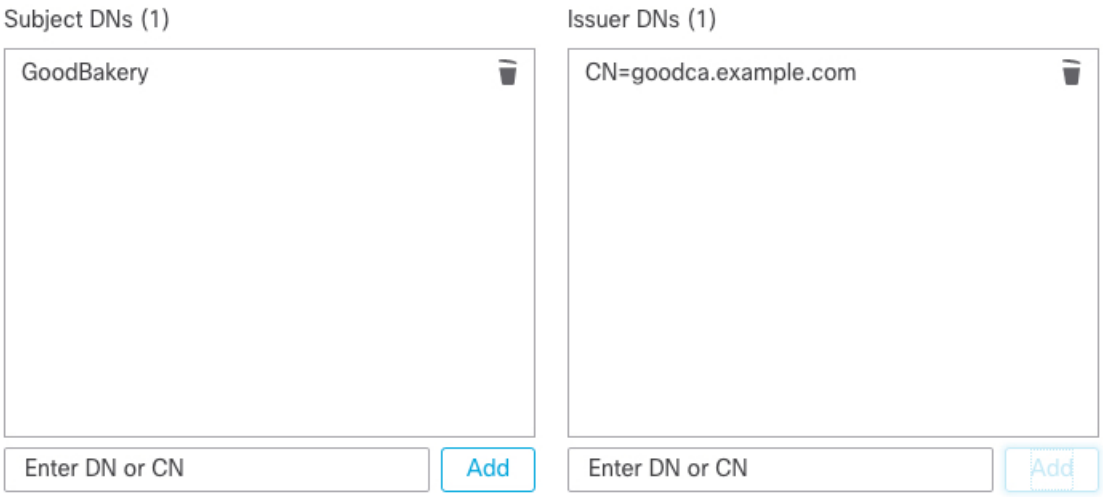
**Step 13** Add or continue editing the rule.

**Step 14** When you're done, to save changes to the rule, click **Save** at the bottom of the page.

**Step 15** To save changes to the policy, click **Save** at the top of the page.

### Example

The following figure shows a distinguished name rule condition searching for certificates issued to goodbakery.example.com or issued by goodca.example.com. Traffic encrypted with these certificates is allowed, subject to access control.




# Decryption Rule Settings

How to configure recommended best practice settings for your decryption rules.

decryption rule: Enable logging for every rule except those with a **Do Not Decrypt** rule action. (It's up to you; if you want to see information about traffic that isn't decrypted, enable logging for those rules also.)

**Step 1** Log in to the Secure Firewall Management Center if you haven't already done so.

**Step 2** Click **Policies** > **Access Control** > **Decryption**.

**Step 3** Click **Edit** (✎) next to your SSL policy.

**Step 4** Click **Edit** (✎) next to a decryption rule.

**Step 5** Click the **Logging** tab.

**Step 6** Click **Log at End of Connection**.

**Step 7** Click **Save**.

**Step 8** Click **Save** at the top of the page.