XML Interface DTD

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Disclaimer

There are a number of caveats that need to be expressly stated:

1. Nomadix does not guarantee that following these guidelines will ensure the problem-free interoperability between the web server running the XML scripts and Nomadix technology.

2. To ensure accuracy for future releases, Nomadix reserves the right to change and add to this specification without notice.

1. Radius Subscriber Administration Commands

1.1 User Login Command for Radius Subscriber Login

The Portal Page web server can send this command to instruct the NSE to send a RADIUS authentication request to the RADIUS server to authenticate a subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Login command sent to NSE
-->

<!ELEMENT SUB_USER_NAME (#PCDATA)>
<!ELEMENT SUB_PASSWORD (#PCDATA)>
<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT PORTAL_SUB_ID (#PCDATA)>

<!ELEMENT USG (SUB_USER_NAME, SUB_PASSWORD, SUB_MAC_ADDR,
PORTAL_SUB_ID?)>
<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:
COMMAND attribute: 'RADIUS_LOGIN'
SUB_USER_NAME: Subscriber's username (char [96])
SUB_PASSWORD: Subscriber's password (char [128])
SUB_MAC_ADDR: Subscriber's MAC address (char [12])
PORTAL_SUB_ID (optional): Unique identifier that the Portal Page web server can send to the NSE which will be sent back with status response (int [4])

Sample command XML:

```
<USG COMMAND="RADIUS_LOGIN">

    <SUB_USER_NAME>jsmith</SUB_USER_NAME>

    <SUB_PASSWORD>abc123</SUB_PASSWORD>

    <SUB_MAC_ADDR>1A2B3C4D5E6F</SUB_MAC_ADDR>

    <PORTAL_SUB_ID>0123</PORTAL_SUB_ID>

</USG>
```

Response for the Login Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

The NSE will send status message asynchronously if the "Portal XML POST URL" is enabled in the AAA section of the NSE (see User Status Message section).

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1.2 *User Logout Command for Radius Subscriber Logout*

The Portal Page web server can send this command to instruct the NSE to logout the subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Logout command sent to NSE
-->

<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT SUB_USER_NAME (#PCDATA)>

<!ELEMENT USG (SUB_MAC_ADDR, SUB_USER_NAME)>
<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:
COMMAND attribute: 'LOGOUT'
SUB_MAC_ADDR: Subscriber's MAC address (char [12], optional if username is present)
SUB_USER_NAME: Subscriber's username (char [96], optional if MAC address is present)

Sample command XML:

```
<USG COMMAND="LOGOUT">
    <SUB_MAC_ADDR>1A2B3C4D5E6F</SUB_MAC_ADDR>
    <SUB_USER_NAME>jsmith</SUB_USER_NAME>
</USG>
```

Response for the Logout Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

The NSE will send status message asynchronously if the "Portal XML POST URL" is enabled in the AAA section of the NSE (see User Status Message).

2. Subscriber Administration Commands

2.1 *User Add Command*

The specified subscriber has been authorized for access and will be added to the NSE's MAC authorization table. If the subscriber is in the 'Current' (active) memory table of the NSE then the Update Cache XML command must follow in order to correctly update the subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines User Add command sent to NSE
-->

<!ELEMENT USER_NAME (#PCDATA)>
<!ELEMENT PASSWORD(#PCDATA)>
<!ELEMENT EXPIRY_TIME (#PCDATA)>
<!ELEMENT COUNTDOWN (#PCDATA)>
<!ELEMENT ROOM_NUMBER (#PCDATA)>
<!ELEMENT PAYMENT_METHOD (#PCDATA)>
<!ELEMENT PLAN (#PCDATA)>
<!ELEMENT IP_TYPE (#PCDATA)>
<!ELEMENT CONFIRMATION (#PCDATA)>
<!ELEMENT PAYMENT (#PCDATA)>
<!ELEMENT SMTP_REDIRECT (#PCDATA)>
<!ELEMENT BANDWIDTH_UP (#PCDATA)>
<!ELEMENT BANDWIDTH_DOWN (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_UP (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_DOWN (#PCDATA)>
<!ELEMENT QOS_POLICY (#PCDATA)>

<!ELEMENT USG (USER_NAME?, PASSWORD?, EXPIRY_TIME?, COUNTDOWN?,
ROOM_NUMBER?, PAYMENT_METHOD, PLAN?, IP_TYPE?, CONFIRMATION?, PAYMENT?,
SMTP_REDIRECT?, BANDWIDTH_UP?, BANDWIDTH_DOWN?, BANDWIDTH_MAX_UP?,
BANDWIDTH_MAX_DOWN?, QOS_POLICY?)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
MAC_ADDR CDATA
>
<!ATTLIST PASSWORD ENCRYPT (TRUE | FALSE) #REQUIRED >
<!ATTLIST EXPIRY_TIME       UNITS (SECONDS | MINUTES | HOURS | DAYS) #REQUIRED >
```

Where:
COMMAND attribute: USER_ADD
MAC_ADDR attribute (optional): Subscriber's MAC address (char [12])
USER_NAME (optional): Subscriber's username (char [96])

PASSWORD (optional): Subscriber's password (char [128])

ENCRYPT attribute: Either TRUE or FALSE

EXPIRY_TIME (optional): Expiry time

UNITS attribute: Either SECONDS, MINUTES, HOURS or DAYS

ROOM_NUMBER (optional): (char [8])

PAYMENT_METHOD (optional but recommended): Either "RADIUS", "PMS", "CREDIT_CARD", or "ROOM_OPEN"

IP_TYPE (optional): Either "PRIVATE" or "PUBLIC"

CONFIRMATION (optional): Confirmation number/ID

PAYMENT (optional): Amount charged for access

COUNTDOWN (optional): 0 off, 1 enabled.

PLAN: (optional): This relates to the X over Y plan number in Billing Plans setup. If used for X over Y, USER_NAME and PASSWORD are required.

SMTP_REDIRECT: (optional): Either TRUE or FALSE for SMTP Redirection enabled for that user. If not included the User will have this variable as TRUE for their profile.

BANDWIDTH_UP: (optional): This will set the Upstream Bandwidth for a user without having to send the other Bandwidth XML command. Legacy element that is obsolete because of Bandwidth_Max_Up.

BANDWIDTH_DOWN: (optional): This will set the Downstream Bandwidth for a user without having to send the other Bandwidth XML Command. Legacy element that is obsolete because of Bandwidth_Max_Down.

BANDWIDTH_MAX_UP: (optional): This will set the Maximum Upstream bandwidth for the user without having to send the other Bandwidth XML Command.

BANDWIDTH_MAX_DOWN: (optional): This will set the Maximum Downstream bandwidth for the user without having to send the other Bandwidth XML Command.

QOS_POLICY: (optional): Select and add the QoS Policy that is configured on the NSE to the profile for the user.

Sample command XML (Normal Plan):

```xml
<USG COMMAND="USER_ADD" MAC_ADDR="1A2B3C4D5E6F">
    <USER_NAME>jsmith</USER_NAME>
    <PASSWORD ENCRYPT="FALSE">JSMITH6</PASSWORD>
    <EXPIRY_TIME UNITS="SECONDS">60</EXPIRY_TIME>
    <COUNTDOWN>1</COUNTDOWN>
    <ROOM_NUMBER>1234</ROOM_NUMBER>
    <PAYMENT_METHOD>CREDIT_CARD</PAYMENT_METHOD>
    <IP_TYPE>PRIVATE</IP_TYPE>
    <CONFIRMATION>123abc</CONFIRMATION>
    <PAYMENT>9.95</PAYMENT>
    <SMTP_REDIRECT>TRUE</SMTP_REDIRECT>
    <BANDWIDTH_MAX_UP>256</BANDWIDTH_MAX_UP>
    <BANDWIDTH_MAX_DOWN>256</BANDWIDTH_MAX_DOWN>
    <QOS_POLICY>QoSPolicy1</QOS_POLICY>
</USG>
```

Sample command XML (X over Y Plan):

```xml
<USG COMMAND="USER_ADD" MAC_ADDR="1A2B3C4D5E6F">
    <USER_NAME>jsmith</USER_NAME>
    <PASSWORD ENCRYPT="FALSE">JSMITH6</PASSWORD>
    <PAYMENT_METHOD>CREDIT_CARD</PAYMENT_METHOD>
    <PLAN>0</PLAN>
    <SMTP_REDIRECT>TRUE</SMTP_REDIRECT>
    <BANDWIDTH_MAX_UP>256</BANDWIDTH_MAX_UP>
    <BANDWIDTH_MAX_DOWN>256</BANDWIDTH_MAX_DOWN>
    <QOS_POLICY>QoSPolicy1</QOS_POLICY>
</USG>
```

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Response for the User Add Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.2 Group Add Command

The Specified Group is added to the authorized database of the NSE and utilizes the listed attributes for the group. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Group Add command sent to NSE
-->

<!ELEMENT USER_NAME (#PCDATA)>
<!ELEMENT PASSWORD(#PCDATA)>
<!ELEMENT EXPIRY_TIME (#PCDATA)>
<!ELEMENT DHCP_TYPE (#PCDATA)>
<!ELEMENT DHCP_SUBNET(#PCDATA)>
<!ELEMENT PAYMENT (#PCDATA)>
<!ELEMENT SMTP_REDIRECT (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_UP (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_DOWN (#PCDATA)>
<!ELEMENT QOS_POLICY (#PCDATA)>
<!ELEMENT GROUP_USERS_MAX (#PCDATA)>

<!ELEMENT USG (USER_NAME, PASSWORD, EXPIRY_TIME, DHCP_TYPE?, DHCP_SUBNET?,
PAYMENT?, SMTP_REDIRECT?, BANDWIDTH_MAX_UP?, BANDWIDTH_MAX_DOWN?,
QOS_POLICY?, GROUP_USERS_MAX?)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
>
<!ATTLIST PASSWORD ENCRYPT (TRUE | FALSE) #REQUIRED >
<!ATTLIST EXPIRY_TIME       UNITS (SECONDS | MINUTES | HOURS | DAYS) #REQUIRED >
```

