BIG-IP® Access Policy Manager® and BIG-IP® Edge Client™ for Android v2.0.4

Version 2.0.4

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Chapter 1

Overview: BIG-IP Edge Client for Mobile Devices

What does BIG-IP Edge Client do for mobile devices?

BIG-IP® Edge Client® for mobile devices provides full network access through BIG-IP® Access Policy Manager®. With network access, users can run applications such as RDP, SSH, Citrix, VMware View, and other enterprise applications on their mobile devices.

For information about how to use BIG-IP Edge Client, refer to the *BIG-IP® Edge Client® for Android User Guide* on your device.

BIG-IP Edge Client features include:

- N-factor auth (at least two input fields, password and passcode) support
- User name and password and client certificate authentication
- Multiple input field support
- Credential caching support
- Support for checking information from client devices
- Support for roaming between 3G and WiFi networks
- Landing URI support
- Logging support to report issues

About supported authentication types

The BIG-IP® Edge Client® application for mobile devices provides these authentication types:

Authentication type	Description
Regular Logon	Provides the following two options: • User name and password • Client certificate + user name and password (prompt if password is empty)
Web Logon	Provides the following three options: • User name and password • User name/password + RSA + any other server-side checks • Client certificate authentication (with or without password) in Android 4.3 and earlier (not currently supported in Android 4.4)

About establishing VPN connections

You can use BIG-IP® Edge Client® for mobile devices to establish a VPN tunnel connection.

About pre-logon checks supported for Android devices

Access Policy Manager® can check unique identifying information from an Android client device. The supported session variables, which become populated with the Android client device information, are gathered automatically and can easily be combined with an LDAP or AD query to implement white-listing in a custom action to improve access context. This information allows Access Policy Manager to perform pre-logon sequence checks and actions based on information about the connecting device. Using such information, Access Policy Manager can perform the following tasks:

- Deny access if the Android version is less than the required level.
- Log UUID and MAC address information.

This example displays an access policy with a custom action of Device ID Check to check the device's UUID.

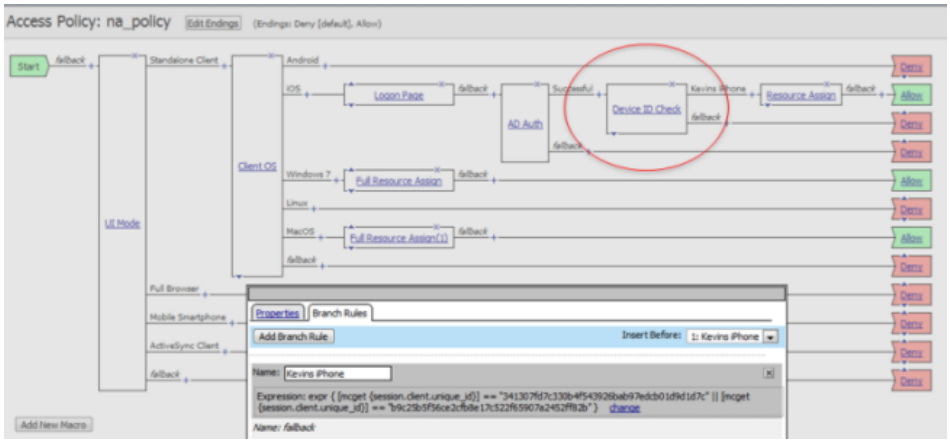
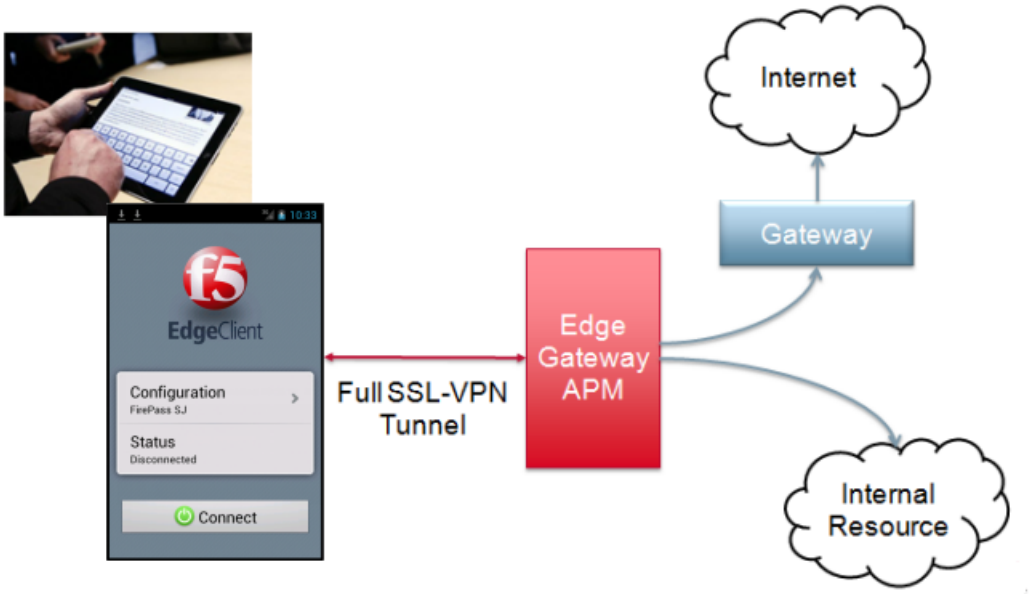


