

**BIG-IP[®] Access Policy Manager[®] and
BIG-IP[®] Edge Client[™] for Android v2.0.7
Technical Note**

Contents

Legal Notices.....	5
Acknowledgments.....	7
Chapter 1: Overview: BIG-IP Edge Client for Mobile Devices.....	11
What does BIG-IP Edge Client do for mobile devices?.....	12
About SAML support.....	12
About supported authentication types.....	12
About establishing VPN connections.....	13
About pre-logon checks supported for Android devices.....	13
About network integration on Android devices.....	13
Chapter 2: Configuring Access Policy Manager for BIG-IP Edge Client.....	15
Prerequisites for configuring mobile Edge Client.....	16
Access Policy Manager configuration for BIG-IP Edge Client for mobile devices.....	16
About access policy branches for BIG-IP Edge Client.....	16
Understanding basic access policy that supports BIG-IP Edge Client.....	16
Chapter 3: Additional Access Policy Manager Configuration Information.....	19
Android clients using session variables.....	20
Access Policy Manager configuration tips.....	20
About starting the client from a URL scheme.....	21
Examples of starting a client from a URL.....	22
About defining a server from a URL.....	23
Examples of defining a server from a URL.....	24

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Publication Date

This document was published on April, 2015.

Publication Number

MAN-0414-03

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This product includes software developed by the Computer Systems Engineering Group at the Lawrence Berkeley Laboratory.

This product includes software developed by Christopher G. Demetriou for the NetBSD Project.

This product includes software developed by Adam Glass.

This product includes software developed by Christian E. Hopps.

This product includes software developed by Dean Huxley.

This product includes software developed by John Kohl.

This product includes software developed by Paul Kranenburg.

This product includes software developed by Terrence R. Lambert.

This product includes software developed by Philip A. Nelson.

This product includes software developed by Herb Peyerl.

This product includes software developed by Jochen Pohl for the NetBSD Project.

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Chapter

1

Overview: BIG-IP Edge Client for Mobile Devices

Topics:

- *What does BIG-IP Edge Client do 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 authentication (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
- Support for certificate-only authentication
- Support client certificate for DTLS tunnels and SSL tunnels
- Per-app VPN support for Android 5.0

About SAML support

The BIG-IP® Edge Client® application for mobile devices provides the following SAML support:

- Service provider-initiated access only, for example, APM acting as the service provider (SP)
- Web Logon mode only

When you use Edge Client as a client performing SP-initiated access, Edge Client first connects to BIG-IP® Access Policy Manager® (APM®). Because there is no assertion, APM redirects the client to the IdP. The IdP then authenticates the user and redirects Edge Client back to the SP with assertion. APM then accepts the assertion and establishes a VPN connection. You can then access back end resources through Edge Client.

You can configure a BIG-IP system by configuring APM as an SP. The access policy that is associated with the configuration assigns a SAML AAA resource followed by a Network Access Resource. For more information about SAML configurations, refer to the *BIG-IP® Access Policy Manager®: Authentication and Single Sign-On* guide.

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: <ul style="list-style-type: none"> • User name and password • Client certificate + user name and password (prompt if password is empty)
Certificate-only	Provides a certificate-only authentication without a user name and password by adding a certificate in the configuration while leaving the user name field empty.
Web Logon	Provides the following three options: <ul style="list-style-type: none"> • User name and password • User name/password + RSA + any other server-side checks

Authentication type	Description
	<ul style="list-style-type: none"> 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-logout 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-logout 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 UDID information.

