Using the Host Input Import Tool

You can import data to the network map by creating an import file and processing it with the host input import tool.

See the following sections for more information:

- Writing Host Input Import Files, page 3-3
- Host Input Import Syntax, page 3-6
- Running a Host Input Import, page 3-29

Preparing to Run Host Input Imports

The host input import tool depends on product mapping information you supply using the Defense Center web interface to map third-party product, fix, and vulnerability names and IDs to definitions in the Cisco database. Depending on the data you plan to import, you may need to perform the configuration steps described in the following sections before you run your import:

- Creating a Third-Party Vulnerability Map, page 3-1
- Creating a Third-Party Product Map, page 3-1

Creating a Third-Party Vulnerability Map

If you want to import data including third-party vulnerabilities and use that data for impact correlation, you must create a third-party vulnerability map set before importing the data. The third-party map set allows the system to translate the third-party vulnerability ID to the corresponding Cisco vulnerability ID. If you do not map a third-party vulnerability before import, the vulnerability does not map to a Cisco vulnerability ID and cannot be used for impact correlation. You can create a map set in two ways: using the Defense Center web interface or using the AddScanResult function. If you import scan results using this function, be sure to edit the source definition for the input source in your network discovery policy to set the identity source type to Scanner.

For more information on mapping third-party vulnerabilities through the web interface, see the *FireSIGHT System User Guide*. For more information on the AddScanResult function, see AddScanResult Function, page 3-20.

Creating a Third-Party Product Map

When you import operating system or server data to a host, you can map third-party product name details to a Cisco product definition. You can create a third-party product map through the Defense Center web interface.

The third-party product map set allows the system to translate the third-party vendor, product, and version to the corresponding Cisco definition. When you set a third-party product map containing a server definition or an operating system definition, within the same script you can then just define the display strings for a third-party server or operating system when you add or set it using the API.

If you map third-party fixes to Cisco fix definitions using a third-party product map, set the product map, and then add fixes to hosts using the third-party fix name, the system maps the fixes to the appropriate Cisco fix definitions and deactivates vulnerabilities addressed by the fix.

To map a third-party product to a Cisco product definition:

Access: Admin

1. Select **Policies > Application Detectors**, then click **User Third-Party Mappings**.

   The User Third-Party Mappings page appears.

2. You have two choices:

- To edit an existing map set, click **Edit** next to the map set.
- To create a new map set, click **Create Product Map Set**.

   The Edit Third-Party Product Mappings page appears.

3. Type a name for the mapping set in the **Mapping Set Name** field.
4. Type a description in the **Description** field.
5. You have two choices:

- To map a third-party product, click **Add Product Map**.
- To edit an existing third-party product map, click **Edit** next to the map set.

   The Add Product Map page appears.

6. Type the vendor string used by the third-party product in the **Vendor String** field.
7. Type the product string used by the third-party product in the **Product String** field.
8. Type the version string used by the third-party product in the **Version String** field.
9. In the **Product Mappings** section, select the operating system, product, and versions you want to use for vulnerability mapping from the following lists (if applicable):

- Vendor
- Product
- Major Version
- Minor Version
- Revision Version
- Build
- Patch
- Extension

For example, if you want a host running a product whose name consists of third-party strings to use the vulnerabilities from Red Hat Linux 9, select **Redhat, Inc.** as the vendor, **Redhat Linux** as the product, and **9** as the version.

10. Click **Save**.

    After you create the third-party product map, you can import data using the `SetOS`, `SetService`, or `AddService` functions. Note the third-party product name details and Cisco product definition before importing data.

To locate third-party and Cisco product details:

Access: Admin

1. Select **Policies > Application Detectors**.

   The Application Detectors page appears.

2. Select **User Third-Party Mappings**.

   The Third-Party Product Mappings page appears.

3. Click the edit icon ( ) for your product map set.

   The Edit Third-Party Product Mappings page appears.

4. Click the edit icon ( ) for your product map.

   The Add Product Map pop-up window appears. Note the **Vendor String**, **Product String**, and **Version String** values.

   For more information on mapping third-party products, see the *FireSIGHT System User Guide*.

Writing Host Input Import Files

This chapter provides details on the syntax to import data using the import functions of the host input import tool. When writing your import file, make sure you follow the instructions provided in the following sections:

Understanding Import File Format

To successfully import data using the host input import tool, you must create an import file that conforms to the required format.

Caution: The system discards any data in the import file that it cannot interpret, so you may want to test import of your import file before running the import. For more information, see Testing Your Import on the Defense Center, page 3-28.

Host input import files must begin with the SetSource and SetMap commands, to provide an application source name and to set up third-party product name mappings for the imported data. For more information, see Setting the Source ID, page 3-4.

After the SetSource and SetMap commands, you can add additional command lines to the file. Each command line contains a single command with the parameters needed for that command and ends with a hard return. For more information on syntax for individual commands you can include, see the following sections:

- Host Functions, page 3-6
- Server Functions, page 3-8
- Client Application Functions, page 3-12
- Protocol Functions, page 3-14
- Package Fix Functions, page 3-15
- Host Attribute Functions, page 3-17
- Vulnerabilities Functions, page 3-18
- Setting a Third-Party Product Map, page 3-5

To see an example of a complete import file and explanations of each section of the file, see Example Host Input Import File, page 3-23.

Setting the Source Type

At the beginning of your import file, you must identify the source type for the data you plan to import. If you import scan results using this function, be sure to edit the source definition for the input source in your network discovery policy to set the identity source type to Scanner.

To set the source type:

1. Add a line to your import file using the following syntax:

   `SetSourceType, Sourcetype`
   where `SetSourceType` is the name of the function and *`Sourcetype`* is the type of source you want to add or use for the imported data. (Valid values are `2` (scanner) or `3` (application).)

   If SetSourceType is not used, the default is type `3` (application).

Setting the Source ID

At the beginning of your import file, you must set the source ID for the data you plan to import.

To set the source application name:

1. Add a line to your import file using the following syntax:

   `SetSource, SourceID`
   where `SetSource` is the name of the function and *`SourceID`* is the identification string you want to display as the source application for the imported data.

   The following is an example of the first lines of an import file:

```
# Example CSV style import file for Host Input API
#
# Set the current SOURCE_ID and Product Map to "Custom Utility"
SetSource, Custom Utility
```

To see these commands in context in an example file, see Entire Example File, page 3-27.

Setting a Third-Party Product Map

If you are planning to import third-party operating system, server, or fix definitions, you must create a user third-party product map for the third-party names. You can use this function to set the current third-party map for the current session. You create third-party mappings using the Defense Center web interface to set up a reusable map between each third-party vendor, product, and version combination and the corresponding Cisco product definition. If you set a third-party map and then add or set host operating system or server data that includes third-party application names included in the map, the system uses the mappings to map the Cisco product definition, and associated vulnerabilities, to each host where the input occurs.