Figure 1: Example of a custom action for checking device's UUID

About secure web gateway integration on Android devices

Access Policy Manager® provides web application-level security to prevent malware attacks. As an administrator, you can enforce all web access through a secured gateway, as well as bypass secure gateways for internal resources. This is especially helpful, for example, when you have clients using corporate tablets, smartphones, or other mobile devices to browse the web.



Setting up a secure web gateway

You can force traffic through a tunnel on the BIG-IP® Edge Client®.

Note: *Although you disable* ***Allow local subnet access*** *while enabling* ***Force all traffic through tunnel****, the client will still permit local subnet traffic to travel outside of the tunnel. This is a limitation of Android and not with the BIG-IP Edge Client.*

---

1. On the Main tab, click **Access Policy** > **Network Access**.
   The Network Access List screen opens.
2. Click a name in the list to select a network access resource.
   The network access properties screen opens.
3. To configure the network settings for the network access resource, click **Network Settings** on the menu bar.
4. For **Traffic Options**, enable **Force all traffic through tunnel**.
   If you enable **Use split tunneling for traffic**, the client will not use the proxy settings.
5. For **Allow Local Subnet**, select the **Enable** check box.
6. For **Client Options**, enable **Client for Microsoft Networks**.
7. Click **Update**.

Chapter 2

Configuring Access Policy Manager for BIG-IP Edge Client

Access Policy Manager configuration for BIG-IP Edge Client for mobile devices

To configure BIG-IP® Edge Client® for mobile devices support on BIG-IP Access Policy Manager®, use these following configuration steps:

- Run the Network Access Setup Wizard.
- You can set up SSO and ACLs for your network access (optional). Refer to the *BIG-IP® Access Policy Manager® Configuration Guide* on the AskF5™ Knowledge Base for instructions.
- Customize an access policy to support BIG-IP Edge Client.

Important: *To resolve internal addresses with DNS, either the* ***Network Access DNS Address Space*** *or* ***DNS Default Domain Suffix*** *must be specified in the Network Access configuration. If neither field is configured, internal DNS addresses cannot be resolved.*

Running the Network Access Setup Wizard

Configure Access Policy Manager® to provide users with full network access from their mobile devices using the Network Access Setup Wizard for remote access.

1. On the Main tab, click **Wizards** > **Device Wizards**.
   The Device Wizards screen opens.
2. For Access Policy Manager Configuration, select **Network Access Setup Wizard for Remote Access**, and then click **Next**.
3. In the Basic Properties area of the wizard, clear the **Enable Antivirus Check in Access Policy** check box for Client Side Checks to ensure that your users can connect to BIG-IP® Edge Client®.
4. Click **Finished**.

You now have network access that supports BIG-IP Edge Client for mobile devices.

Customizing an access policy to support BIG-IP Edge Client on Access Policy Manager 10.x

Create an access policy that supports BIG-IP® Edge Client® for Android.