Where:
COMMAND attribute: GROUP_ADD
USER_NAME (Required): Group's username (char [96])
PASSWORD (Required): Group's password (char [128])
ENCRYPT attribute: Either TRUE or FALSE
EXPIRY_TIME (Required): Expiry time
UNITS attribute: Either SECONDS, MINUTES, HOURS or DAYS
DHCP_TYPE (optional): Either "PRIVATE" or "PUBLIC"
DHCP_SUBNET (optional): Subnet based on configured DHCP subnets in the NSE
PAYMENT (optional): Amount charged for access
SMTP_REDIRECT: (optional): Either TRUE or FALSE for SMTP Redirection enabled for that user. If not included the User will have this variable as TRUE for their profile.
BANDWIDTH_MAX_UP: (optional): This will set the Maximum Upstream bandwidth for the user without having to send the other Bandwidth XML Command.
BANDWIDTH_MAX_DOWN: (optional): This will set the Maximum Downstream bandwidth for the user without having to send the other Bandwidth XML Command.

QOS_POLICY (optional): Select and add the QoS Policy that is configured on the NSE to the profile for the user.

GROUP_USERS_MAX (optional): This will set the maximum number of concurrent users that can utilize this Group account.

Sample command XML:

```xml
<USG COMMAND="GROUP_ADD">
    <USER_NAME>Conference1</USER_NAME>
    <PASSWORD ENCRYPT="FALSE">users</PASSWORD>
    <EXPIRY_TIME UNITS="SECONDS">600</EXPIRY_TIME>
    <DHCP_SUBNET>192.168.1.0</DHCP_SUBNET>
    <DHCP_TYPE>PRIVATE</DHCP_TYPE>
    <PAYMENT>9.95</PAYMENT>
    <SMTP_REDIRECT>TRUE</SMTP_REDIRECT>
    <BANDWIDTH_MAX_UP>256</BANDWIDTH_MAX_UP>
    <BANDWIDTH_MAX_DOWN>256</BANDWIDTH_MAX_DOWN>
    <QOS_POLICY>QoSPolicy1</QOS_POLICY>
    <GROUP_USERS_MAX>25</GROUP_USERS_MAX>
</USG>
```

Response for the Group Add Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.3 Update Cache Command

The memory authorization table entry specified by the MAC address will have its status changed from "pending" to "authorized". NOTE: It is important to update the cache to enable proper access for the subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Update Cache command sent to NSE
-->

<!ELEMENT PAYMENT_METHOD (#PCDATA)>

<!ELEMENT USG (PAYMENT_METHOD?)>
<!ATTLIST USG
COMMAND CDATA #REQUIRED
MAC_ADDR CDATA #REQUIRED
>
```

Where:
COMMAND attribute: CACHE_UPDATE
MAC_ADDR attribute: Subscriber's MAC address (char [12])

Sample command XML:

```
<USG COMMAND="CACHE_UPDATE" MAC_ADDR="1A2B3C4D5E6F">

</USG>
```

Response for the Update Cache Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

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2.4 *Bandwidth Up Command*

Set the Bandwidth Up for an authorized subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Bandwidth Up command sent to NSE
-->

<!ELEMENT BANDWIDTH_UP (#PCDATA)>

<!ELEMENT USG (BANDWIDTH_UP)>
<!ATTLIST USG
COMMAND CDATA #REQUIRED
        SUBSCRIBER CDATA #REQUIRED
>
```

Where:
COMMAND attribute: SET_BANDWIDTH_UP
SUBSCRIBER attribute: Subscriber's MAC address (char [12])
BANDWIDTH_UP: (number measured in Kbps (i.e. for 128,000 bits per second, enter 128))

Sample command XML:

```
<USG COMMAND="BANDWIDTH_UP" SUBSCRIBER="1A2B3C4D5E6F">

    <BANDWIDTH_UP>128</BANDWIDTH_UP>

</USG>
```

Response for the Bandwidth Up Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

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2.5 *Bandwidth Down Command*

Set the Bandwidth Down for an authorized subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Bandwidth Down command sent to NSE
-->

<!ELEMENT BANDWIDTH_DOWN (#PCDATA)>

<!ELEMENT USG (BANDWIDTH_DOWN)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
SUBSCRIBER CDATA #REQUIRED
>
```

Where:
COMMAND attribute: SET_BANDWIDTH_DOWN
SUBSCRIBER attribute: Subscriber's MAC address (char [12])
BANDWIDTH_DOWN: (number measured in Kbps (i.e. for 128,000 bits per second, enter 128))

Sample command XML:

```
<USG COMMAND="BANDWIDTH_DOWN" SUBSCRIBER="1A2B3C4D5E6F">

    <BANDWIDTH_DOWN>256</BANDWIDTH_DOWN>

</USG>
```

Response for the Bandwidth Down Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.6 *Max Bandwidth Down Command*

Set the guaranteed Maximum Downstream Bandwidth for an Authorized Subscriber.. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Bandwidth Max Down command sent to NSE
-->

<!ELEMENT BANDWIDTH_MAX_DOWN (#PCDATA)>

<!ELEMENT USG (BANDWIDTH_MAX_DOWN)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
SUBSCRIBER CDATA #REQUIRED
>
```

Where:
COMMAND attribute: SET_BANDWIDTH_MAX_DOWN
SUBSCRIBER attribute: Subscriber's MAC address (char [12])
BANDWIDTH_MAX_DOWN: (number measured in Kbps (i.e. for 128,000 bits per second, enter 128))

Sample command XML:

```
<USG COMMAND="SET_BANDWIDTH_MAX_DOWN" SUBSCRIBER="1A2B3C4D5E6F">

    <BANDWIDTH_MAX_DOWN>256</BANDWIDTH_MAX_DOWN>

</USG>
```

Response for the Bandwidth Max Down Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.7 *Max Bandwidth Up Command*

Set the guaranteed Maximum Upstream Bandwidth for an Authorized Subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Bandwidth Max Up command sent to NSE
-->

<!ELEMENT BANDWIDTH__MAX_UP (#PCDATA)>

<!ELEMENT USG (BANDWIDTH_MAX_UP)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
SUBSCRIBER CDATA #REQUIRED
>
```

Where:
COMMAND attribute: SET_BANDWIDTH_MAX_UP
SUBSCRIBER attribute: Subscriber's MAC address (char [12])
BANDWIDTH_MAX_UP: (number measured in Kbps (i.e. for 128,000 bits per second, enter 128))

Sample command XML:

```
<USG COMMAND="SET_BANDWIDTH_MAX_UP" SUBSCRIBER="1A2B3C4D5E6F">
    <BANDWIDTH_MAX_UP>256</BANDWIDTH__MAX_UP>
</USG>
```

Response for the Bandwidth Max Up Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.8 User Payment Command

Subscriber's authorization and payment is requested. The authorization method can only be set to PMS. The NSE will verify room mapping, establish communication with the PMS system, post access fee to the PMS for the subscriber's room bill and add the subscriber to the internal database for access. If the subscriber is in the Current (active) memory table of the NSE then the Update Cache XML command must follow in order to correctly update the subscriber. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  DTD defines User Payment command sent to NSE
-->
<!ELEMENT USER_NAME (#PCDATA)>
<!ELEMENT REAL_NAME (#PCDATA)>
<!ELEMENT PASSWORD (#PCDATA)>
<!ELEMENT EXPIRY_TIME (#PCDATA)>
<!ELEMENT ROOM_NUMBER (#PCDATA)>
<!ELEMENT PAYMENT (#PCDATA)>
<!ELEMENT MAC_ADDR (#PCDATA)>
<!ELEMENT REG_NUMBER (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_UP (#PCDATA)>
<!ELEMENT BANDWIDTH_MAX_DOWN (#PCDATA)>
<!ELEMENT COUNTDOWN (#PCDATA)>
<!ELEMENT BILLING_PLAN (#PCDATA)>
<!ELEMENT CC_SUFFIX (#PCDATA)>
<!ELEMENT CC_EXPIRATION (#PCDATA)>
<!ELEMENT WFB_BUNDLED (#PCDATA)>
<!ELEMENT TRANS_ID (#PCDATA)>
<!ELEMENT REVENUE_CENTER (#PCDATA)>
<!ELEMENT USG (USER_NAME, REAL_NAME?, PASSWORD, EXPIRY_TIME, ROOM_NUMBER,
PAYMENT?, MAC_ADDR?, REG_NUMBER?, BANDWIDTH_MAX_UP?,
BANDWIDTH_MAX_DOWN?, COUNTDOWN?, BILLING_PLAN?, CC_SUFFIX?,
CC_EXPIRATION?, WFB_BUNDLED?, TRANS_ID?)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
        PAYMENT_METHOD CDATA #REQUIRED
>
<!ATTLIST PASSWORD ENCRYPT (TRUE | FALSE) #REQUIRED>
<!ATTLIST EXPIRY_TIME UNITS (SECONDS | MINUTES | HOURS | DAYS) #REQUIRED>
<!ATTLIST WFB_BUNDLED WFB_OPTION (A | B | C | D) #IMPLIED>
```

Where:
COMMAND attribute: USER_PAYMENT
PAYMENT_METHOD attribute: 'PMS'

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USER_NAME: Subscriber's username (char [96]). Note: For 2-way PMS, the subscriber's MAC address is optional but recommended.

