

# Application Assurance – HTTP In Browser Notification

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## In This Chapter

This section provides information about Application Assurance HTTP in browser notification.

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## **Applicability**

This section is applicable to all 7750, 7450 and 7750-SRc chassis supporting Application Assurance and was tested on SR OS release 12.0.R1.

There are no specific prerequisites for this example.

## Summary

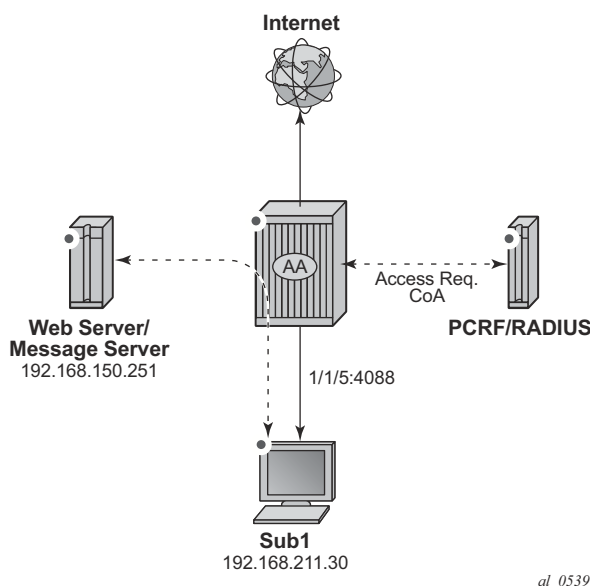
Using the Alcatel-Lucent 7x50s and Application Assurance, subscribers connected to an operator network can be sent fully customizable on-screen notification messages displayed in a non-disruptive and cost-effective manner through their web browser.

This example describes the different options for the operator to customize the notification messages returned to the subscriber using either different HTTP-Notification policies or using the flexible HTTP-URL-PARAM VSA mechanism.

## Configuration

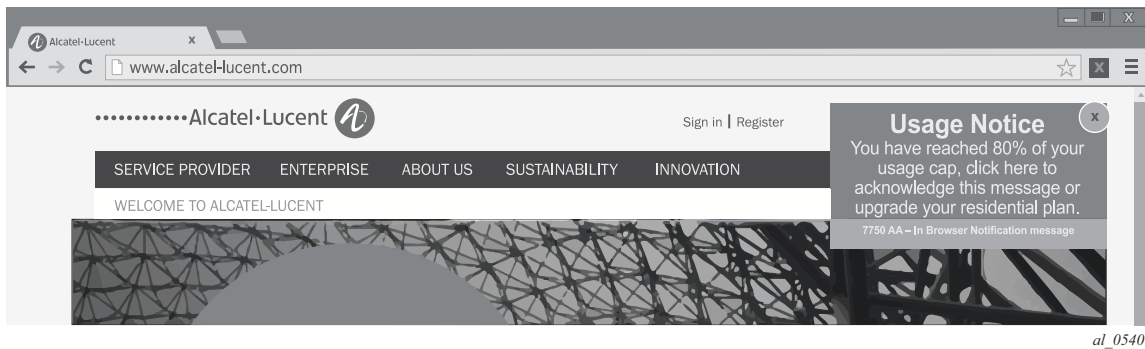
The setup comprises of the following elements, see [Figure 186 on page 1314](#):

- 7750 SR + ISA-AA.
- Apache Web Server (delivering notification Javascript and content).
- Subscriber (Desktop/Tablet/Smartphone).
- Authentication, Authorization and Accounting (AAA) for subscriber authentication and Policy Modification.
- Internet Access.



**Figure 186: HTTP Notification –Setup**

This example describes how to configure HTTP notification to display different notification messages. It demonstrates a simple example in the context of a residential deployment where a message is displayed when the subscriber reaches 80% or 100% of their maximum allowed volume (usage cap).



**Figure 187: Notification Message Example – Quota 80%**

In this context the operator has two options:

- Use a dedicated http-notification policy per message type.
- Use a common http-notification policy for any message type together with the newly introduced Http-Url-Param RADIUS VSA.

This example provides configuration examples for both options.

# HTTP Notification Policy per Message Type

In this option a dedicated http-notification policy for each notification message is required.

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## HTTP Notification Policy

Two dedicated HTTP notification policies are used to return a different message to the subscribers when reaching 80% and 100% of their usage cap, the interval in between notifications is set to 15 minutes.

```
configure
  application-assurance group 1
    http-notification "notification-quota-100" create
      description "100% Usage Cap Notification"
      script-url "http://192.168.150.251/In-Browser-Notification/script/quota-100.js"
      template 1
      interval 15
      no shutdown
    exit

configure
  application-assurance group 1
    http-notification "notification-quota-80" create
      description "80% Usage Cap Notification"
      script-url "http://192.168.150.251/In-Browser-Notification/script/quota-80.js"
      template 1
      interval 15
      no shutdown
    exit
```

---

## App-Profiles and App-Service-Options

Event based HTTP notifications is enabled by a policy modification triggered via RADIUS or Gx by modifying the subscriber app-profile or using the Application Service Option (ASO) override.