Note: *This policy applies to Access Policy Manager® version 10.x systems.*

1. On the Main tab, click **Access Policy** > **Access Profiles**.
   The Access Profiles List screen opens.
2. In the Access Policy column, click the **Edit** link for the profile you want to configure to launch the visual policy editor.
   The visual policy editor opens the access profile in a separate screen or tab.
3. Click the plus **(+)** sign that appears before the Logon Page action.
4. Under **Server Side Checks**, select **UI Mode**, and click **Add Item**.
5. Click **Save**.
   The UI Mode action is added to the access policy, and several new branches appear.
6. On the Standalone Client branch of the UI Mode action, click the plus **(+)** sign.
7. Under **General Purpose**, select **Empty**, and click **Add Item**.
8. Click the Branch Rules tab.
9. Click **Add Branch Rule**.
10. Rename the new branch rule **Branch Rule** *n* to **Android Edge Client**.
11. Next to **Expression: Empty**, click the **change** link.
12. Click the **Advanced** tab.
13. Type the following rule in the box:

```
expr { [mcget {session.client.platform}] == "Android"  && [mcget
{session.client.type}] == "Standalone" }
```

14. Click **Finished**, and then click **Save**.
15. Add the network access resource to the branch.
16. Click **Save**.
    This access policy now supports BIG-IP Edge Client for Android.

Customizing an access policy to support BIG-IP Edge Client on Access Policy Manager 11.x

Create an access policy that supports BIG-IP® Edge Client® for Android.

Note: *This policy applies to Access Policy Manager version 11.x systems.*

1. On the Main tab, click **Access Policy** > **Access Profiles**.
   The Access Profiles List screen opens.
2. In the Access Policy column, click the **Edit** link for the profile you want to configure to launch the visual policy editor.
   The visual policy editor opens the access profile in a separate screen or tab.
3. Click the plus **(+)** sign that appears before the Logon Page action.
4. Under **Server Side Checks**, select **Client Type**, and click **Add Item**.
5. Click **Save**.
   The Client Type action is added to the access policy, and several new branches appear.
6. On the Edge Client branch of the Client Type action, click the plus **(+)** sign.
7. Under **Server Side Checks**, select **Client OS**, and click **Add Item**.
8. Configure the **Android** Branch Rule with the configuration objects and resources you want to assign to Android Edge Client.

9. Click **Finished**, and then click **Save**.
10. Add the network access resource to the branch.
11. Click **Save**.
    This access policy now supports BIG-IP Edge Client for Android.

Chapter 3

Configuring a Connectivity Profile with Access Policy Manager Version 11.4

About connectivity profiles

In BIG-IP® Access Policy Manager®, a connectivity profile is the profile that you select in a virtual server definition to define connectivity and client settings for a network access session.

The connectivity profile contains:

- Compression settings for network access connections and application tunnels
- Citrix client settings
- Virtual servers and DNS-location awareness settings for BIG-IP Edge Client® for Windows and Mac
- Password caching settings for BIG-IP Edge Client for Windows, Mac, and mobile clients
- Security settings, in addition to password caching, for mobile clients

A connectivity profile is also associated with client download packages that you can customize.

Creating a connectivity profile

You create a connectivity profile to configure client connections for a network access tunnel, application access tunnel, and clients.

1. On the Main tab, click **Access Policy** > **Secure Connectivity**.
   A list of connectivity profiles displays.
2. Click **Add**.
   The Create New Connectivity Profile popup screen opens and displays General Settings.
3. Type a **Profile Name** for the connectivity profile.
4. Select a **Parent Profile** from the list.

   APM® provides a default profile, **connectivity**.
5. From the Compression Settings folder, click **Network Access** and make changes to the network access compression settings.

   The settings specify available compression codecs for server-to-client connections.

   The default settings are displayed in the right pane.
6. From the Compression Settings folder, click **App Tunnel** and make changes to the application tunnel compression settings.

   The settings specify available compression codecs for server-to-client connections. By default, compression is enabled, but no codecs are selected in the Available Codecs area.

The default settings are displayed in the right pane.

7. Click **OK**.
   The popup screen closes, and the Connectivity Profile List displays.

The connectivity profile appears in the list.

To provide functionality with a connectivity profile, you must add the connectivity profile and an access profile to a virtual server.

Overview: Configuring APM for BIG-IP Edge Applications

A connectivity profile contains default settings for these mobile clients:

- BIG-IP® Edge Client® for Android
- BIG-IP Edge Portal® for Android
- BIG-IP Edge Client for iOS
- BIG-IP Edge Portal for iOS

The settings are security-related. They specify how to handle password caching (disabled by default in all cases), and device or PIN locking (enabled where supported). Customize the available settings to meet your requirements.