REAL_NAME (optional, but required for 2-way PMS): Subscriber's real name as listed in PMS (char [96])

PASSWORD: Subscriber's password (char [128])

ENCRYPT attribute: Either TRUE or FALSE

EXPIRY_TIME (optional, but required for 2-way PMS): Expiry time

UNITS attribute: Either SECONDS, MINUTES, HOURS or DAYS

ROOM_NUMBER: Room number (Port-Location "Location" number) of access (char [8]). Note: For 2-way PMS, use the PMS database room number.

PAYMENT (optional): Amount charged for access

MAC_ADDR: MAC address of user for post-paid PMS and 2-way PMS (char [12]).

REG_NUMBER: Reservation number of hotel guest for Micros Fidelio FIAS compliant Query and Post interface (char [24]).

BANDWIDTH_MAX_UP: (optional): This will set the Maximum Upstream bandwidth for the user without having to send any other Bandwidth XML Command.

BANDWIDTH_MAX_DOWN: (optional): This will set the Maximum Downstream bandwidth for the user without having to send any other Bandwidth XML Command.

COUNTDOWN: (optional): This will set the user so that their allotted time will not start counting down, and the charge will not post, until they log in (note: only supported for 1-way PMS systems).

BILLING_PLAN: (optional): This will allow selection of a specified billing plan for either an X over Y Setting or a WFB selection for the user.

CC_SUFFIX: (optional): Last 4 Digits of the Credit Card for Marriott WFB PMS Verification.

CC_EXPIRATION: (optional): Expiration Date on the Credit Card for Marriott WFB PMS Verification. Format = MMYY.

WFB_BUNDLED: (optional): WFB Bundle Bill. 0 = Charge 1 = Bundle

WFB_OPTION attribute: Either A, B, C or D

TRANS_ID: (optional): (32 bit unsigned Integer) Used to match commands with USER_STATUS messages. Information entered here will be mirrored on the USER_STATUS messages.

REVENUE_CENTER: (optional): 3 Digits to specify the Revenue Center for MICROS PMS, or 2 Digits to specify Revenue Code for Marriott WFB and Marriott FOSSE.

Sample command XML (Micros Fidelio FIAS Query and Post):

```xml
<USG COMMAND="USER_PAYMENT" PAYMENT_METHOD="PMS">
    <USER_NAME>jsmith</USER_NAME>
    <REAL_NAME></REAL_NAME>
    <PASSWORD ENCRYPT="FALSE">JSMITH</PASSWORD>
    <EXPIRY_TIME UNITS="SECONDS">60</EXPIRY_TIME>
    <ROOM_NUMBER>1234</ROOM_NUMBER>
    <PAYMENT>9.95</PAYMENT>
    <MAC_ADDR>001122334455</MAC_ADDR>
    <REG_NUMBER>0123456789</REG_NUMBER>
    <BANDWIDTH_MAX_UP>256</BANDWIDTH_MAX_UP>
    <BANDWIDTH_MAX_DOWN>256</BANDWIDTH_MAX_DOWN>
</USG>
```

Sample command XML (2-Way PMS):

```xml
<USG COMMAND="USER_PAYMENT" PAYMENT_METHOD="PMS">
    <USER_NAME>001122334455</USER_NAME>
    <REAL_NAME>Smith</REAL_NAME>
    <PASSWORD ENCRYPT="FALSE">JSMITH</PASSWORD>
    <EXPIRY_TIME UNITS="SECONDS">3600</EXPIRY_TIME>
    <ROOM_NUMBER>1234</ROOM_NUMBER>
    <PAYMENT>9.95</PAYMENT>
    <MAC_ADDR>0010a4a9cc19</MAC_ADDR>
    <BANDWIDTH_MAX_UP>256</BANDWIDTH_MAX_UP>
    <TRANS_ID>123546</TRANS_ID>
    <WFB_BUNDLED>0</WFB_BUNDLED>
    <COUNTDOWN>DISABLED</COUNTDOWN>
</USG>
```

Response for the User Payment Command

This is the response sent to User Payment command. The response is an XML message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines response for User Payment command
-->

<!ELEMENT CONFIRMATION (#PCDATA)>

<!ELEMENT USG (CONFIRMATION)>

<!ATTLIST USG
RESULT CDATA #REQUIRED
       ID CDATA #REQUIRED
       IP CDATA #REQUIRED
>
```

Where:
CONFIRMATION: confirmation number/ID
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])

Sample Response XML:

```
<USG RESULT="OK" ID="ABC1234" IP="192.168.100.102">

    <CONFIRMATION>123abc</CONFIRMATION>

</USG>
```

2.9 User Delete Command

The subscriber's specified by MAC address or username, will be deleted from the authorization table. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines User Delete command sent to NSE
-->

<!ELEMENT USER (#PCDATA)>

<!ELEMENT USG (USER)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
<!ATTLIST USER ID_TYPE (MAC_ADDR | USER_NAME) #REQUIRED>
```

Where:
COMMAND attribute: USER_DELETE
USER attribute: ID_TYPE (either MAC_ADDR or USER_NAME)
MAC_ADDR: Subscriber's MAC address (char [12], optional if username is present)
USER_NAME: Subscriber's username (char [96], optional if MAC is present)

Sample command XML:

```
<USG COMMAND="USER_DELETE">
    <USER ID_TYPE="MAC_ADDR">001122334455</USER>
</USG>

or

<USG COMMAND="USER_DELETE">
    <USER ID_TYPE="USER_NAME">jsmith</USER>
</USG>
```

Response for the User Delete Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

2.10 User Query Command

The user's data contained in the authorization table is returned (a listing for the user being queried must be present in the Current table for the command to complete successfully). This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines User Query command sent to NSE
-->

<!ELEMENT USER (#PCDATA)>
<!ELEMENT USG (USER)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
<!ATTLIST USER ID_TYPE (MAC_ADDR | USER_NAME) #REQUIRED>
```

Where:
COMMAND attribute: USER_QUERY
USER attribute: ID_TYPE (either MAC_ADDR or USER_NAME
MAC_ADDR: Subscriber's MAC address (char [12], optional if username is present)
USER_NAME: Subscriber's username (char [96], optional if MAC is present)

Sample command XML:

```
<USG COMMAND="USER_QUERY">
    <USER ID_TYPE="USER_NAME">jsmith</USER>
</USG>
or
<USG COMMAND="USER_QUERY">
    <USER ID_TYPE="MAC_ADDR">001122334455</USER>
</USG>
```

Response for the User Query Command

This is the response sent to User Query command. The response is an XML message with the following DTD:

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```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines response for User Query command
-->

<!ELEMENT MAC_ADDR (#PCDATA)>
<!ELEMENT USER_NAME (#PCDATA)>
<!ELEMENT PASSWORD (#PCDATA)>
<!ELEMENT EXPIRY_TIME (#PCDATA)>
<!ELEMENT ROOM_NUMBER (#PCDATA)>
<!ELEMENT PAYMENT_METHOD (#PCDATA)>
<!ELEMENT BILLING_STATUS (#PCDATA)>
<!ELEMENT DATA_VOLUME (#PCDATA)>
<!ELEMENT USG (MAC_ADDR, USER_NAME, PASSWORD, EXPIRY_TIME, ROOM_NUMBER,
PAYMENT_METHOD, BILLING_STATUS, DATA_VOLUME)>

<!ATTLIST USG
RESULT CDATA #REQUIRED
ID CDATA #REQUIRED
IP CDATA #REQUIRED
>
<!ATTLIST EXPIRY_TIME UNITS (SECONDS | MINUTES | HOURS | DAYS) #REQUIRED>
```

Where:
MAC_ADDR: Subscriber's MAC address (char [12])
USER_NAME: Subscriber's username (char [96])
PASSWORD: Subscriber's password (char [128])
EXPIRY_TIME: Expiry time
UNITS attribute: Either SECONDS, MINUTES, HOURS or DAYS
ROOM_NUMBER: Room number (Port-Location "Location" number) of access (char [8])
PAYMENT_METHOD: Either "PMS", "CREDIT_CARD", or blank if subscriber added by XML
or by administrator
BILLING_STATUS: "DONE_OK" when 2-way PMS query is done and "DONE_ERROR" when
the 2-way PMS query is not done.
DATA_VOLUME: data transferred by subscriber in Kbytes
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])

Sample Response XML:

```
<USG RESULT="OK" ID="ABC1234" IP="192.168.100.102">
    <MAC_ADDR>001122334455</MAC_ADDR>
    <USER_NAME>jsmith</USER_NAME>
    <PASSWORD>JSMITH6</PASSWORD>
    <EXPIRY_TIME UNITS="SECONDS">3600</EXPIRY_TIME>
    <ROOM_NUMBER>1234</ROOM_NUMBER>
    <PAYMENT_METHOD>PMS</PAYMENT_METHOD>
    <BILLING_STATUS>DONE_OK</BILLING_STATUS>
    <DATA_VOLUME>123456</DATA_VOLUME>
</USG>
```

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2.11 Subscriber Query Current command

A query is made for information about a current subscriber. Information from that subscriber's entry in the "current table" is returned. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Current Subscriber Query command sent to NSE platforms
-->

<!ELEMENT MAC_ADDR (#PCDATA)>

<!ELEMENT USG (MAC_ADDR)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:
COMMAND attribute: SUBSCRIBER_QUERY_CURRENT
MAC_ADDR: Subscriber's MAC address (char [12], required)