For instance, you could create a map set called `"Custom Utility"`, in which you define the third-party strings as follows:

- Vendor String - Microsoft
- Product String - Win2k

You could select the following Cisco product mapping in the map set:

- Vendor - Microsoft, Corp.
- Product - Windows 2000
- Patch - SP3

If you set this product map by calling `SetMap, Custom Utility`, it maps `Microsoft Win2k` to the VDB entry for the `Microsoft Windows 2000 SP3` product.

To set the third-party product map set:

1. Add a line to your import file using the following syntax:

   `SetMap, Third-PartyProductMapName`
   where SetMap is the name of the function and *`Third-PartyProductMapName`* is the name of the third-party product map set you want to use for the import.

   For example, you could put the following line of code following the SetSource command:

   `SetMap, Custom Utility`
   You can also use this command to change to a different third-party product map within an import file.

Required Fields

Each host input function requires either an IPv4 or IPv6 address, address range, or subnet (for specifying IP hosts by address) or a MAC address or addresses (for specifying MAC-only hosts). The documentation for each function call indicates any additional required fields for that function.

Note that some fields are required only in that you must supply that information to make sure that the host input succeeds and adds meaningful data to the network map. For example, you can add a fix to the system without providing a fix identification number or fix name that matches an existing Cisco fix definition and without mapping the third-party fix to a Cisco fix. However, even if that fix addresses vulnerabilities on the host where you added it, those vulnerabilities cannot be marked invalid if the system cannot map the fix to the vulnerabilities using an Cisco fix definition.

In general, supply as much information as possible for any data you import to ensure that the data can be used for data correlation.

Host Input Import Syntax

After you set the source ID and product map for your import file, as described in Setting the Source ID, page 3-4, you can add lines to your import file to import the specific data you want to add to your network map using various host input functions. Each import function call must end in a hard return and imports one set of import data. For an example of a complete import file, see Example Host Input Import File, page 3-23.

For more information on specific commands you can use, see the following sections:

Host Functions

You can use the host input API to add and remove hosts in the network map and to set operating system definitions for hosts.

For more information on host functions, see the following sections:

AddHost

You can use the `AddHost` function to add a host to the network map. You can add an IP host (a host with an IP address and optionally a MAC address) or a MAC-only host (a host with only a MAC address). Because hosts created using the API are not tracked by the system, these hosts are not subject to the normal host timeout.

Note that you cannot create a MAC-only host for a MAC address if the system detects traffic that indicates that MAC address is mapped as a primary MAC address for an IP host already in the network map.

Use this syntax:

```
AddHost, ip_address, mac_address
```

Table 1 AddHost Fields

Field	Description	Required	Values
ip_address	Indicates the IP address for the added host.	Yes (unless a MAC address is provided)	A single IP address
mac_address	Indicates the MAC address for the added host.	Yes (unless an IP address is provided)	A single MAC address

DeleteHost

You can use the `DeleteHost` function to remove a host (or hosts) from the network map. You can remove an IP host (a host with an IP address and optionally a MAC address) by specifying either the IP address or the MAC address for the host. To remove a MAC-only host (a host with only a MAC address), indicate the MAC address as the `mac_list` value.

Use this syntax:

```
DeleteHost, ip_address, mac_address
```

Table 2 DeleteHost Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
mac_address	Indicates the list of MAC addresses for the affected host or hosts.	Yes (unless IP addresses are provided)	A list of MAC address strings, with or without separating colons.

SetOS

You can use the `SetOS` function to specify the vendor, product, version, and mobile device information for the operating system for specified hosts. When you import operating system information, you set the display strings for the vendor, product, version, and mobile device information. You can also map the third-party vendor, product, and version strings to a Cisco product definition. See Creating a Third-Party Product Map, page 3-1 for more information.

If you map third-party operating system names to a Cisco definition, the vulnerabilities for that operating system in the Cisco database correspond to the host where the third-party data was imported. If you have already created a third-party product map set using the Defense Center web interface, you can use the `SetMap` function to use the values you specified in that map set for the third-party application strings and corresponding Cisco definitions, as described in Setting a Third-Party Product Map, page 3-5.

The operating system identity displayed in a host profile is set by the highest priority source. Possible sources have the following priority order: user, scanner and application (set in the system policy), FireSIGHT, then NetFlow. Note that a new higher priority operating system identity will not override a current operating system identity if it has less detail than the current identity.

If you define a custom operating system for a host, the Defense Center web interface indicates the source for the change in the Source Type field of the event view or the basic host information of the host profile.

Use this syntax:

```
SetOS, ip_address, vendor_str, product_str, version_str, vendor_id,
product_id, major, minor, revision, build, patch, extension,
device_string, mobile, jailbroken
```

Or, to set a new product map before you set the operating system, use this syntax:

```
SetMap:map_name, SetOS, ip_address, vendor_str, product_str, version_str,
vendor_id, product_id, major, minor, revision, build, patch, extension,
device_string, mobile, jailbroken
```

For more information on setting third-party product maps, see Setting a Third-Party Product Map, page 3-5.

Table 3 SetOS Fields

Field	Description	Required	Allowed Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses
vendor_str	Supplies the operating system vendor display name used by the third-party application.	No	string
product_str	Supplies the operating system product display name used by the third-party application.	No	string
version_str	Supplies the operating system version display name used by the third-party application.	No	string
vendor_id	Supplies the Cisco vendor definition to map to.	No	uint32
product_id	Supplies the Cisco product definition to map to.	No	uint32
major	Supplies the Cisco major version definition to map to.	No	uint32
minor	Supplies the Cisco minor version definition to map to.	No	uint32
revision	Supplies the Cisco revision string to map to.	No	uint32
build	Supplies the Cisco build definition to map to.	No	string
patch	Supplies the Cisco patch definition to map to.	No	string
extension	Supplies the Cisco extension definition to map to.	No	string
device_string	Supplies the detected mobile device hardware information.	No	string
mobile	Indicates whether the operating system is running on a mobile device.	No	uint8
jailbroken	Indicates whether the mobile device operating system is jailbroken.	No	uint8

UnsetOS

You can use the `UnsetOS` function to remove a previously set OS definition from specified hosts. It resets the OS definition to allow the system to track changes to the operating system in the future.

Use this syntax:

```
UnsetOS, ip_address
```

Where *ip_address* is a comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses representing the host or hosts where you want to reset the operating system identity.

Server Functions

You can update server information for hosts in the network map using the server functions.