In this implementation of the HTTP notification policy per message type, the following ASO configuration is used:

```
configure
  application-assurance group 1:1 policy
    app-service-option
      characteristic "quota-message-notification" create
        value "100"
        value "80"
        value "disabled"
        default-value "disabled"
    exit
  exit
```

```

app-profile "1-1/Default" create
  divert
exit

```

The ASO characteristic **quota-message** values of 100 and 80 enable the App-Qos-Policy (AQP) **notification-quota-100** and **notification-quota-80** as defined below:

```

configure
  application-assurance group 1:1 policy app-qos-policy
    entry 1000 create
      match
        characteristic "quota-message-notification" eq "100"
      exit
      action
        http-notification "notification-quota-100"
      exit
      no shutdown
    exit
  entry 1100 create
    match
      characteristic "quota-message-notification" eq "80"
    exit
    action
      http-notification "notification-quota-80"
    exit
    no shutdown
  exit

```

## RADIUS Policy

The following RADIUS CoA message is used to override the ASO characteristic of a residential subscriber so that a notification message can be returned to the subscriber when they reach 80% of their usage cap:

```

NAS-Port-Id = "1/1/5:4088"
Framed-IP-Address = 192.168.211.30
Alc-AA-App-Service-Options = "quota-message-notification=80"
Alc-App-Prof-Str = "1-1/Default"

```

## Show Commands

Before the subscriber usage cap limit is reached, and before the RADIUS CoA message is received, the subscriber ASO parameter flag quota-message-notification is set to its default value **disabled** and therefore no App QoS Policy is triggered.

```
A:PE# show application-assurance group 1:1 aa-sub esm "sub1" summary
=====
Application-Assurance Subscriber Summary (realtime)
=====
AA-Subscriber           : sub1 (esm)
ISA assigned            : 1/2
App-Profile             : 1-1/Default
App-Profile divert     : Yes
Capacity cost          : 1
Aarp Instance Id       : N/A
HTTP URL Parameters    : (Not Specified)
Last HTTP Notified Time : N/A
-----
Traffic                 Octets           Packets          Flows
-----
... ..
Application Service Options (ASO)
-----
Characteristic          Value             Derived from
-----
quota-message-notification disabled          default
=====
```

After the RADIUS CoA message is sent, the subscriber ASO characteristic **quota-message-notification** value is set to **80**, the subscriber-related App QoS Policy entry 1100 now matches for this subscriber:

```
A:PE# show application-assurance group 1:1 aa-sub esm "sub1" summary
=====
Application-Assurance Subscriber Summary (realtime)
=====
AA-Subscriber           : sub1 (esm)
ISA assigned            : 1/2
App-Profile             : 1-1/Default
App-Profile divert     : Yes
Capacity cost          : 1
Aarp Instance Id       : N/A
HTTP URL Parameters    : (Not Specified)
Last HTTP Notified Time : N/A
-----
Traffic                 Octets           Packets          Flows
-----
... ..
Application Service Options (ASO)
-----
Characteristic          Value             Derived from
-----
```



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```
quota-message-notification      80                               dyn-override
=====
```

The same command can be used to identify when the last successful subscriber notification occurred, see the Last HTTP Notified Time field:

```
A:PE# show application-assurance group 1:1 aa-sub esm "sub1" summary
=====
Application-Assurance Subscriber Summary (realtime)
=====
AA-Subscriber      : sub1 (esm)
ISA assigned       : 1/2
App-Profile        : 1-1/Default
App-Profile divert : Yes
Capacity cost      : 1
Aarp Instance Id   : N/A
HTTP URL Parameters : (Not Specified)
Last HTTP Notified Time : 2014/06/24 15:35:49
=====
```

The operator can also identify how many notifications have been sent per http-notification policy per partition:

```
A:PE# show application-assurance group 1 http-notification "notification-quota-80"
=====
Application Assurance Group 1 HTTP Notification "notification-quota-80"
=====
Description   : 80% Usage Cap Notification
Template      : 1 - Javascript-url with subId and optional Http-Url-Param
Script URL    : http://192.168.150.251/In-Browser-Notification/script/quota-80.
               js
Admin Status  : Up
AQP Ref       : Yes
Interval      : 15 minutes
=====


| Group | Notified | Notification Selection<br>Criteria Not Matched |
|-------|----------|------------------------------------------------|
| 1:1   | 1        | 10                                             |
| 1:2   | 0        | 0                                              |
| 1:3   | 0        | 0                                              |
| Total | 1        | 10                                             |