Sample command XML:

```
<USG COMMAND="SUBSCRIBER_QUERY_CURRENT">

    <MAC_ADDR>00508B74C8A6</MAC_ADDR>

</USG>
```

Response for the SUBSCRIBER_QUERY_CURRENT Command

This is the response sent to SUBSCRIBER_QUERY_CURRENT command. The response is an XML message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines response for Current Subscriber Query command
-->

<!ELEMENT MAC_ADDR (#PCDATA)>
<!ELEMENT IP_ADDR (#PCDATA)>
<!ELEMENT PORT_VLAN (#PCDATA)>
<!ELEMENT PORT_MODEM_MAC (#PCDATA)>
<!ELEMENT PORT_EMB_FDB (#PCDATA)>
<!ELEMENT ROOM_NUMBER (#CDATA)>
<!ELEMENT USER_NAME (#CDATA)>
<!ELEMENT MAX_BW_UP (#PCDATA)>
<!ELEMENT MAX_BW_DOWN (#PCDATA)>
<!ELEMENT THRUP_UP_IN (#PCDATA)>
<!ELEMENT THRUP_UP_OUT (#PCDATA)>
<!ELEMENT THRUP_DOWN_IN (#PCDATA)>
<!ELEMENT THRUP_DOWN_OUT (#PCDATA)>
<!ELEMENT AAA_STATE (#PCDATA)>
<!ELEMENT EXPIRY_TIME_SECS (#PCDATA)>
<!ELEMENT IDLE_TO_SECS (#PCDATA)>
<!ELEMENT BYTES_TX (#PCDATA)>
<!ELEMENT BYTES_RX (#PCDATA)>
<!ELEMENT PACKETS_TX (#PCDATA)>
<!ELEMENT PACKETS_RX (#PCDATA)>
<!ELEMENT PROXY_STATE (#PCDATA)>
<!ELEMENT AUTH_METHOD (#PCDATA)>
<!ELEMENT SMTP_REDIRECTION (#PCDATA)>
<!ELEMENT GROUP (#PCDATA)>
<!ELEMENT QOS_POLICY (#PCDATA)>
<!ELEMENT NAT_IP_ADDR (#PCDATA)>
<!ELEMENT SUBSCRIBER_CURRENT (MAC_ADDR, IP_ADDR, PORT_VLAN?,
PORT_MODEM_MAC?,PORT_EMB_FDB?, ROOM_NUMBER?, USER_NAME, MAX_BW_UP?,
MAX_BW_DOWN?, THRUP_UP_IN?, THRUP_UP_OUT?, THRUP_DOWN_IN?,
THRUP_DOWN_OUT?, AAA_STATE, EXPIRY_TIME_SECS, IDLE_TO_SECS, BYTES_TX,
BYTES_RX, PACKETS_TX, PACKETS_RX, PROXY_STATE, AUTH_METHOD,
SMTP_REDIRECTION, GROUP?,QOS_POLICY?, NAT_IP_ADDR)>
<!ELEMENT USG (SUBSCRIBER_CURRENT?)>

<!ATTLIST USG
RESULT CDATA #REQUIRED
ID CDATA #REQUIRED
IP CDATA #REQUIRED
>
```

Where:

SUBSCRIBER_CURRENT (optional): Present if and only if result attribute of USG element has
the value "OK".

MAC_ADDR: Subscriber's MAC address, exactly 12 hex-ascii characters in length.

IP_ADDR: Subscriber's IP address, up to 15 characters in length.

PORT_VLAN (optional): If subscriber is connected to a port on an 802.1Q concentrator, the port number to which he is connected.

PORT_MODEM_MAC (optional): If a subscriber is connected to a port on a Riverdelta 1000B or an Elastic Networks concentrator, this is the "modem MAC" address of the port to which he is connected.

PORT_EMB_FDB (optional): If a subscriber is connected to a port on an SNMP-based concentrator, this is the embellished port number to which he is connected.

NOTE: No more than one of the three elements PORT_VLAN, PORT_MODEM_MAC, and PORT_EMB_FDB will be present. The type that is present depends on which type of concentrator is being used on the NSE's subscriber-side network. If concentrators are not being used, or if a subscriber is directly connected, none of these elements will be present.

ROOM_NUMBER (optional): Room "number" or name (e.g., "Lobby") of access. Empty if no defined room is associated with the subscriber's port of access.

USER_NAME: Subscriber's username

MAX_BW_UP (optional): Effective maximum upstream bandwidth, in Kbps, for this subscriber. Empty if there is no effective limit for the subscriber. There is a limit only if the bandwidth management feature is enabled on the NSE AND there is a limit specified for the subscriber, either via an authFile entry or via RADIUS VSA.

MAX_BW_DOWN (optional): Effective maximum downstream bandwidth, in Kbps, for this subscriber. Empty if there is no effective limit for the subscriber. There is a limit only if the bandwidth management feature is enabled on the NSE AND there is a limit specified for the subscriber, either via an authFile entry or via RADIUS VSA.

THRUP_UP_IN (optional): The upstream data rate currently entering the NSE from this subscriber, in Kbps. Empty if the information is not presently available (e.g., throughput is not measured when bandwidth management is disabled).

THRUP_UP_OUT (optional): The upstream data rate currently exiting the NSE (on the network side) from this subscriber, in Kbps. Empty if the information is not presently available (e.g., throughput is not measured when bandwidth management is disabled).

THRUP_DOWN_IN (optional): The downstream data rate currently entering the NSE for this subscriber, in Kbps. Empty if the information is not presently available (e.g., throughput is not measured when bandwidth management is disabled).

THRUP_DOWN_OUT (optional): The downstream data rate currently exiting the NSE (on the subscriber side) for this subscriber, in Kbps. Empty if the information is not presently available (e.g., throughput is not measured when bandwidth management is disabled).

AAA_STATE: PENDING, VALID, UNKOWN, NO_ACCESS, TIMED_OUT, or AAA_OFF. TIMED_OUT will be returned if there is a session timer or idle timer which has expired. In this case, the subscriber no longer has access to the network, and removal of the record from the current table is imminent.

EXPIRY_TIME_SECS: The amount of time left, in seconds, before the subscriber session times out. If there is no session timer for this session, this element will be empty. If the timer has already expired, the number shown here will be negative, and will reflect the number of seconds since the expiration. In this case, removal of the record from the current table is imminent.

IDLE_TO_SECS: The amount of idle time left, in seconds, before the subscriber's session is deemed to have ended due to inactivity. If there is no idle timer in effect for this session, the element will be empty. If the timer has already expired, the number shown here will be negative, and will reflect the number of seconds since the expiration. In this case, removal of the record from the current table is imminent.

BYTES_TX: Data transmitted by subscriber in bytes (64-bit value)

BYTES_RX: Data received by (delivered to) subscriber in bytes (64-bit value)

PACKETS_TX: Number of packets transmitted by subscriber.

PACKETS_RX: Number of packets received by (delivered to) subscriber.

PROXY_STATE: ON, OFF, or UNKNOWN.

AUTH_METHOD: Indicates the means by which a subscriber became authorized for network access. Values are NOT_AUTHORIZED (e.g., subscriber is still in Pending state), NOT_NEEDED (e.g., if AAA is turned off), RADIUS, CREDIT_CARD, PMS, TUNNELING, FREE_ROOM, ADMIN (if added to authorization database via the WMI, CLI, or SNMP), and XML. This element will be empty if the NSE software is unable to determine the authorization state of a subscriber.

NOTE: XML will be returned for any subscriber who was added to the database via an XML command, regardless of payment method element in that command. RADIUS, PMS, and CREDIT_CARD are returned only if the NSE itself has conducted the interaction with the corresponding server.

SMTP_REDIRECTION: Indicates whether or not SMTP redirection is effectively enabled for this subscriber, either ENABLED or DISABLED. "Effectively enabled" means that the subscriber's SMTP traffic will be redirected, i.e., the SMTP redirection feature is enabled globally on the NSE AND it is enabled for the individual subscriber (NOTE: There are separate global configuration parameters for enabling SMTP for well-configured and mis-configured subscribers).

GROUP (optional): Indicates whether subscriber is logged on to a group account, either TRUE or FALSE.

QOS_POLICY (optional): The name of the QOS policy in effect for this subscriber. Empty if no QOS policy is in effect.

NAT_IP_ADDR: The NAT IP address that has been assigned to this subscriber for DAT sessions. It will be reported as 0.0.0.0 if none has yet been assigned.

RESULT attribute: OK or ERROR. See the DTD section entitled "Standard OK/ERROR Response" for the elements and attributes of an ERROR response. If no subscriber with the specified MAC address is found, the error code 202 will be returned. If a matching entry is found in the current table but pertains to a "device" (as configured in the authFile), the same error code 202 will be returned, as such an entry does not pertain to a subscriber.

ID attribute: ID of the USG or NSE, exactly 6 hex-ascii characters in length.

IP attribute: IP address of the USG or NSE, up to 15 characters in length.

Note about optional elements: Elements specified above as optional will not be present if they pertain to an NSE feature that is not licensed on a particular NSE, or if they pertain to a feature that is not supported on the hardware platform on which the NSE is running. However, if a feature is licensed but is configured as disabled, the pertinent elements will be present in the

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response, but will be empty (contain no data). For example, if an NSE is not licensed for bandwidth management, the MAX_BW_UP and MAX_BW_DOWN elements will not be present in the response, but if bandwidth management is licensed but configured as disabled, these elements will be present but empty.

Implementation Notes for Portal/EWS Developers:

1) **Must gracefully handle/ignore elements not recognized**: In the future, as new NSE features are implemented or as new requirements arise for the *subscriber_query_current* command, new elements may be added to the response. An implementation must be prepared to gracefully ignore any unrecognized elements it may receive.

2) **Must gracefully handle missing optional elements**: Elements specified as optional in the DTD may or may not be present. An implementation must handle either case gracefully. See "note about optional elements" above for more detail.

3) **Must gracefully handle empty elements**: Many of the elements may be present but be empty of data, depending on NSE configuration and subscriber state. An implementation must be prepared to handle empty elements gracefully. See detailed element descriptions above and the "note about optional elements" above for explanation of the situations giving rise to empty elements.

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Sample Responses (delivered without line feeds nor tabs/spaces):

The following example contains all of the elements, including one empty element :