For more information, see the following sections:

- AddService, page 3-9

AddService

You can add a server to an existing host in the network map using the `AddService` function.

The server identity displayed in a host profile is set by the highest priority source. Possible sources have the following priority order: user, scanner and application (set in the system policy), FireSIGHT, then NetFlow. Note that a new higher priority server identity will not be override a current operating server identity if it has less detail than the current identity.

Use this syntax:

```
AddService, ip_address, port, proto, server, vendor_str, version_str,
vendor_id, product_id, major, minor, revision, build, patch, extension
```

Or, to set a new product map before you add the server, use this syntax:

```
SetMap:map_name, AddService, ip_address, port, proto, server, vendor_str,
version_str, vendor_id, product_id, major, minor, revision, build, patch,
extension
```

For more information on setting third-party product maps, see Creating a Third-Party Product Map, page 3-1 and Setting a Third-Party Product Map, page 3-5.

Table 4 AddService Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	Use this field in combination with the `ip_address` and `proto` fields to specify the server to be added on the hosts where it should be added.	Yes	Integers in the range of 1-65535.
proto	Use this field in combination with the `ip_address` and `port` fields to specify the server to be added on the hosts where it should be added.	Yes	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
server	The name or ID of the server in the Cisco database.	No	To identify the server, you must include a value for either `service_name` or `service_id`. If neither is provided, the server will be listed as `unknown`. If a server name is provided, The system looks up the server ID. If no ID exists for the server name, the system creates an ID.
vendor_str	Supplies the operating system vendor display name used by the third-party application.	No	string
product_str	Supplies the operating system product display name used by the third-party application.	No	string
version_str	Supplies the operating system version display name used by the third-party application.	No	string
vendor_id	Supplies the Cisco vendor definition.	No	uint32
product_id	Supplies the Cisco product definition.	No	uint32

Table 4 AddService Fields (continued)

Field	Description	Required	Values
major	Supplies the Cisco major version definition.	No	uint32
minor	Supplies the Cisco minor version definition.	No	uint32
revision	Supplies the Cisco revision string.	No	uint32
build	Supplies the Cisco build definition to map to.	No	string
patch	Supplies the Cisco patch definition to map to.	No	string
extension	Supplies the Cisco extension definition to map to.	No	string

SetService

You can use the `SetService` function to specify the server protocol, vendor, product, and version for a specified server. You can set display strings for the server using service keys. By mapping a third-party product in the Defense Center web interface (see Creating a Third-Party Product Map, page 3-1) or using the `SetMap` function (see Setting a Third-Party Product Map, page 3-5), you can associate third-party server data with the vulnerability information for specific Cisco product definitions.

If the server protocol does not already exist, this call causes a new server identity to be created for the string. If the specified server does not exist previously, the system creates it.

The server identity displayed in a host profile is set by the highest priority source. Possible sources have the following priority order: user, scanner and application (set in the system policy), FireSIGHT, then NetFlow. Note that a new higher priority server identity will not be override a current server identity if it has less detail than the current identity.

If you define a third-party server definition for a host, the FireSIGHT System web interface indicates the source for the change in the Source Type field of the Servers table view of events or the Servers section of the host profile.

Note: If the number of servers stored in the network map for a specific host exceeds 100, new server information is ignored until servers are deleted from the host.

Use this syntax:

```
SetService, ip_address, port, proto, server, vendor_str, version_str,
vendor_id, product_id, major, minor, revision, build, patch, extension
```

Or, to set a new product map before you set the server, use this syntax:

```
SetMap:map_name, SetService, ip_address, port, proto, server, vendor_str,
version_str, vendor_id, product_id, major, minor, revision, build, patch,
extension
```

For more information on setting third-party product maps, see Setting a Third-Party Product Map, page 3-5.

Table 5 SetService Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	Use this field in combination with the `ip_address` and `proto` fields to specify the server to be set on the hosts where it should be set.	Yes	Integers in the range of 1-65535.
proto	Use this field in combination with the `ip_address` and `port` fields to specify the server to be set on the hosts where it should be set.	Yes	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
server	The name or ID of the server in the Cisco database.	No	To identify the server, you must include a value for either `service_name` or `service_id`. If neither is provided, the server will be listed as `unknown`. If a server name is provided, the system looks up the server ID. If no ID exists for the server name, the system creates an ID.
vendor_str	Supplies the operating system vendor display name used by the third-party application.	No	string
product_str	Supplies the operating system product display name used by the third-party application.	No	string
version_str	Supplies the operating system version display name used by the third-party application.	No	string
vendor_id	Supplies the Cisco vendor definition.	No	uint32
product_id	Supplies the Cisco product definition.	No	uint32
major	Supplies the Cisco major version definition.	No	uint32
minor	Supplies the Cisco minor version definition.	No	uint32
revision	Supplies the Cisco revision string.	No	uint32
build	Supplies the Cisco build definition to map to.	No	string
patch	Supplies the Cisco patch definition to map to.	No	string
extension	Supplies the Cisco extension definition to map to.	No	string

UnsetService

You can use the `UnsetService` function to remove user-added server definitions from a specified host. `UnsetService` does not remove any server definitions detected through FireSIGHT.

Note: If the number of servers stored in the network map for a specific host exceeds 100, new server information is ignored until servers are deleted from the host.

Use this syntax:

```
UnsetService, ip_address, port, proto
```

Table 6 UnsetService Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	Use this field in combination with the `ip_address` and `proto` fields to specify the server to be removed on the hosts where it should be removed.	Yes	Integers in the range of 1-65535.
proto	Use this field in combination with the `ip_address` and `port` fields to specify the server to be removed on the hosts where it should be removed.	Yes	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).

DeleteService

You can use the `DeleteService` function to remove a server from a specified host. You must specify the port and protocol of the server you want to delete.

Use this syntax:

```
DeleteService, ip_address, port, proto
```

Table 7 DeleteService Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	Use this field in combination with the `ip_address` and `proto` fields to specify the server to be deleted on the hosts where it should be deleted.	Yes	Integers in the range of 1-65535.
proto	Use this field in combination with the `ip_address` and `port` fields to specify the server to be deleted on the hosts where it should be deleted.	Yes	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).

Client Application Functions

You can use the client application functions to modify client application data for hosts in the network map.

For more information, see the following sections:

- AddClientApp, page 3-12
- DeleteClientApp, page 3-13
- DeleteClientAppPayload, page 3-13

AddClientApp

You can use the `AddClientApp` function to add client applications to existing hosts in the network map. If the client application name does not already exist in the Cisco database, the system creates a new entry for the client application.