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

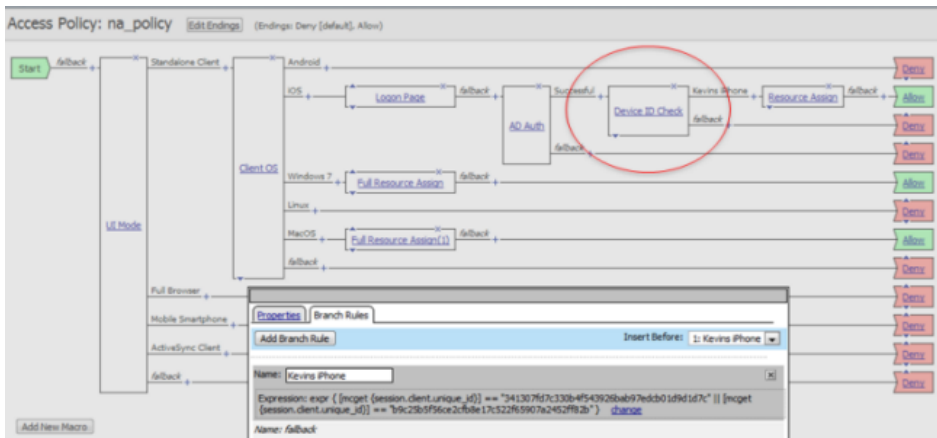
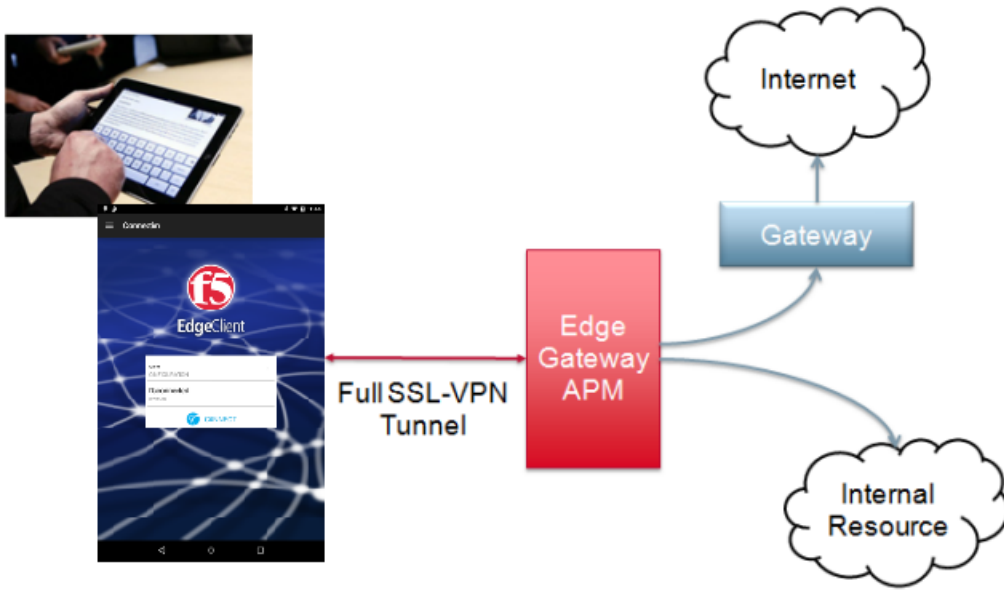


Figure 1: Example of a custom action for checking device's UDID

About network 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.



Chapter

2

Configuring Access Policy Manager for BIG-IP Edge Client

Topics:

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

Prerequisites for configuring mobile Edge Client

Before configuring BIG-IP® Edge Client® for mobile devices, you must complete the following requirements:


- Set up BIG-IP® Access Policy Manager®.
- Create a network access resource.
- Run the Network Access Setup Wizard.
- Create a connectivity profile.

Additional information about network access and connectivity profiles can be found in the *BIG-IP® Access Policy Manager®: Network Access Configuration* manual.

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.
- Optionally, set up SSO and ACLs for your network access. 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 setting is specified, internal DNS addresses cannot be resolved. The DNS server must also be configured to resolve internal addresses with DNS.

About access policy branches for BIG-IP Edge Client

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

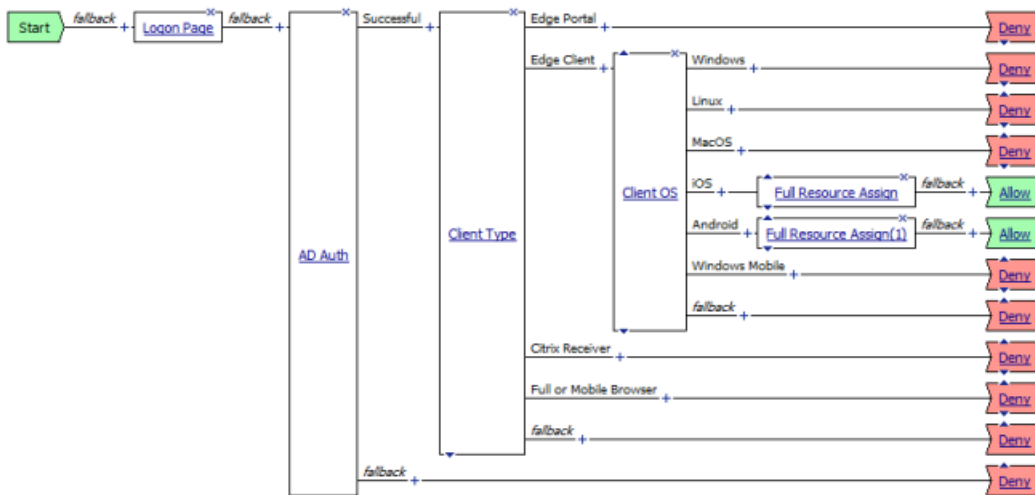
BIG-IP Edge Client does not support client-side checks; however, you can configure an access policy that provides network access for Android clients by using any of these methods:

- 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.