```
<USG RESULT="OK" ID="ABC123" IP="192.168.100.102">
    <SUBSCRIBER_CURRENT>
        <MAC_ADDR>001122334455</MAC_ADDR>
        <IP_ADDR>10.0.0.12</IP_ADDR>
        <PORT_VLAN>101</PORT_VLAN>
        <ROOM_NUMBER>Lobby</ROOM_NUMBER>
        <USER_NAME>GeorgeIII</USER_NAME>
        <MAX_BW_UP>1024</MAX_BW_UP>
        <MAX_BW_DOWN>1024</MAX_BW_DOWN>
        <THRUP_UP_IN>185</THRU_UP_IN>
        <THRUP_UP_OUT>185</THRU_UP_OUT>
        <THRUP_DOWN_IN>89</ THRU_DOWN_IN>
        <THRUP_DOWN_OUT>89</THRU_DOWN_OUT>
        <AAA_STATE>VALID</AAA_STATE>
        <EXPIRY_TIME_SECS>40809</EXPIRY_TIME_SECS>
        <IDLE_TO_SECS></IDLE_TO_SECS>
        <BYTES_TX>45117330</BYTES_TX>
        <BYTES_RX>46169841</BYTES_RX>
        <PACKETS_TX>207328</BYTES_TX>
        <PACKETS_RX>219564</BYTES_RX>
        <PROXY_STATE>OFF</PROXY_STATE>
        <AUTH_METHOD>RADIUS</AUTH_METHOD>
        <SMTP_REDIRECTION>ENABLED</SMTP_REDIRECTION>
        <GROUP>FALSE</GROUP>
        <QOS_POLICY>RH_102</QOS_POLICY>
        <NAT_IP_ADDR>67.130.148.131</NAT_IP_ADDR>
    </SUBSCRIBER_CURRENT>
</USG>
```

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The following example contains the minimal set of elements, illustrating the case when all relevant NSE features are unlicensed :

```xml
<USG RESULT="OK" ID="ABC123" IP="192.168.100.102">
    <SUBSCRIBER_CURRENT>
        <MAC_ADDR>001122334455</MAC_ADDR>
        <IP_ADDR>10.1.1.56</IP_ADDR>
        <USER_NAME>MBM</USER_NAME>
        <AAA_STATE>VALID</AAA_STATE>
        <EXPIRY_TIME_SECS>17567</EXPIRY_TIME_SECS>
        <IDLE_TO_SECS>297</IDLE_TO_SECS>
        <BYTES_TX>852677</BYTES_TX>
        <BYTES_RX>1983451</BYTES_RX>
        <PACKETS_TX>10342</BYTES_TX>
        <PACKETS_RX>33986</BYTES_RX>
        <PROXY_STATE>ON</PROXY_STATE>
        <AUTH_METHOD>XML</AUTH_METHOD>
        <SMTP_REDIRECTION>ENABLED</SMTP_REDIRECTION>
        <NAT_IP_ADDR>67.130.148.131</NAT_IP_ADDR>
    </SUBSCRIBER_CURRENT>
</USG>
```

2.12 _Subscriber Query Auth Command_

A query is made for information about a subscriber configuration saved in the authorized database. Information from that subscriber's entry in the "auth table" is returned. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Subscriber Query Auth command sent to NSE platforms
-->

<!ELEMENT MAC_ADDR  (#PCDATA)>
<!ELEMENT USER_NAME (#PCDATA)>

<!ELEMENT USG (MAC_ADDR | USER_NAME)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:

COMMAND attribute: SUBSCRIBER_QUERY_AUTH
MAC_ADDR: Subscriber's MAC address (char [12], required)
or
USER_NAME: Subscriber's name. (char [96], required)

Sample command XML:

```
<USG COMMAND="SUBSCRIBER_QUERY_AUTH">

    <MAC_ADDR> 0010A4BABD5C</MAC_ADDR>

</USG>
```

Response for the SUBSCRIBER_QUERY_AUTH Command

This is the response sent to _SUBSCRIBER_QUERY_AUTH_ command. The response is an XML message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines response for Subscriber Query Auth command
-->

<!ELEMENT MAC_ADDR   (#PCDATA)>
<!ELEMENT USER_NAME (#CDATA)>
<!ELEMENT IP_ADDR     (#PCDATA)>
<!ELEMENT SUBNET     (#PCDATA)>
<!ELEMENT EXPIRY_TIME_SECS (#PCDATA)>
<!ELEMENT AMT_PAID   (#PCDATA)>
<!ELEMENT AMT_LEFT   (#PCDATA)>
<!ELEMENT AUTH_METHOD (#PCDATA)>
<!ELEMENT COUNT_DOWN (#PCDATA)>
<!ELEMENT COUNTING_DOWN (#PCDATA)>
<!ELEMENT IP_TYPE (#PCDATA)>
<!ELEMENT MAX_BW_UP  (#PCDATA)>
<!ELEMENT MAX_BW_DOWN (#PCDATA)>
<!ELEMENT BILLING_PLAN (#PCDATA)>
<!ELEMENT QOS_POLICY   (#PCDATA)>
<!ELEMENT SMTP_REDIRECTION   (#PCDATA)>


<!ELEMENT SUBSCRIBER_AUTH (MAC_ADDR, USER_NAME, IP_ADDR, SUBNET,
EXPIRY_TIME_SECS, AMT_PAID, AMT_LEFT, AUTH_METHOD, COUNT_DOWN,
COUNTING_DOWN, IP_TYPE?, MAX_BW_UP?, MAX_BW_DOWN?, BILLING_PLAN,
QOS_POLICY?, SMTP_REDIRECTION)>
<!ELEMENT USG (SUBSCRIBER_AUTH?)>

<!ATTLIST USG
RESULT CDATA #REQUIRED
ID CDATA #REQUIRED
IP CDATA #REQUIRED
>
```

Where:

MAC_ADDR: Subscriber's MAC address, exactly 12 hex-ascii characters in length. An empty string is returned if subscriber was added by name.

USER_NAME: Subscriber's username, up to 96 hex-ascii characters. An empty string is returned if subscriber was added by MAC.

IP_ADDR: Subscriber's IP address, up to 15 characters in length. (May not reflect the correct IP address assigned to this subscriber.) This value may change at the IP update time.

SUBNET: Subscriber's subnet.

EXPIRY_TIME_SECS: The amount of time left, in seconds, before the subscriber account times out. An empty string will be returned if this subscriber already expired.

AMT_PAID: Amount paid by the user of this account.

AMT_LEFT: Amount left on this account. For x-over-y subscribers this value does not reflect the The actual amount left on this account, which will be updated at the logout time.

AUTH_METHOD: String indicating by what method the subscriber was added to the authorized persistent database.   Values are: "PMS", "CREDIT_CARD", "XML", "ADMIN".
Radius and post-paid PMS subscribers will not appear in the authorized database.
Some other methods of authorization may be added in the future and the users of this command should be prepared to handle such cases.
Note: "XML" will be returned for subscribers that were added via XML commands, regardless of the payment method.

COUNT_DOWN: String indicating if Count-down starts after Login for this subscriber; ("ENABLED" or "DISABLED").
COUNTING_DOWN: String indicating if the time is running down for this subscriber. ("TRUE" or "FALSE").
IP_TYPE (optional): String indicating what kind of IP the user is authorized to use. ("PRIVATE" or "PUBLIC").
MAX_BW_UP (optional): Configured maximum upstream bandwidth, in Kbps, for this subscriber. An empty string will be returned if this parameter was not configured when the account was created – meaning UNLIMITED.
MAX_BW_DOWN (optional): Configured maximum downstream bandwidth, in Kbps, for this subscriber. An empty string will be returned if this parameter was not configured when the account was created – meaning UNLIMITED.
BILLING_PLAN: Plan number associated with this account. An empty string is returned if there is no associated plan for this subscriber.
QOS_POLICY (optional): QoS policy associated with this account, up to 16 characters in length. An empty string will be returned if no policy is assigned to this subscriber.
SMTP_REDIRECTION: String indicating if the SMTP protocol redirection is enabled for this subscriber. ("ENABLED", or "DISABLED")   Note: This does not take into account a global status of SMTP redirect. Rather, how the individual subscriber was configured.

RESULT attribute: "OK" or "ERROR". See the DTD section entitled "Standard OK/ERROR Response" for the elements and attributes of an ERROR response.

If specified MAC address found is not a subscriber an error 202 will be returned "Unknown user MAC address", along with the syslog message "User: '*MAC*' is a Device".
When subscriber query by username finds record for a group account, an error 201 will be returned "Unknown user name", along with the syslog msg "User: '*Name*' is a Group Account".

ID attribute: ID of NSE, exactly 6 hex-ascii characters in length.
IP attribute: IP address of the NSE, up to 15 characters in length.