The client application identity displayed in a host profile is set by the highest priority source. Possible sources have the following priority order: user, scanner and application (set in the system policy), FireSIGHT, then NetFlow. Note that a new higher priority client application identity will not be override a current client application identity if it has less detail than the current identity.

Use this syntax:

```
AddClientApp, ip_address, app_name, app_type, version
```

Table 8 AddClientApp Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
app_name	Indicates the client application name.	Yes	A string consisting of alphanumeric characters or spaces. For existing applications, corresponds to ID values in the database. The system looks up the ID to see if it matches an existing client application ID. If it does not, a new ID is created.
app_type	This field is deprecated.	No	A null value.
version	Indicates the application version.	No	A string consisting of alphanumeric characters or spaces.

DeleteClientApp

You can use the `DeleteClientApp` function to remove a client application from the specified host.

Use this syntax:

```
DeleteClientApp, ip_address, app_name, app_type, version
```

Table 9 DeleteClientApp Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
app_name	Indicates the client application name.	Yes	A string consisting of alphanumeric characters or spaces. For existing applications, corresponds to ID values in the database. The system looks up the ID to see if it matches an existing client application ID. If it does not, a new ID is created.
app_type	This field is deprecated.	No	A null value.
version	Indicates the application version.	No	A string consisting of alphanumeric characters or spaces.

DeleteClientAppPayload

You can use the `DeleteClientAppPayload` function to remove a web application from the specified host.

Use this syntax:

```
DeleteClientAppPayload, ip_address, app_name, app_type, version,
payload_type, payload_id
```

Table 10 DeleteClientAppPayload Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
app_name	Indicates the client application name.	Yes	A string consisting of alphanumeric characters or spaces. For existing applications, corresponds to ID values in the database. The system looks up the ID to see if it matches an existing client application ID. If it does not, a new ID is created.
app_type	This field is deprecated.	No	A null value.
version	Indicates the application version.	No	A string consisting of alphanumeric characters or spaces.
payload_type	Indicates the web application category.	Yes	The number `0`. For existing applications, corresponds to ID values in the database. The system looks up the type to see if it matches an existing web application type. If it does not, a new type is created.
payload_id	Indicates the web application name.	Yes	A string consisting of alphanumeric characters or spaces. For existing applications, corresponds to ID values in the database. The system looks up the ID to see if it matches an existing web application ID. If it does not, a new ID is created.

Protocol Functions

You can use the protocol functions to update protocol information for hosts in the network map.

For more information, see the following sections:

- DeleteProtocol, page 3-14
- AddProtocol, page 3-15

DeleteProtocol

You can use the `DeleteProtocol` function to remove a protocol from the specified IP or MAC host.

Use this syntax:

```
DeleteProtocol, ip_address, mac_address, proto, type
```

Table 11 DeleteProtocol Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
mac_address	Indicates the list of MAC addresses for the affected host or hosts.	Yes (unless IP addresses are provided)	A list of MAC address strings, with or without separating colons.

Table 11 DeleteProtocol Fields (continued)

Field	Description	Required	Values
proto	Indicates the identification string or name of the protocol to be deleted.	Yes	Valid protocol names consisting of alphanumeric characters or spaces. For transport protocols (`"xport"`), protocols listed in the `/etc/protocols` file are acceptable. For network protocols (`"net"`), see Network Protocol Values, page A-1.
type	Indicates the type of protocol to be deleted.	Yes	`"xport"` or `"net"`

AddProtocol

You can use the `AddProtocol` function to add either a network or transport protocol to an existing host in the network map. You can supply either a protocol ID, a transport protocol name that exists in the `/etc/protocols` file on your Defense Center or a network protocol name from Network Protocol Values, page A-1.

Note: You cannot add transport protocols to MAC-only hosts.

Use this syntax:

```
AddProtocol, ip_address, mac_address, proto, type
```

Table 12 AddProtocol Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
mac_address	Indicates the list of MAC addresses for the affected host or hosts.	Yes (unless IP addresses are provided)	A list of MAC address strings, with or without separating colons.
proto	Indicates the identification string or name of the protocol to be added.	Yes	Valid protocol names consisting of alphanumeric characters or spaces. For transport protocols (`"xport"`), protocols listed in the `/etc/protocols` file are acceptable. For network protocols (`"net"`), see Network Protocol Values, page A-1.
type	Indicates the type of protocol to be added.	Yes	`"xport"` or `"net"`

Package Fix Functions

You can use the Package Fix functions to apply or remove fixes for hosts in your network map.

For more information, see the following sections:

- AddFix, page 3-15
- RemoveFix, page 3-16

AddFix

You can use the `AddFix` function to map a fix to a specified host or server. You can map a fix using a fix ID from the Cisco vulnerability database (VDB), or using a third-party fix that you map to a fix in the VDB using the Defense Center web interface.

When you apply a fix to a host or server, the vulnerability mappings for the system are adjusted and the fixed vulnerabilities are marked as Invalid in the web interface and are not used for impact assessment. However, note that if the applied fix is not applicable to the OS or server identity the fix has no effect.

Use the following syntax:

```
AddFix, ip_address, port, proto, fix_id
```

Table 13 AddFix Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	With the `proto` field, identifies the server affected by the fix on the host where the import occurs.	Yes, if the fix applies to a server	Integers in the range of 1-65535.
proto	With the `port` field, identifies the server affected by the fix on the host where the import occurs.	No	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
fix_id	Indicates the identification string for the fix.	Yes	A Cisco fix identification number or a fix name defined in a third-party product map that you use by calling the `SetMap` function before invoking the `AddFix` function. For more information, see Setting a Third-Party Product Map, page 3-5.

RemoveFix

You can use the `RemoveFix` function to remove a fix mapping from the specified host or server. When you remove a fix, vulnerability mappings are updated accordingly.

Use this syntax:

```
RemoveFix, ip_address, port, proto, fix_id
```

Table 14 RemoveFix Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	With the `proto` field, identifies the server affected by the fix on the host where the import occurs.	Yes, if the fix applies to a server	Integers in the range of 1-65535.

Table 14 RemoveFix Fields (continued)

Field	Description	Required	Values
proto	With the `port` field, identifies the server affected by the fix on the host where the import occurs.	No	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
fix	Indicates the identification string for the fix.	Yes	A Cisco fix name or a fix name defined in a third-party product map that you use by calling the `SetMap` function before invoking the `AddFix` function. For more information, see Setting a Third-Party Product Map, page 3-5.

Host Attribute Functions

You can use the host input import tool to set attribute values for hosts in your network map. For more information, see the following sections:

- AddHostAttribute, page 3-17
- DeleteHostAttribute, page 3-17
- SetAttributeValue, page 3-17
- DeleteAttributeValue, page 3-18

AddHostAttribute

You can use the `AddHostAttribute` function to add text or URL attributes. Note that adding a host attribute does not add a value for the attribute. For more information on setting an attribute value, see SetAttributeValue, page 3-17, below.