Task summary

Configuring security settings for Android Edge Clients

You must create a connectivity profile before you start this task.

A connectivity profile automatically contains settings for BIG-IP® Edge Client® for Android clients. You update the settings to change the way password caching and device locking are handled.

1. On the Main tab, click **Access Policy** > **Secure Connectivity**.
   A list of connectivity profiles displays.
2. Select the connectivity profile that you want to update and click **Edit Profile**.
   The Edit Connectivity Profile popup screen opens and displays General Settings.
3. From Mobile Client Settings in the left pane, select **Android Edge Client**.
   Settings for the Android Edge Client display in the right pane.
4. If you want users to be able to save their passwords, select the **Allow Password Caching** check box.
5. For **Save Password Method**, specify how to use password caching:
   - To allow the user to save the encrypted password on the device without a time limit, select **disk**.
   - To specify that the user password is cached in the application on the user's device for a configurable period of time, select **memory**.

   If you select **memory**, the **Password Cache Expiration (minutes)** field becomes available.
6. If the **Password Cache Expiration (minutes)** field displays, type the number of minutes you want the password to be cached in memory.
7. Click **OK**.
   The popup screen closes, and the Connectivity Profile List displays.
8. To enhance security on the client, retain the selection of the **Enforce Device Lock** check box (or clear the check box).

This check box is selected by default. Edge Portal® and Edge Client support password locking, but do not support pattern locking. If you clear this check box, the remaining settings become unavailable.

9. For **Device Lock Method**, retain the default **numeric**, or select a different method from the list.
10. For **Minimum Passcode Length**, retain the default `4`, or type a different passcode length.
11. For **Maximum Inactivity Time (minutes)**, retain the default `5`, or type a different number of minutes.
12. Click **OK**.
    The popup screen closes, and the Connectivity Profile List displays.

You have now customized the password caching and device lock settings for BIG-IP Edge Client for Android clients.

To provide functionality with a connectivity profile, you must add the connectivity profile and an access profile to a virtual server.

Chapter 4

Overview: Access Policies for BIG-IP Edge Client

About access policy branches for BIG-IP Edge Client

You can configure separate access policy branches for BIG-IP® Edge Client®.

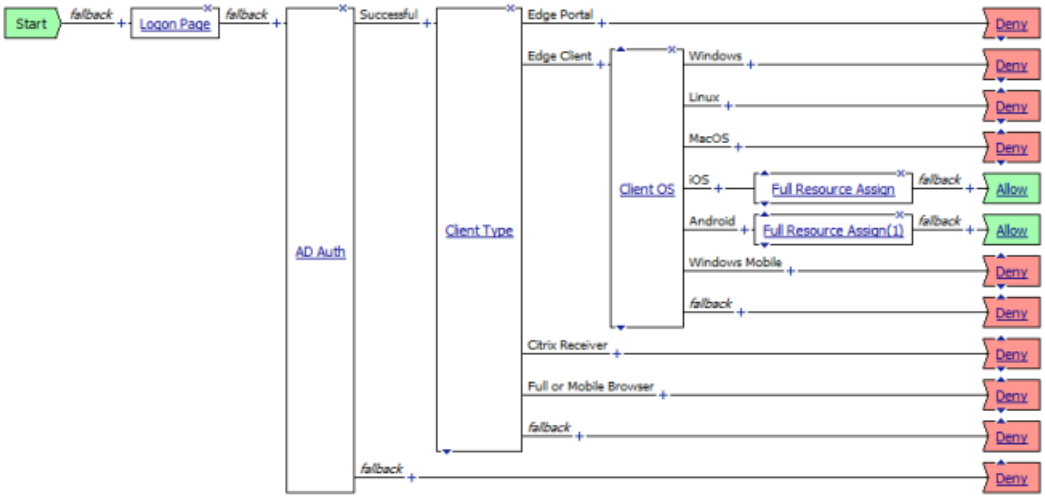
BIG-IP Edge Client does not support client-side checks; however, you can configure an access policy that provides network access for Android clients by using any of these methods:

- Create an access policy using **Client-Side Check Capability**. This provides a branch for clients that do not support client-side checks. Assign authentication and a network access resource to this branch.
- Use an existing access policy with client-side checks. The Android client will fail to the fallback branch of the first client-side check. Assign authentication and a network access resource to this branch.
- Create a specific branch for Android clients. Use an empty action and empty session variables to identify the client. Add authentication and assign a network access resource for Android clients to this branch.