Note about optional elements:

Elements specified as optional will not be present if they are not licensed on a particular NSE or if they are not implemented on a hardware platform on which the NSE is running. However, if the feature is licensed but was not configured for the particular subscriber, the element will be present in the response but will contain no data. For example, if the quality of service on a particular unit is licensed but user did not select policy during configuration, the element QOS_POLICY will be present but will contain en empty string.

Implementation Notes for Portal/EWS Developers:

1) <u>**Must gracefully ignore elements not recognized**</u>**:** In the future, as new NSE features are implemented or as new requirements arise for the *subscriber_query_auth* command, new elements may be added to the response. An implementation must be prepared to gracefully ignore any unrecognized elements it may receive.

2) <u>**Must gracefully handle missing optional elements**</u>**:** Elements specified as optional in the DTD may or may not be present. An implementation must handle either case gracefully. See "note about optional elements" above for more detail.

3) <u>**Must gracefully handle empty elements**</u>**:** Many of the elements may be present but be empty of data, depending on NSE configuration and subscriber state. An implementation must be prepared to handle empty elements gracefully. See detailed element descriptions above and the "note about optional elements" above for more details.

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Sample Response XML:

```xml
<USG RESULT="OK" ID="ABC123" IP="192.168.100.102">
    <SUBSCRIBER_AUTH>
        <MAC_ADDR>001122334455</MAC_ADDR>
        <USER_NAME>Gonzales</USER_NAME>
        <IP_ADDR>10.0.0.12</IP_ADDR>
        <SUBNET></SUBNET>
        <EXPIRY_TIME_SECS>40809</EXPIRY_TIME_SECS>
        <AMT_PAID>678.55</AMT_PAID>
        <AMT_LEFT>16.35</AMT_LEFT>
        <AUTH_METHOD>RADIUS</AUTH_METHOD>
        <COUNT_DOWN>ENABLED</COUNT_DOWN>
        <COUNTING_DOWN>TRUE</COUNTING_DOWN>
        <IP_TYPE>PRIVATE</IP_TYPE>
        <MAX_BW_UP>512</MAX_BW_UP>
        <MAX_BW_DOWN>1024</MAX_BW_DOWN>
        <BILLING_PLAN>5</BILLING_PLAN>
        <QOS_POLICY>RH_102</QOS_POLICY>
        <SMTP_REDIRECTION>ENABLED</SMTP_REDIRECTION>
    </SUBSCRIBER_AUTH>
</USG>
```

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2.13 User Authorize Command

A subscriber's identity, specified by his MAC address, is checked against the authorization table. If the subscriber is found in the MAC authorization table, **VALID_USER** is returned along with the subscriber's authorization method: **PMS** or **CREDIT_CARD**. If the subscriber is not found, **INVALID_USER** will be returned. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines User Authorize command sent to NSE
-->

<!ELEMENT USG (EMPTY)>

<!ATTLIST USG
COMMAND CDATA #REQUIRED
        MAC_ADDR CDATA #REQUIRED
>
```

Where:
COMMAND : "USER_AUTHORIZE"
MAC_ADDR attribute: Subscriber's MAC address (char [12])

Sample command XML:

```
<USG COMMAND="USER_AUTHORIZE" MAC_ADDR="1A2B3C4D5E6F">

</USG>
```

Response for the User Authorize Command

This is the response sent for User Authorize command. The response is an XML message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines response for User Authorize command
-->

<!ELEMENT STATUS (#PCDATA)>
<!ELEMENT PAYMENT_METHOD (#PCDATA)>
<!ELEMENT USG (STATUS, PAYMENT_METHOD)>

<!ATTLIST USG
RESULT CDATA #REQUIRED
ID CDATA #REQUIRED
IP CDATA #REQUIRED
>
```

Where:
STATUS: "VALID_USER" or "INVALID USER"
PAYMENT_METHOD: "PMS" or "CREDIT_CARD"
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])

Sample Response XML:

```
  <USG RESULT="OK" ID="ABC123" IP="192.168.100.102">

      <STATUS>VALID_USER</STATUS>

      <PAYMENT_METHOD>PMS</PAYMENT_METHOD>

  </USG>
```

2.14 User Purchase Command

A subscriber's e-commerce or special service purchase is to be charged. Currently, the only option is to charge the subscriber's bill via the PMS system. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines User Purchase command sent to NSE
-->
<!ELEMENT ITEM_CODE (#PCDATA)>
<!ELEMENT ITEM_DESCRIPTION (#PCDATA)>
<!ELEMENT ITEM_AMOUNT (#PCDATA)>
<!ELEMENT ITEM_TAX (#PCDATA)>
<!ELEMENT ITEM_TOTAL (#PCDATA)>
<!ELEMENT REAL_NAME(#PCDATA)>
<!ELEMENT MAC_ADDRESS(#PCDATA)>
<!ELEMENT REG_NUMBER(#PCDATA)>
<!ELEMENT TRANS_ID(#PCDATA)>
<!ELEMENT CC_SUFFIX(#PCDATA)>
<!ELEMENT CC_EXPIRATION(#PCDATA)>
<!ELEMENT WFB_BUNDLED(#PCDATA)>
<!ELEMENT REVENUE_CENTER(#PCDATA>


<!ELEMENT USG (ITEM_CODE, ITEM_DESCRIPTION, ITEM_AMOUNT, ITEM_TAX,
ITEM_TOTAL, REAL_NAME?, MAC_ADDRESS?, REG_NUMBER?, TRANS_ID?, CC_SUFFIX?,
CC_EXPIRATION?, WFB_BUNDLED?)>

<!ATTLIST USG
 COMMAND CDATA #REQUIRED
        ROOM_NUMBER CDATA #REQUIRED
>

<!ATTLIST WFB_BUNDLED WFB_OPTION (A | B | C | D) #IMPLIED>
```

Where:

COMMAND attribute: USER_PURCHASE
ROOM_NUMBER attribute: Room number (Port-Location "Location" number), (char [8])
ITEM_CODE: Code of the item being purchased
ITEM_DESCRIPTION: Description of the item
ITEM_AMOUNT: Item amount
ITEM_TAX; Item tax
ITEM_TOTAL: Item total
REAL_NAME: Name in the PMS DATABASE Only needed for 2-way PMS
MAC_ADDRESS: MAC Address of the Subscriber Only needed for Post Paid PMS
REG_NUMBER: Registration number required for 2-way FIAS PMS

CC_SUFFIX: (optional): Last 4 Digits of the Credit Card for Marriott WFB PMS Verification.
CC_EXPIRATION: (optional): Expiration Date on the Credit Card for Marriott WFB PMS
Verification. Format = MMYY.
WFB_BUNDLED: (optional): WFB Bundle Bill. 0 = Charge 1 = Bundle
WFB_OPTION attribute: Either A, B, C or D
TRANS_ID: (optional): (unsigned Integer) Used to match commands with USER_STATUS
messages. Information entered here will be mirrored on the USER_STATUS messages.
REVENUE_CENTER: (optional): 3 Digits to specify the Revenue Center for MICROS PMS, or
2 Digits to specify Revenue Code for Marriott WFB and Marriott FOSSE.

Sample command XML:

```
<USG COMMAND="USER_PURCHASE" ROOM_NUMBER="1234">

    <ITEM_CODE>123</ITEM_CODE>

    <ITEM_DESCRIPTION>Tooth Brush</ITEM_DESCRIPTION>

    <ITEM_AMOUNT>2.49</ITEM_AMOUNT>

    <ITEM_TAX>0.21</ITEM_TAX>

    <ITEM_TOTAL>2.70</ITEM_TOTAL>

    <REAL_NAME>Smith</REAL_NAME>

    <MAC_ADDRESS>010203040506</MAC_ADDRESS>

    <REG_NUMBER>12345</REG_NUMBER>

    <TRANS_ID>12345</TRANS_ID>

    <CC_SUFFIX>1234</CC_SUFFIX>

    <CC_EXPIRATION>1209</CC_EXPIRATION>

    <WFB_BUNDLED WFB_OPTION="A">1</WFB_BUNDLED>

    <REVENUE CENTER>1</REVENUE_CENTER>

</USG>
```


Response for the User Purchase Command

Standard: As a response to this command, the web server will get an acknowledgement XML
message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD
definition).

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2.15 PMS Pending Transaction Command

Submit a pending PMS transaction to be processed by the PMS Serial Redirector. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines PMS Pending Transaction command
-->

<!ELEMENT DATA (#PCDATA)>
<!ELEMENT TRANSACTION_ID (#PCDATA)>
<!ELEMENT P_TRANSACTION (DATA, TRANSACTION_ID)>
<!ELEMENT USG (P_TRANSACTION)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:

COMMAND attribute: PMS_PENDING_TRANSACTION
TRANSACTION_ID: (optional): (32 bit unsigned Integer) Used to match commands with PMS_TRANSACTION_RESPONSE messages. Information entered here will be mirrored on the PMS_TRANSACTION_RESPONSE messages.
DATA: The data that will be sent to the attached PMS system. Before sending, the data is framed with an ETX (hex 02) and an STX (hex 03) and appended with a checksum.

Sample command XML:

```
<USG COMMAND="PMS_PENDING_TRANSACTION">
   <P_TRANSACTION>
      <TRANSACTION_ID>123445</TRANSACTION_ID>
      <DATA>PR|PI1008  |DA110629|TI131100|P#0001|CTPlan A|</DATA>
   </P_TRANSACTION>
</USG>
```

Response for the PMS Pending Transaction Command

The response to this command will indicate whether or not the command was successfully queued on the NSE for processing.

An HTTP response code of 200 indicates success. The DTD of a successful response XML is:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines successful response for PMS Pending Transaction command
-->

<!ELEMENT ID (#PCDATA)>
<!ELEMENT LINK_STATE (#PCDATA)>
<!ELEMENT DATA (#PCDATA)>
<!ELEMENT TRANSACTION_ID (#PCDATA)>
<!ELEMENT P_TRANSACTION (ID, LINK_STATE, DATA, TRANSACTION_ID)>
<!ELEMENT USG (P_TRANSACTION)>

<!ATTLIST USG COMMAND CDATA #REQUIRED>
```

Where:

COMMAND attribute: PMS_PENDING_TRANSACTION
ID: (32 bit unsigned Integer) A unique ID that can be used to identify the transaction in an "xxx" or an "xxxx" command.
LINK_STATE: (optional): contains the value "DOWN" as is present only if the link to the attached PMS system is down.
TRANSACTION_ID: (optional): (32 bit unsigned Integer) The TRANSACTION_ID from the corresponding command.
DATA: The DATA from the corresponding command.