Use this syntax:

```
AddHostAttribute, attributename, attributetype
```

where *`attributename`* is the name of the attribute (consisting of alphanumeric characters and spaces.) and *`attributetype`* is the type of attribute (`text` or `URL`).

DeleteHostAttribute

You can use the `DeleteHostAttribute` function to delete attributes.

Use this syntax:

```
DeleteHostAttribute, attributename
```

where *`attributename`* is the name of the attribute. (Valid names consist of alphanumeric characters and spaces.)

SetAttributeValue

You can use the `SetAttributeValue` function to set the value of an existing attribute to the specified value for specified hosts. This function can set the value of user-defined host attributes and the `Criticality` attribute. You can use this function to set the host criticality by using `"criticality"` as the attribute id.

Use this syntax:

```
SetAttributeValue, ip_address, attribute, value
```

Table 15 SetAttributeValue Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
attribute	Indicates the host attribute name.	Yes	Valid attribute names consisting of alphanumeric characters or spaces.
value	Indicates the host attribute value.	Yes	Valid attribute values for the named attribute, consisting of alphanumeric characters or spaces. If a value is passed in for a list attribute, the value must be an existing named value for the list attribute.

DeleteAttributeValue

You can use the `DeleteAttributeValue` function to remove an attribute value for a host.

Use this syntax:

```
DeleteAttributeValue, ip_address, attribute, value
```

Table 16 DeleteAttributeValue Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
id	Indicates the host attribute name.	Yes	Valid attribute names consisting of alphanumeric characters or spaces.
value	Indicates the host attribute value.	Yes	Valid attribute values for the named attribute, consisting of alphanumeric characters or spaces. If a value is passed in for a list attribute, the value must be an existing named value for the list attribute.

Vulnerabilities Functions

You can use the vulnerabilities functions to update the status of vulnerabilities on a host.

For more information, see the following sections:

- SetInvalidVulns, page 3-18
- SetValidVulns, page 3-19

SetInvalidVulns

You can use the `SetInvalidVulns` function to deactivate vulnerabilities on a host or set of hosts. For the function call to be effective, the vulnerability must exist on the host and be set to valid.

Use this syntax:

```
SetInvalidVulns, ip_address, port, proto, type, vuln_id
```

Table 17 SetInvalidVulns Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes (unless MAC addresses are provided)	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	With the `proto` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the fix applies to a server	Integers in the range of 1-65535.
proto	With the `port` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the fix applies to a server	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
vuln_id	Indicates the vulnerability ID for the vulnerability.	Yes	Valid Cisco vulnerability IDs, or mapped third-party vulnerability IDs. For third-party vulnerabilities, note that you must map the third-party vulnerability ID and reference the vulnerability map set in the `vuln_type` field. For more information, see Creating a Third-Party Vulnerability Map, page 3-1.

SetValidVulns

You can use the `SetValidVulns` function to activate vulnerabilities on a host or set of hosts. Once you set a vulnerability as Valid for a host, Defense Center assigns a red impact to the event if the SID in the event is mapped to the valid vulnerability. For the function call to be effective, the vulnerability must exist on the host and be set to invalid.

Use this syntax:

```
SetValidVulns, ip_address, port, proto, type, vuln_id
```

Table 18 SetValidVulns Fields

Field	Description	Required	Values
ip_address	Indicates the string containing the IP address or addresses for the affected host or hosts.	Yes	A comma-separated list of IP addresses, CIDR blocks, and ranges of IP addresses.
port	With the `proto` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the fix applies to a server	Integers in the range of 1-65535.

Table 18 SetValidVulns Fields (continued)

Field	Description	Required	Values
proto	With the `port` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the fix applies to a server	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
vuln_id	Indicates the vulnerability ID for the vulnerability.	Yes	Valid Cisco vulnerability IDs, or mapped third-party vulnerability IDs. For third-party vulnerabilities, note that you must map the third-party vulnerability ID and reference the vulnerability map set in the `vuln_type` field. For more information, see Creating a Third-Party Vulnerability Map, page 3-1.

Scan Result Functions

You can use the host input import tool to add scan results to your Defense Center and to flush the added results to the database. When adding a scan result you can map third-party vulnerabilities in the results to CVE or BugTraq vulnerabilities.

See the following sections for more information:

- AddScanResult Function, page 3-20
- ScanFlush Function, page 3-21
- ScanUpdate Function, page 3-22
- DeleteScanResult Function, page 3-22

AddScanResult Function

You can use the `AddScanResult` function to add scan results from a third-party vulnerability scanner and map each vulnerability to a BugTraq or CVE ID. If you import scan results using this function, be sure to edit the source definition for the input source in your network discovery policy to set the identity source type to Scanner.

Use this syntax:

```
AddScanResult, ipaddr, 'scanner_id', vuln_id, port, protocol, 'name',
'description', cve_ids, bugtraq_ids
```

Note: How results are added depends on whether you use the ScanUpdate or ScanFlush function. For more information, refer to ScanFlush Function, page 3-21 and ScanUpdate Function, page 3-22.

Table 19 AddScanResult Fields

Field	Description	Required	Allowed Values
ipaddr	Indicates the IP address of the scanned host or hosts.	Yes	A single IP address.
scanner_id	Indicates the scanner ID for the scanner that obtained the scan results.	Yes	'scanner_id' where `scanner_id` is a string indicating the name of the scanner that is the source of the vulnerability data you add. To add scan results from a previously used scanner, indicate the specific scanner name listed in system policies on the Defense Center where you added the results. Adding results from a new scanner ID adds that scanner to the system policy. New scanners are added as the lowest priority by default. If you want to change the priority of the scanner, you can do so in the system policy. For more information, see the *FireSIGHT System User Guide*.
vuln_id	Indicates the vulnerability ID for the vulnerability.	Yes	Valid Cisco vulnerability IDs, or mapped third-party vulnerability IDs. If this field, port, protocol, bugtraq_ids, and cve_ids are empty, this is a generic scan result.
port	With the `proto` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the vulnerability applies to a server	Integers in the range of 1-65535.
proto	With the `port` field, identifies the server affected by the vulnerability on the host where the import occurs.	Yes, if the vulnerability applies to a server	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).
name	The name of the vulnerability being imported.	No	A string enclosed in single quotes; for example: 'Using NetBIOS to retrieve info from a Windows host'
description	The description of the vulnerability being imported.	No	A string enclosed in single quotes; for example: `'The following 2 NetBIOS names have been gathered...'`
cve_ids	Space-separated list of CVE vulnerability IDs	No	Valid CVE vulnerability IDs; for example, `'cve_ids: CVE2003-0988'`. If this field, port, protocol, vuln_id, and bugtraq_ids are empty, this is a generic scan result.
bugtraq_ids	Space-separated list of BugTraq vulnerability IDs	No	Valid BugTraq vulnerability IDs; for example, `'bugtraq_ids: 9506'`. If this field, port, protocol, vuln_id, and cve_ids are empty, this is a generic scan result.