Understanding basic access policy that supports BIG-IP Edge Client

You can configure an access policy branch to direct mobile device users to BIG-IP® Edge Client®, and direct non-mobile device users to a fallback branch.

This example displays a simple access policy.



Chapter 5

Additional Access Policy Manager Configuration Information

Android clients using session variables

The following table contains a list of session variables and their attributes.

Session variable	Description
session.client.type	Indicates the client type, such as Standalone.
session.client.platform	Indicates the platform type, such as Android.
session.client.agent	Indicates the browser, device type, and operating system version of the client, as well as the version of BIG-IP Edge Client.
session.client.mac_address	Indicates the MAC address of the WiFi adapter. Sample string: `%session.client.mac_address%= '90:21:55:07:4A:32'`
session.client.model	Indicates the model number of the mobile device. Sample string: `%session.client.model%= 'Nexus One'`
session.client.platform_version	Indicates the platform and version of the mobile device. Sample string:`%session.client.platform_version%= '2.3.3'`
session.client.unique_id	Indicates the unique ID of the mobile device. Sample string: `%session.client.unique_id%= '8ccaf965e51e3077'`
session.client.jailbreak	Indicates the jailbreak status of the device. Sample string: `%session.client.jailbreak%= '0'`, where `0` indicates the device is not jailbroken, `1` indicates the device is jailbroken, and an empty response indicates that the status of the device is unknown.
session.agent_info.serial_number	Indicates the serial number of the mobile device. Sample string: `%session.agent_info.serial_number%= 'HT097P800388'`
session.agent_info.imei	Indicates the international mobile equipment identity (IMEI) number of the mobile device. Sample string: `%session.agent_info.imei%= '354957034052954'`

Access Policy Manager configuration tips

The following table provides tips for setting up BIG-IP® Edge Client® for mobile devices.

Feature	Information
VPN On-Demand (iOS only)	A connection cannot be established if the server has an invalid certificate. To work around this issue, manually import the invalid certificate onto the device.
Client endpoint checks	Client end-point checks are not currently supported.

Password caching policy	• Under **Client Policy**, if **Enforce session settings** is not enabled, clients can save their encrypted password to disk, regardless of what settings are configured under **Session Settings**.
	• Under Password Caching Options if you set **Cache password within application for** for a specific amount of time, after a successful logon the submitted credentials are cached until one of the following occurs:
	  • The specified credential cache duration expires.
	  • The server address of the configuration within the application changes.
	  • The user name of the configuration within the application changes.
	  • The BIG-IP Edge Client user switches between configurations and makes a new connection.
	  • The configuration is deleted and a new one is created.
	• On the mobile device, even if a user clicks **Disconnect**, then terminates the application or restarts the device, cached credentials are not cleared until the specified cache time.

Client certificates	Client certificate authentication is supported in Web Logoon mode with or without a password. In standard logon mode, certificates are supported, but a password is required. A password (including an empty password) can be saved in the configuration.
On-Demand Cert Auth	If used, the On-Demand Cert Auth action must be placed after other authentication actions in the access policy.

About starting the client from a URL scheme

You can start BIG-IP® Edge Client® connections for users from a URL. You can then provide these URLs to users, so they can start the VPN connection without having to manually start the application (app). If there is already an active connection, a prompt appears to warn the user that the existing connection must be stopped before the new connection can start. The connection uses a client certificate if it is specified in the existing configuration.