Sample successful response XML:

```
<USG COMMAND="PMS_PENDING_TRANSACTION" VERSION="1.0">
  <P_TRANSACTION URI="/pmsRedirector/v1/pendingTransaction/2">
    <ID>2</ID>
    <LINK_STATE>DOWN</LINK_STATE>
    <TRANSACTION_ID>123445</TRANSACTION_ID>
    <DATA><![CDATA[PR|PI1008  |DA110629|TI131100|P#0001|CTPlan A|]]></DATA>
  </P_TRANSACTION>
</USG>
```


An HTTP response code of 500 is used to indicate that the request failed.   An XML error response will be send to the web server. The DTD of the error response XML is:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines successful response for PMS Pending Transaction command
-->

<!ELEMENT ERROR_CODE (#PCDATA)>
<!ELEMENT ERROR_DESCRIPTION (#PCDATA
<!ELEMENT USG (ERROR_CODE, ERROR_DESCRIPTION)>

<!ATTLIST USG RESULT CDATA #REQUIRED>
```

Where:

Result attribute: "ERROR"
ERROR_CODE: Indicates the numberic error code. 1 indicates an XML syntax error in the command, 3 indicates that the PMS transaction queue on the NSE is full. All other error conditions are indicated by a value of 4

ERROR_DESCRITPION: A description of the error corresponding to the ERROR_CODE. The description for the error code of 1 is "Syntax error". The description for the error code 3 is "Collection full". The description for the error code 4 is "Unknown error"

Sample error response XML:

```
        USG RESULT="ERROR" VERSION="1.0">

                <ERROR_CODE>3</ERROR_CODE>

                <ERROR_DESCRIPTION>Collection Full</ERROR_DESCRIPTION>

         </USG>
```

3. Room Administration Commands

3.1 Room Set Access Command

This command will be sent by the Administrator to the NSE when room access needs to be set. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Room Set Access command sent to NSE
-->

<!ELEMENT ACCESS_MODE (#PCDATA)>

<!ELEMENT USG( ACCESS_MODE )>

<!ATTLIST USG COMMAND CDATA #REQUIRED
  ROOM_NUMBER  CDATA #REQUIRED
>
```

Where:
COMMAND attribute: "ROOM_SET_ACCESS"
ROOM_NUMBER attribute: Room number (Port-Location "Location" number), (char [8])
ACCESS_MODE: Type of access ROOM_OPEN, ROOM_CHARGE, or ROOM_BLOCK

Sample command XML:

```
<USG COMMAND="ROOM_SET_ACCESS" ROOM_NUMBER="1234">

    <ACCESS_MODE>ROOM_OPEN</ACCESS_MODE>

</USG>
```

Response for the Set Room Access Command

Standard: As a response to this command, the web server will get an acknowledgement XML message from the NSE (OK or ERROR, see "Standard OK/ERROR Response" section for DTD definition).

3.2 _Room Query Access Command_

This command will be sent by the Administrator to the NSE when there is a need to query the access status of a room. This is the XML command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  DTD defines Room Query Access command sent to NSE
-->
<!ELEMENT USG(EMPTY)>

<!ATTLIST USG COMMAND CDATA #REQUIRED
  ROOM_NUMBER  CDATA #REQUIRED
>
```

Where:
COMMAND attribute: "ROOM_QUERY_ACCESS"
ROOM_NUMBER attribute: Room number (Port-Location "Location" number), (char [8])

Sample command XML:

```
<USG COMMAND="ROOM_QUERY_ACCESS" ROOM_NUMBER="1234">

</USG>
```

Response for the Room Query Access Command

This is the response sent for Room Query Access command. The response is an XML message with the following DTD:

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```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines response for Room Query Access command
-->

<!ELEMENT ERROR_NUM (#PCDATA)>
<!ELEMENT ERROR_DESC (#PCDATA)>
<!ELEMENT ACCESS_MODE (#PCDATA)>
<!ELEMENT ROOM_NUMBER(#PCDATA)>

<!ELEMENT USG (ERROR_NUM?, ERROR_DESC?,ACCESS_MODE?,ROOMNUMBER?)>

<!ATTLIST USG
   RESULT CDATA #REQUIRED
        ID CDATA #REQUIRED
        IP CDATA #REQUIRED
>
```

Where:
RESULT attribute: 'OK' or 'ERROR'. In case of 'ERROR', ERORR_NUM and ERROR_DESC elements must be present.
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])
ERROR_NUM: '102'or '200 ', present only when RESULT is 'ERROR'.
ERROR_DESC: 'Required attribute is missing' when ERROR_NUM is '102', 'Unknown room number' when ERROR_NUM is '200'.

Sample OK XML:

```
  <USG RESULT="OK" ID="ABC123" IP="192.168.100.102">

        <ROOM_NUMBER>1234</ROOM_NUMBER>

        <ACCESS_MODE>ROOM_OPEN</ACCESS_MODE>

  </USG>
```

4. Standard Response

4.1 Standard OK/ERROR Response

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines Standard Response from NSE
-->

<!ELEMENT ERROR_NUM (#PCDATA)>
<!ELEMENT ERROR_DESC (#PCDATA)>

<!ELEMENT USG (ERROR_NUM, ERROR_DESC)?>
<!ATTLIST USG
   RESULT CDATA #REQUIRED
        ID CDATA #REQUIRED
        IP CDATA #REQUIRED
>
```

Where:
RESULT attribute: 'OK' or 'ERROR'. In case of 'ERROR', ERORR_NUM and ERROR_DESC
elements will be present.
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])
ERROR_NUM: present only when RESULT is 'ERROR' (see Response Errors for XML
Command section).
ERROR_DESC: (see Response Errors for XML Command section).

Sample OK XML:

```
<USG RESULT="OK" ID="ABC123" IP="192.168.100.102">

</USG>
```

Sample ERROR XML:

```
<USG RESULT="ERROR" ID="ABC123" IP="192.168.100.102">

    <ERROR_NUM>102</ERROR_NUM>

    <ERROR_DESC>Required attribute is missing</ERROR_DESC>

</USG>
```

4.2 Response Errors for XML Command

Error No.	Error Description String
100	Parsing error
101	Unrecognized command
102	Required attribute is missing
103	Required data is missing
200	Unknown room number
201	Unknown user name
202	Unknown user MAC address
203	Wrong password
204	User name already used
205	Too many subscribers
206	Unable to provide all requested data
207	AAA internal error (when AAA is not configured correctly for the command request)
208	Wrong Plan Number
209	User is already valid
300	User RADIUS account not found
301	User RADIUS authorization denied
302	User PMS authorization denied
303	Unsupported payment method
304	MAC Address does not belong to room location

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5. User Status Messages for Radius and 2-way PMS

5.1 *User Status Message for Radius Login/Logout*

The NSE sends this message to the Portal Page web server when the subscriber's status changes. This is the XML command message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines User Status Message sent from NSE
-->

<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT SUB_STATUS (#PCDATA)>
<!ELEMENT SUB_USER_NAME (#PCDATA)>
<!ELEMENT PORTAL_SUB_ID (#PCDATA)>

<!ELEMENT USG (SUB_MAC_ADDR, SUB_USER_NAME, SUB_STATUS, PORTAL_SUB_ID)>
<!ATTLIST USG
  COMMAND CDATA #REQUIRED
       ID CDATA #REQUIRED
       IP CDATA #REQUIRED
>
```

Where:
COMMAND attribute: 'USER_STATUS'
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])
SUB_MAC ADDRESS: Subscriber's MAC address (char [12])
SUB_STATUS: One of: 'RADIUS_LOGIN', 'RADIUS_LOGIN_ACCEPT',
'RADIUS_LOGIN_REJECT', 'RADIUS_LOGIN_ERROR',
'RADIUS_LOGIN_TIMEOUT','RADIUS_LOGOUT',
'RADIUS_LOGOUT_PORTAL_RESET', 'RADIUS_LOGOUT_IDLE_TIMEOUT',
'RADIUS_LOGOUT_SESSION_TIMEOUT', 'RADIUS_LOGOUT_USER_REQUEST', or
'RADIUS_LOGOUT_ADMIN_RESET' (char [35])
'SUB_USER_NAME: Subscriber's Username (char [96])
PORTAL_SUB_ID: Some unique identifier that the Portal Web Server can send to the NSE, which will be sent back on responses for that request. (int [4])