ScanFlush Function

After you add scan results to a Defense Center using `AddScanResult`, you must use either the `ScanUpdate` or `ScanFlush` function to cause the `AddScanResult` commands to run on the Defense Center so the scan results upload to the database.

The `ScanFlush` function does not require any arguments, and can be used at whatever point in the import file that you want to upload data to the database.

If you use the `ScanFlush` function, any existing scan results are removed from the host and only the new results are added.

ScanUpdate Function

After you add scan results to a Defense Center using `AddScanResult`, you must use either the `ScanUpdate` or `ScanFlush` function to cause the `AddScanResult` commands to run on the Defense Center so the scan results upload to the database.

The `ScanUpdate` function does not require any arguments, and can be used at whatever point in the import file that you want to upload data to the database.

If you use the `ScanUpdate` function, the existing scan results are not removed from the host. The new scan results are merged with the existing scan results.

If you use the `ScanUpdate` function with the `DeleteScanResult` function, the specific results are deleted.

Note that a `ScanUpdate` automatically occurs when an import finishes even if it is not explicitly included in the import file, because the client connection closes.

DeleteScanResult Function

You can use the `DeleteScanResult` function with the `ScanUpdate` function to remove specific scan results from a specific host.

If you supply values for the optional parameters, this restricts results to those matching the parameters. If you do not supply values for the optional parameters, all results on the specified IP address are deleted.

Use this syntax:

```
DeleteScanResult, ipaddr, 'scanner_id', vuln_id, port, protocol
```

Table 20 DeleteScanResult Fields

Field	Description	Required	Allowed Values
ipaddr	Indicates the IP address of the scanned host or hosts.	Yes	A single IP address.
scanner_id	Indicates the scanner ID for the scanner that obtained the scan results.	No	'scanner_id' where `scanner_id` is a string indicating the name of the scanner that is the source of the vulnerability data you add. To add scan results from a previously used scanner, indicate the specific scanner name listed in system policies on the Defense Center where you added the results. Adding results from a new scanner ID adds that scanner to the system policy. New scanners are added as the lowest priority by default. If you want to change the priority of the scanner, you can do so in the system policy. For more information, see the *FireSIGHT System User Guide*.
vuln_id	Indicates the vulnerability ID for the vulnerability.	No	A valid third-party vulnerability ID.

Table 20 DeleteScanResult Fields (continued)

Field	Description	Required	Allowed Values
port	With the `proto` field, identifies the server affected by the vulnerability on the host where the import occurs.	No	Integers in the range of 1-65535.
proto	With the `port` field, identifies the server affected by the vulnerability on the host where the import occurs.	No	Either the strings `tcp` or `udp` or the appropriate protocol IDs `6` (tcp) or `17` (udp).

Example Host Input Import File

The following sections illustrate how you might construct an import file to import data using the host input import tool.

The following sections, in sequential order, show each portion of the file:

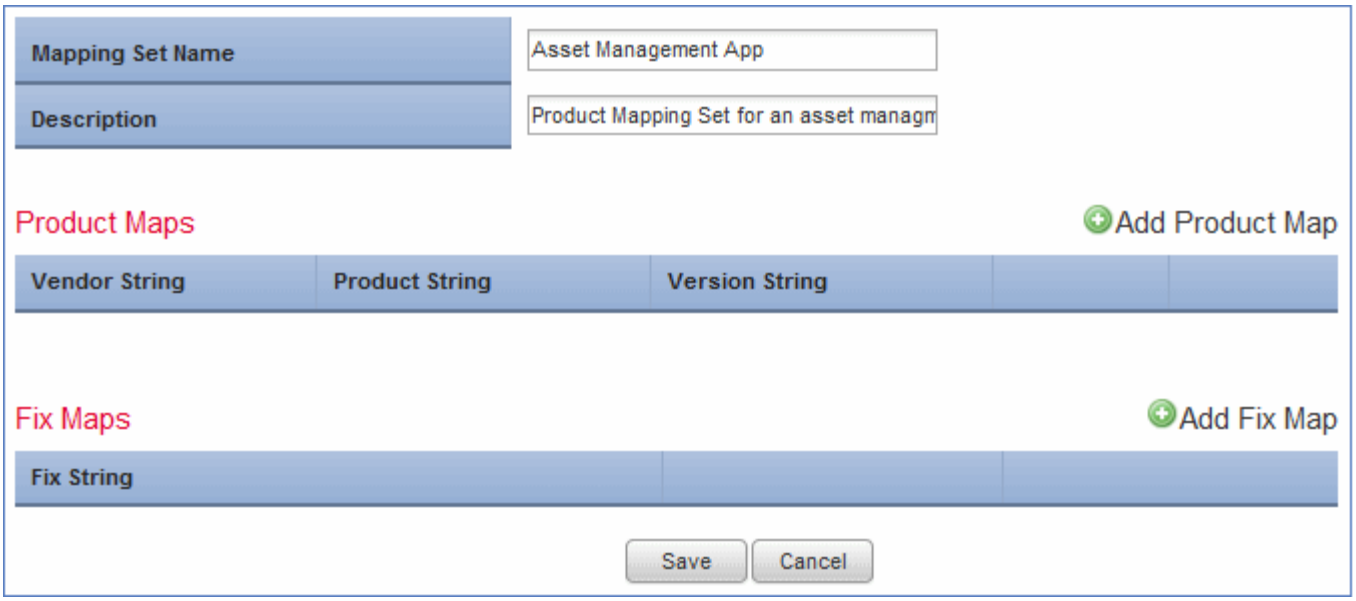
Example: Setting the Source ID and Product Map

The example script starts with calls to set the name of the source application and the product map to be used in the import:

```
# Set the current SOURCE_ID and Product Map to "Asset Management App"
#
SetSource, Asset Management App
SetMap, Asset Management App
```

This source ID value is used to provide an application name for the system to use in host input events resulting from this import. If you viewed a host input event or a host profile for a host modified using this import, the Source Type value would be `Application: Asset Management App`.

Note that the product map called “Asset Management App” referenced by the SetMap command was created using the Defense Center web interface:



Because the third-party product map is the Asset Management App map set, the system maps any third-party operating or server names used in the commands contained in the import file to Cisco definitions using product maps or fix maps defined in that map set, as illustrated in Example: Setting the Operating System, page 3-25.