URL connections use the following parameters.

```
f5edgeclient://{start|stop}?[parameter1=value1&parameter2=value2...]
```

Note: *Special characters in parameters must be URL-encoded.*

The syntax to start a connection from a URL follows.

start
Starts a connection. The `start` command requires either the `name` or `server` parameter to be present in the URL. If the `name` parameter is specified, then the Edge Client looks for the name in the list of existing configuration entries. If the `server` parameter is specified, then the `name` parameter is set to the same value as the `server`. A new configuration is created if a configuration with that name does not exist. If the specified configuration already exists, the other parameters specified in the URL are merged with the existing configuration. The result of this merged configuration is used only for the current, active connection, and does not persist. If a `name` is specified with other parameters, such as `server`, `username`, or `password`, those parameters override what is specified in the configuration.

sid
A parameter used to specify the session ID with which to start the connection. When the parameter `sid` is provided, the `username` and `password` parameters are ignored, and no additional authentication occurs.

username
A parameter used to specify the user name with which to start the connection. When the `username` is specified without a `password`, then an authentication prompt is displayed.

password
A parameter used to specify the password with which to start the connection. When the `password` parameter is specified, it is used as a one-time password and not saved in the configuration.

postlaunch_url
A parameter used to specify the URL that starts after the connection starts.

logon_mode
An optional parameter that specifies whether the logon mode is the standard logon (`native`) or web logon (`web`). The default logon mode is `native`.

Examples of starting a client from a URL

The following examples illustrate how to start BIG-IP® Edge Client® connections for users from a URL.

Connecting to an existing configuration called `MYVPN`:

```
f5edgeclient://start?name=MYVPN
```

Connecting to an existing configuration called `MYVPN` and including the server URL `myvpn.siterequest.com`:

```
f5edgeclient://start?name=MYVPN&server= myvpn.siterequest.com
```

Connecting to a specific server called `myvpn.siterequest.com`:

```
f5edgeclient://start?server=myvpn.siterequest.com
```

Connecting to a specific server called `myvpn.siterequest.com` with web logon enabled:

```
f5edgeclient://start?server=myvpn.siterequest.com &logon_mode=web
```

Connecting to an existing configuration called `MYVPN` and including the username `smith` and the password `passw0rd`:

```
f5edgeclient://start?name=MYVPN&username=smith &password= passw0rd
```

Starting a connection to a configuration called `MYVPN` and specifying the post-launch URL `jump://?host=10.10.1.10&username=smith`:

```
f5edgeclient://start?name=MYVPN&postlaunch_url=
jump%3A%2F%2F%3Fhost%3D10.10.1.10%26username%3Dsmith
```

Stopping a connection:

```
f5edgeclient://stop
```

About defining a server from a URL

You can add BIG-IP® server definitions to Edge Client® from a URL. You can provide these URLs to users, so they can start and save VPN connections without having to manually start the application.

Use the following URL and parameters to create a server:

```
f5edgeclient://create?server=server_address[&parameter1=value1&parameter2=value2…]
```

Note: *Special characters in parameters must be URL-encoded.*

The syntax to define a server from a URL follows.

server
The server address is either a DNS name or an IP address.

name
An optional description of the server.

username
An optional parameter used to specify the user name with which to start the connection. When the `username` is specified without a `password`, then an authentication prompt is displayed. If no `username` is specified during server creation, the user is prompted for it at session initiation, if required.

password
An optional parameter used to specify the password with which to start the server connection. When the `password` parameter is specified, it is used as a one-time password and not saved in the configuration.

cert_cn

Certificate common name. Matches the Common Name of a valid certificate installed through the Edge Client.

cert_url
The URL for downloading a client certificate in **.P12** format, which is then installed by the Edge Client. Only one of `certcn` or `cert_url` can be specified.

Examples of defining a server from a URL

The following examples illustrate how to define servers for BIG-IP® Edge Client® connections from a URL.

Create a server at `edgeportal.siterequest.com`:

```
f5edgeclient://create?server=edgeportal.siterequest.com
```

Create a server named `EdgePortal` with the server URL `edgeportal.siterequest.com`:

In this scenario, both `name` and `server` are specified, and `username` and `certcn` are absent, so web logon is assumed.

```
f5edgeclient://create?name=EdgePortal&server= edgeportal.siterequest.com
```

Create the same server with a user name, password, and certificate:

```
f5edgeclient://create?name=EdgePortal&server=
edgeportal.siterequest.com&username=edgeportal&password=
androiddemo&certcn=clientcert-cert.siterequest.com
```

Create the same server with a user name and certificate:

```
f5edgeclient://create?name=EdgePortal&server=
edgeportal.siterequest.com&username=
edgeportal&certcn=clientcert-cert.siterequest.com
```

Create the same server with a certificate:

```
f5edgeclient://create?name=EdgePortal&server= edgeportal.siterequest.com&certcn=
 clientcert-cert.siterequest.com
```

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