Customizing an access policy to support BIG-IP Edge Client on Access Policy Manager version 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 version 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

Additional Access Policy Manager Configuration Information

Topics:

- [*Android clients using session variables*](#)
- [*Access Policy Manager configuration tips*](#)
- [*About starting the client from a URL scheme*](#)
- [*About defining a server from a URL*](#)

Android clients using session variables

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

Session variable	Description
<i>session.client.type</i>	Indicates the client type, such as Standalone.
<i>session.client.platform</i>	Indicates the platform type, such as Android.
<i>session.client.agent</i>	Indicates the browser, device type, and operating system version of the client, as well as the version of BIG-IP® Edge Client®.
<i>session.client.model</i>	Indicates the model number of the mobile device. Sample string: %session.client.model%= 'Nexus One'
<i>session.client.platform_version</i>	Indicates the platform and version of the mobile device. Sample string: %session.client.platform_version%= '2.3.3'
<i>session.client.unique_id</i>	Indicates the unique ID of the mobile device. Sample string: %session.client.unique_id%= '8ccaf965e51e3077'
<i>session.client.jailbreak</i>	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.
<i>session.agent_info.serial_number</i>	Indicates the serial number of the mobile device. Sample string: %session.agent_info.serial_number%= 'HT097P800388'
<i>session.agent_info.imei</i>	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
Client endpoint checks	Client end-point checks are not currently supported.
Password caching policy	<ul style="list-style-type: none"> 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 events occurs: <ul style="list-style-type: none"> 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.

Feature	Information
Client certificates	<ul style="list-style-type: none"> 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. <p>Client certificate authentication is supported in Web Logon 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.</p>
On-Demand Cert Auth	<p>If used, the On-Demand Cert Auth action must be placed after other authentication actions in the access policy.</p>

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. This is an example, you must provide your own parameters and values.

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



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

You can start an alternate light client with no client branding, using the following parameters.

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

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 parameter. 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.
cert_url	The URL for downloading a client certificate in .P12 format.
cert_keychain_alias	Identifies a certificate from the device credentials storage.
logon_mode	An optional parameter that specifies whether the logon mode is the standard logon (<i>native</i>) or web logon (<i>web</i>). The default logon mode is <i>native</i> .
hide_ui_when_connected	An optional parameter to minimize the BIG-IP Edge Client user interface for users when a connection has been established successfully.
fips_mode	An optional parameter to enable a connection compatible with FIPS 140-2 operation mode. The value can be either <i>yes</i> or <i>no</i> . The default value is <i>no</i> . The mode <i>fips_mode=yes</i> cannot be used with <i>logon_mode=web</i> .

Examples of starting a client from a URL

The following examples illustrate how to start BIG-IP® Edge Client® and Edge Client Lite 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
```

Identifying a certificate from the device credentials storage:

```
f5edgeclient://create?server=edgeportal.siterequest.com
&name=EdgePortal&cert_keychain_alias=ddd123
```

Stopping a connection:

```
f5edgeclient://stop
```

Minimizing the Edge Client UI:

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

Starting a connection in Lite mode UI:

```
f5edgeclient-lite://start?
name=apm&server=edgeportal.siterequest.com &username=test&x-
cancel=http%3A%2F%2Fgoogle.com &x-error=http%3A%2F%2Fyahoo.com&x-
success=http%3A%2F%2Ff5.com
```

Stopping a connection in Lite mode UI:

```
f5edgeclient-lite://stop?x-cancel=edgeportal.siterequest.com &x-
error=http%3A%2F%2Fyahoo.com&x-success=http%3A%2F%2Ff5.com
```

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.

You can start an alternate light client with no client branding, using the following parameters.

```
f5edgeclient-lite://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.
certcn	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.
cert_keychain_alias	Identifies a certificate from the device credentials storage.
logon_mode	An optional parameter that specifies whether the logon mode is the standard logon (<i>native</i>) or web logon (<i>web</i>). The default logon mode is <i>native</i> .
fips_mode	An optional parameter to enable a connection compatible with FIPS 140-2 operation mode. The value can be either <i>yes</i> or <i>no</i> . The default value is <i>no</i> . The mode <i>fips_mode=yes</i> cannot be used with <i>logon_mode=web</i> .

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 the name and server parameters 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
```

Identify a certificate from the device credentials storage:

```
f5edgeclient://create?server=edgeportal.siterequest.com&name=
EdgePortal&cert_keychain_alias=<certificate alias>
```

Stopping a connection in Lite mode:

```
f5edgeclient-lite://stop?x-cancel=edgeportal.siterequest.com &x-
error=http%3A%2F%2Fyahoo.com&x-success=http%3A%2F%2Ff5.com
```