Example: Adding a Host

After the file sets the source application name and third-party product map, commands to import data follow. The first import function called is the `AddHost` function:

```
# Add an IP host with no Primary MAC
#
AddHost,1.2.3.4
```

Note that the IP address for the added host is `1.2.3.4` and no primary MAC address is set for the host.

Example: Adding a Protocol to the Host

The next command in the import file adds the `ospf` protocol to the `1.2.3.4` host:

```
# Add the ospf protocol to the host
#
AddProtocol, 1.2.3.4,,ospf,xport
```

Note that the protocol type for the protocol is `xport`.

Example: Adding a Server to the Host

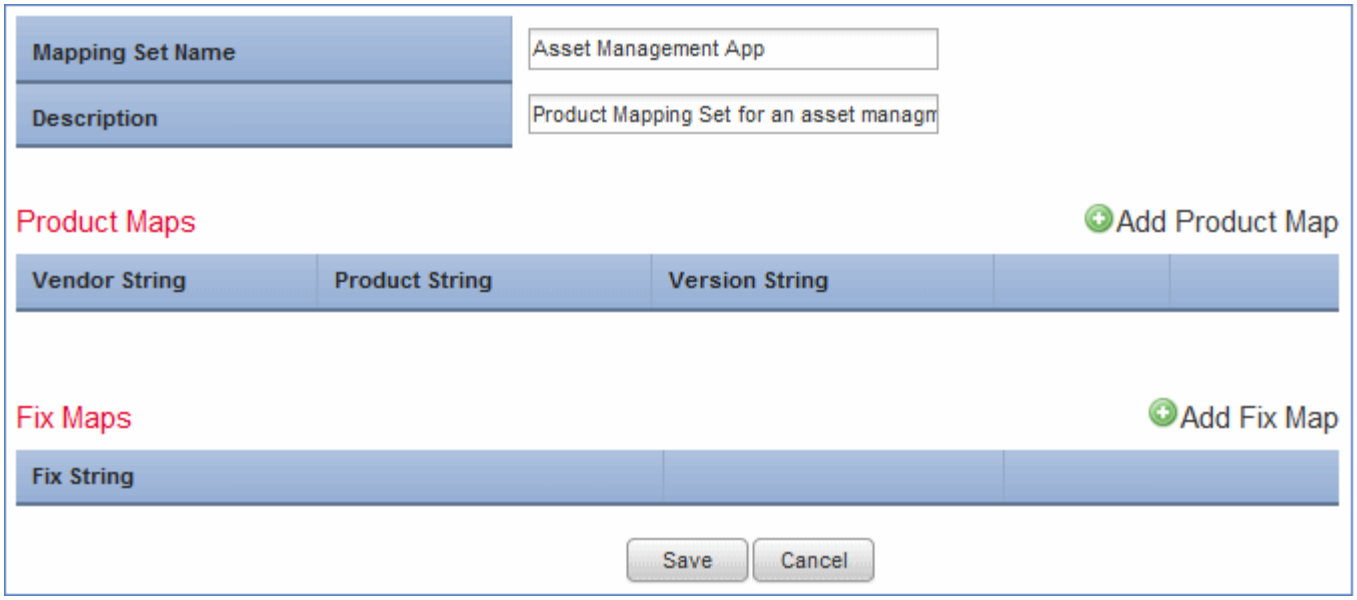
The next command in the import file uses the `AddService` function to add the `OpenSSH` server to the `1.2.3.4` host:

```
# Add a server for the host
#
AddService,1.2.3.4, 22, tcp, ssh, OpenSSH, 4.1
```

Note that the command sets the port to `22`, the protocol to `tcp`, the server type to `ssh`, the vendor display string to `OpenSSH`, and the version display string to `4.1`.

Example: Setting the Operating System

The import file next sets the operating system value for the host using the `SetOS` command. The `Asset Management App` map set contains a product map mapping the third-party product name `Microsoft Win2K` to the Cisco product definition for Microsoft Windows 2000 SP3:



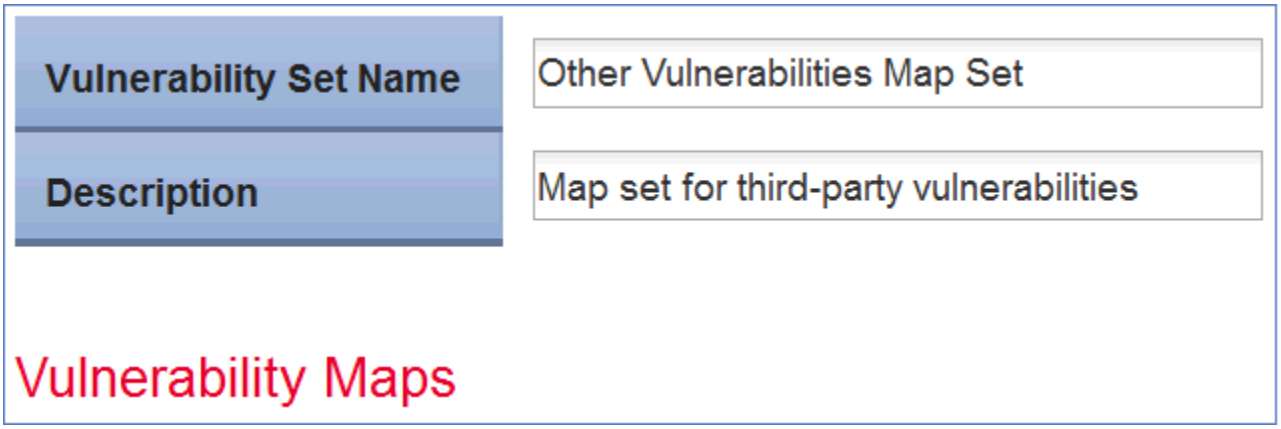
The command in the import file is as follows:

```
# Set the OS. Because the Map is set to "Asset Management App" these values
resolve to the Windows 2000 SP3 definition
#
SetOS, 1.2.3.4, Microsoft, Win2k
```

Note that the `SetOS` command line includes values for the `vendor_str` and `product_str` fields to set the operating system display name to `Microsoft Win2K`. Because those match the **Vendor String** and **Product String** settings defined in the `Asset Management App` product map set, the system maps that third-party operating system name to the Cisco Microsoft Windows 2000 SP3 product definition.