=====
```

The counter Notification Selection Criteria Not Matched is the number of HTTP flows which did not meet the AA ISA flow selection criteria for In Browser Notification. HTTP flow selection is constrained so that only HTTP web pages flows originating from a web browser are targeted, HTTP requests for content such as video or images are not candidate for notification.

## HTTP Notification Customization using RADIUS VSA

Instead of using a dedicated HTTP notification policy for every single message type, the operator can return a RADIUS Http-Url-Param VSA at subscriber creation time or via CoA to customize the notification URL using a single policy. This VSA string is automatically appended to the end of the HTTP notification script-url by the 7x50 which can then be used by the web server to decide which notification message to return to the subscriber.

SR OS release 12.0.R1 supports 1 active HTTP Notification policy per subscriber, 8 different HTTP notification policies per AA ISA group and 1500 different values for the Http-Url-Param VSA. Therefore, using the Http-Url-Param VSA for the customization of the notification is the recommended model to scale the number of notification messages.

For example:

- RADIUS VSA (Alc-AA-Sub-Http-Url-Param): &message=quota80"
- 7750 HTTP Notification configured script-url: http://1.1.1.1/notification.js
- Subscriber HTTP request to the messaging server:  
`http://1.1.1.1/notification.js?SubId=sub1&var=&message=quota80`

---

## HTTP Notification Policy

A single HTTP notification policy is used to return different notification messages, the interval between notifications is set to 15 minutes.

```
configure
  application-assurance group 1
    http-notification "in-browser-notification" create
      description "Default HTTP Notification Policy"
      script-url "http://192.168.150.251/In-Browser-Notification/script/
                notification-select.php"
      template 1
      interval 15
      no shutdown
    exit
```

Note: This example does not describe the content of the **notification-select.php** file used to parse the URL parameters.

## App-Profile and App-Service-Options

Similar to the previous example, HTTP notifications are enabled per subscriber using RADIUS or Gx by modifying the subscriber app-profile or using ASO override.

The following ASO configuration is used:

```
configure
  application-assurance group 1:1 policy
    app-service-option
      characteristic "in-browser-notification"
        value "enabled"
        value "disabled"
        default-value "disabled"
    exit
```

The ASO characteristic in-browser-notification value **enabled** is used to enable the app-qos-policy matching the http-notification policy in-browser-notification as shown below:

```
configure
  application-assurance group 1:1 policy app-qos-policy
    entry 1300 create
      match
        characteristic "in-browser-notification" eq "enabled"
      exit
      action
        http-notification "in-browser-notification"
      exit
    no shutdown
```

## RADIUS Policy

The following RADIUS CoA message is used to modify the ASO characteristic of a residential subscriber and assign a specific Http-Url-Param VSA. The **in-browser-notification** ASO characteristic with value **enabled** is dynamically assigned to the subscriber along with the **Http-Url-Param &message=quota80**:

```
NAS-Port-Id = "1/1/5:4088"
Framed-IP-Address = 192.168.211.30
Alc-AA-App-Service-Options = "in-browser-notification=enabled"
Alc-AA-Sub-Http-Url-Param = "&message=quota80"
Alc-App-Prof-Str = "1-1/Default"
```

The subscriber HTTP request to the messaging server has the following format and includes the Http-Url-Param value as an argument of the URL:

```
http://192.168.150.251/In-Browser-Notification/script/notification-
select.php?SubId=sub1&var=&message=quota80
```

The web server can now use the parameter value to make a decision to return a suitable notification message related to the subscriber usage cap.

## Show Commands

Both the **in-browser-notification** ASO characteristic with value **enabled** and the HTTP-Url-Param VSA can be shown as follows:

```
A:PE# show application-assurance group 1:1 aa-sub esm "sub1" summary
=====
Application-Assurance Subscriber Summary (realtime)
=====
AA-Subscriber          : sub1 (esm)
ISA assigned           : 1/2
App-Profile            : 1-1/Default
App-Profile divert     : Yes
Capacity cost          : 1
Aarp Instance Id      : N/A
HTTP URL Parameters    : &message=quota80
Last HTTP Notified Time : N/A
-----
Traffic                Octets          Packets         Flows
-----
... ..
-----
Application Service Options (ASO)
-----
Characteristic          Value           Derived from
-----
in-browser-notification  enabled        dyn-override
quota-message-notification disabled       default
=====
```

The operator can also display the HTTP URL parameters VSA currently in use, per AA ISA group:

```
A:PE## tools dump application-assurance group 1 http-url-param-list
-----
Application-Assurance Subscriber HTTP URL parameters for Group 1:
-----
=====
Http Url Parameter                               Sub Usage
-----
"&message=quota80"                               1
=====
Total entries displayed 1
```

## Conclusion

This example, intended for Application Assurance (AA) network architects and engineers, provides two implementation options for configuring and deploying HTTP In Browser Notification. It also explains how to take advantage of the Http-Url-Param RADIUS VSA to flexibly define various messaging campaigns using a common AA notification policy.