Example: Adding a Third-Party Vulnerability

The import file next imports a third-party vulnerability to the `1.2.3.4` host. This example depends on a third-party vulnerability map set created using the Defense Center web interface:



The command in the import file sets the `Vuln003` vulnerability to valid:

```
# Add a third-party vulnerability (from third-party vulnerability map "Other
Vulnerabilities Map Set") to the host
#
SetValidVuln, 1.2.3.4,,, Other Vulnerabilities Map Set, Vuln0003
```

Example: Setting the Host Criticality

The next command in the import file uses the `SetAttributeValue` command to set the criticality for the `1.2.3.4` host to High.

```
# Set the criticality of the host to "High"
#
SetAttributeValue, 1.2.3.4,criticality,high
```

Note that the attribute name is set to `criticality` and the attribute value is set to `"high"`.

Example: Add Scan Results

The next set of commands in the import file uses the AddHost command to add a host and then the AddScanResult command to add data for that host from a third-party scanner.

```
# Add IP host for scan results to follow
#
AddHost,1.2.3.5
#
# Add the scan result from a Qualys scanner to the network map
#
AddScanResult,1.2.3.5,"Qualys",82003,,,"ICMP Timestamp Request","ICMP
(Internet Control and Error Message Protocol) is a protocol encapsulated in
IP packets. Its principal purpose is to provide a protocol layer able to
inform gateways of the inter-connectivity and accessibility of other
gateways or hosts. ping is a well-known program for determining if a host is
up or down. It uses ICMP echo packets. ICMP timestamp packets are used to
synchronize clocks between hosts.","cve_ids: CVE-1999-0524","bugtraq_ids:"
```

Example: Running Commands on the Defense Center

The `ScanFlush` command indicates to the Defense Center that it can run the queued commands above the ScanFlush line.

ScanFlush

Example: Adding a Client Application to the Host

The import file then uses the `AddClientApp` command to add a client application named `BMC Remedy` to the `1.2.3.4` host.

```
# Add a Client App
#
AddClientApp, 1.2.3.4, “BMC Remedy”, "Asset Manager", "0.0"
```

Note that the client application ID is set to `BMC Remedy`, the client application type is set to `Asset Manager`, and the version is set to `0.0`.

Example: Adding a MAC-Only Host

Finally, the import file uses the `AddHost` command to add a MAC-only host:

```
# Add a MAC-only host
#
AddHost,,01:02:03:04:05:06
```

Note that the `ip_address` field is left blank and the MAC address is provided instead.

In addition, note that although there is no `ScanFlush` command at the end of the file, the remaining data from the script is sent to the network map when the import file finishes because the session disconnects.

Entire Example File

The full import file explained in the sections above looks like this:

```
# Example import file for Host Input Import Tool
#
# Set the current SOURCE_ID and Product Map to "Asset Management App"
#
SetSource, Asset Management App
SetMap, Asset Management App
#
# Add an IP host with no Primary MAC
#
AddHost,1.2.3.4
#
# Add the ospf protocol to the host
#
AddProtocol, 1.2.3.4,,ospf,xport
#
# Add a server for the host
#
AddService,1.2.3.4, 22, tcp, ssh, OpenSSH, 4.1
#
# Set the OS. Because the Map is set to "Asset Management App" these values
resolve to the Windows 2000 SP3 definition
#
SetOS, 1.2.3.4, Microsoft, Win2k
#
# Add a third-party vulnerability (from third-party map "Other
Vulnerabilities Set") to the host
#
SetValidVuln, 1.2.3.4,,, Other Vulnerabilities Set, Vuln0003
```

```
#
# Set the criticality of the host to "High"
#
SetAttributeValue, 1.2.3.4,criticality,high
#
# Add IP host for scan results to follow
#
AddHost,1.2.3.5
#
# Add the scan result from a Qualys scanner to the network map
#
AddScanResult,1.2.3.5,"Qualys",82003,,,"ICMP Timestamp Request","ICMP
(Internet Control and Error Message Protocol) is a protocol encapsulated in
IP packets. Its principal purpose is to provide a protocol layer able to
inform gateways of the inter-connectivity and accessibility of other
gateways or hosts. ping is a well-known program for determining if a host is
up or down. It uses ICMP echo packets. ICMP timestamp packets are used to
synchronize clocks between hosts.","cve_ids: CVE-1999-0524","bugtraq_ids:"
#
#Send the commands above to the host input service for processing
#
ScanFlush
#
# Add a Client App
#
AddClientApp, 1.2.3.4, "BMC Remedy", "Asset Manager", "0.0"
#
# Add a MAC only host
#
AddHost,,01:02:03:04:05:06
```

Testing Your Import on the Defense Center

You can simulate an import with your import file to make sure it behaves as expected. Because many functions allow you to import duplicate data into the network map, you want to avoid running the same import multiple times. Running a test import avoids that problem. Additionally, the system discards any data in the import file that it cannot interpret, so you want to make sure that the import file will import completely. The test reports the results to the screen (or you can redirect them to a file) so you can then correct any problems with the file before you run the actual import.

Note that if you set up the host input reference client on a remote host with access to the Defense Center, you can use the `ssl_host_input_api_test.pl` script to process an import file from the client. For more information on setting up the reference client, see Setting Up the Host Input Reference Client, page 4-2.

To test an import file:

1. Copy the import file you created to the `/usr/local/sf/bin/` directory on the Defense Center where you want to run the import.

Caution: You must log in using an account with read/write access to this directory to import a file.

2. Log into your Defense Center by `ssh`, using an account with `admin` privileges.
3. At the command line, type `/usr/local/sf/bin/nmimport.pl -t` *`filename`*.

Note: To redirect the results of the test import to a log file, add `>` *`logfilename`* to the end of the command.

The import test runs, printing messages indicating the results of the import simulation to the screen or to the file you specify.

Running a Host Input Import

You can run the host input import tool from the command line to process the import file you created.

Caution: The system discards any data in the import file that it cannot interpret. Additionally, if you run the same import multiple times, you may find duplicate data in your network map for some items. To prevent these issues, you may want to test import of your import file before running the actual import. For more information, see Testing Your Import on the Defense Center, page 3-28.

Note that if you set up the host input reference client on a remote host with access to the Defense Center, you can use the `ssl_host_input_api_test.pl` script to process an import file from the client. For more information on setting up the reference client, see Running the Host Input Reference Client, page 4-4.

To run an import:

1. Copy the import file you created to the `/usr/local/sf/bin/` directory on the Defense Center where you want to run the import.

Caution: You must log in using an account with read/write access to this directory in to import a file.

2. Log into your Defense Center with the `root` account.
3. At the command line, type `/usr/local/sf/bin/nmimport.pl` *`filename`*.

Note: To redirect the results of the test import to a log file, add `>` *`logfilename`* to the end of the command.

The system adds the imported data to the network map and either displays the result messages on the screen or redirects them to the file you specify.