Status Message	Description
RADIUS_LOGIN	Default Login Response if no match for other RADIUS_LOGIN messages, i.e. Access-Challenges will reproduce this message.
RADIUS_LOGIN_ACCEPT	Login by XML or IWS (Internal Web Server) Login or HTML GET (SSL or non-SSL)
RADIUS_LOGIN_REJECT	Login Reject
RADIUS_LOGIN_ERROR	An error occurred.
RADIUS_LOGIN_TIMEOUT	Login Timeout
RADIUS_LOGOUT	Default Logout Response if no match for other RADIUS_LOGOUT messages
RADIUS_LOGOUT_PORTAL_RESET	XML Logout
RADIUS_LOGOUT_IDLE_TIMEOUT	Idle Timeout
RADIUS_LOGOUT_SESSION_TIMEOUT	Session Timeout
RADIUS_LOGOUT_USER_REQUEST	ICC (Information Control Console) or http://1.1.1.1 Logout
RADIUS_LOGOUT_ADMIN_RESET	Logout by Administrator (deleted from NSE administration)

Sample command XML:

```
<USG COMMAND="USER_STATUS" ID="ABC123" IP="192.168.100.102">
    <SUB_MAC_ADDR>001122334455</SUB_MAC_ADDR>
    <SUB_USER_NAME>jsmith</SUB_USER_NAME>
    <SUB_STATUS>RADIUS_LOGIN_ACCEPT</SUB_STATUS>
    <PORTAL_SUB_ID>0123</PORTAL_SUB_ID>
</USG>
```

5.2 PMS User Status

The NSE sends this message to the Portal Page web server when the subscriber's Purchases time with MICROS PMS. This is the XML command message with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines User Status Message sent from NSE
-->

<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT SUB_STATUS (#PCDATA)>
<!ELEMENT SUB_USER_NAME (#PCDATA)>
<!ELEMENT PORTAL_SUB_ID (#PCDATA)>
<!ELEMENT TRANSACTION_ID (#PCDATA)>

<!ELEMENT USG (SUB_MAC_ADDR, SUB_USER_NAME, SUB_STATUS,  TRANSACTION_ID)>
<!ATTLIST USG
   COMMAND CDATA #REQUIRED
        ID CDATA #REQUIRED
        IP CDATA #REQUIRED
>
```

Where:
COMMAND attribute: 'USER_STATUS'
ID attribute: ID of the NSE (char [6])
IP attribute: IP address of the NSE (char [18])
SUB_MAC ADDRESS: Subscriber's MAC address (char [12])
SUB_STATUS: One of: "PMS_INVALID_CREDENTIALS","PMS_COMPLETED",
"PMS_FAILED", "PMS_POST_PAID"
TRANSACTION_ID: The TRANS_ID sent in the USER_PAYMENT or USER_PURCHASE

Status Message	Description
PMS_INVALID_CREDENTIALS	The PMS Name or Room number doesn't match anything that the user entered.
PMS_COMPLETED	The PMS Transaction was successful and a POST should have been sent and accepted by the PMS System
PMS_FAILED	The transaction was denied, transaction failed for unspecified reasons, or the NSE got something from PMS we did not expect.
PMS_POST_PAID	The PMS on the NSE is set to POST Paid and the initial verification of the users credentials completed successfully but did not POST a bill.

Sample command XML:

```xml
<USG COMMAND="USER_STATUS" ID="0164b3" IP="192.168.100.102">
     <SUB_MAC_ADDR>00:11:22:33:44:55</SUB_MAC_ADDR>
     <SUB_USER_NAME>gray</SUB_USER_NAME>
     <SUB_STATUS>PMS_POST_PAID</SUB_STATUS>
     <TRANSACTION_ID>1234</TRANSACTION_ID>
</USG>
```

6. XML Format for DAT table

The NSE will send the DAT table with this format after a get request is sent to the following Web address: **http[s]://NSE_IP/api/dat**. This is the XML Command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
 DTD defines DAT Table Message sent from the NSE
-->

<!ELEMENT SESS_NUM (#PCDATA)>
<!ELEMENT SUB_IP (#PCDATA)>
<!ELEMENT SUB_PORT (#PCDATA)>
<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT SESS_NAT_IP (#PCDATA)>
<!ELEMENT SESS_NAT_PORT (#PCDATA)>
<!ELEMENT REMOTE_IP (#PCDATA)>
< !ELEMENT REMOTE_PORT (#PCDATA)>
<!ELEMENT SESS_PROTO (#PCDATA)>
<!ELEMENT SESS_STATE (#PCDATA)>
<!ELEMENT IDLE_TOUT (#PCDATA)>
<!ELEMENT SESS_TOUT (#PCDATA)>


<!ELEMENT NSE (SESSION_ENTRY)>
<!ELEMENT SESSION_ENTRY(SESS_NUM, SUB_IP, SUB_PORT, SUB_MAC_ADDR,
SESS_NAT_IP, SESS_NAT_PORT, REMOTE_IP, REMOTE_PORT, SESS_PROTO, SESS_STATE,
IDLE_TOUT, SESS_TOUT)>
<!ATTLIST NSE COMMAND CDATA #REQUIRED>
```

Where:
COMMAND attribute: 'DAT_TABLE_RSP'
SESS_NUM: The Session Number in the Table
SUB_IP: The Subscriber IP address for this Session
SUB_PORT: The Subscribers Source Port for this Session
SUB_MAC_ADDR: The MAC address for the Subscriber for this Session.
SESS_NAT_IP: The IP address that this session has been translated to usually the NSE IP but sometimes an INAT address.
SESS_NAT_PORT: The source port from the NSE that this session is using.
REMOTE_IP: The destination IP for this Session.
REMOTE_PORT: The destination port for this translated session.
SESS_PROTO: The protocol that is being used in this session. (Usually TCP or UDP, ANY means it is an INAT session)
SESS_STATE: The State that the Session is in. (i.e. Established, Time_Wait, UDP_MAPPED, etc.)
IDLE_TOUT: The Idle timeout for this session.
SESS_TOUT: How long the session has been timing out.

Sample command XML:

```xml
<NSE COMMAND="DAT_TABLE_RSP">
    <SESSION_ENTRY>
    <SESS_NUM>1</SESS_NUM>
    <SUB_IP>10.0.0.13</SUB_IP>
    <SUB_PORT>1387</SUB_PORT>
    <SUB_MAC_ADDR>00:11:22:33:44:55</SUB_MAC_ADDR>
    <SESS_NAT_IP>192.168.100.102</SESS_NAT_IP>
    <SESS_NAT_PORT>5026</SESS_NAT_PORT>
    <REMOTE_IP>80.239.235.200</REMOTE_IP>
    <REMOTE_PORT>443</REMOTE_PORT>
    <SESS_PROTO>TCP</SESS_PROTO>
    <SESS_STATE>ESTABLISHED</SESS_STATE>
    <IDLE_TOUT>7</IDLE_TOUT>
    <SESS_TOUT>1793</SESS_TOUT>
    </SESSION_ENTRY>
</NSE>
```

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7. XML Format for Current Subscriber Table

The NSE will send the Current Subscriber table with this format after a get request is sent to the following Web address: **http[s]://NSE_IP/api/current**. This is the XML Command with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines Current Table Message sent from the NSE
-->

<!ELEMENT SUB_MAC_ADDR (#PCDATA)>
<!ELEMENT SUB_IP (#PCDATA)>
<!ELEMENT LOCATION (#PCDATA)>
<!ELEMENT ROOM_NUM (#PCDATA)>
<!ELEMENT USERNAME (#PCDATA)>
<!ELEMENT GROUP_BW_ID (#PCDATA)>
<!ELEMENT BW_UP (#PCDATA)>
<!ELEMENT BW_DOWN (#PCDATA)>
<!ELEMENT THRU_UP (#PCDATA)>
<!ELEMENT THRU_DOWN (#PCDATA)>
<!ELEMENT SUB_AAA_STATE (#PCDATA)>
<!ELEMENT EXPIRY_TIME (#PCDATA)>
<!ELEMENT SUB_IDLE_TO (#PCDATA)>
<!ELEMENT BYTES_TX (#PCDATA)>
<!ELEMENT BYTES_RX (#PCDATA)>
<!ELEMENT PROXY_STATE (#PCDATA)>
<!ELEMENT NAT_IP (#PCDATA)>


<!ELEMENT NSE (SUBSCRIBER*)>
<!ELEMENT SUBSCRIBER (SUB_MAC_ADDR, SUB_IP, LOCATION, ROOM_NUM, USERNAME,
BW_UP, BW_DOWN, THRU_UP, THRU_DOWN, SUB_AAA_STATE, EXPIRY_TIME,
SUB_IDLE_TO, BYTES_TX, BYTES_RX, PROXY_STATE, NAT_IP)>
<!ATTLIST NSE COMMAND CDATA #FIXED "CURR_USERS_RSP">
```

Where:
COMMAND attribute: 'CURR_USERS_RSP'
SUB_MAC_ADDR: MAC Address of the Subscriber in the Table
SUB_IP: IP address of the Subscriber in the Table
LOCATION: The Port that the Subcriber is connected on for either VLAN or SNMP Query return.
ROOM_NUM: The Room Number that Matches the LOCATION information from the Port Location Table.
USERNAME: Subscribers Username
GROUP_BW_ID: The Group Bandwidth Policy number.
BW_UP: The Configured Maximum Upstream Bandwidth for this Subscriber

BW_DOWN: The Configured Maximum Downstream Bandwidth for this Subscriber
THRU_UP: The Current amount of upstream throughput this subscriber is utilizing.
THRU_DOWN: The Current amount of downstream throughput this subscriber is utilizing.
SUB_AAA_STATE: The State of the Subscriber (i.e. Valid, Pending, Valid-Radius, etc.)
EXPIRY_TIME: The amount of time left before the subscriber session times out.
SUB_IDLE_TO: The amount of idle time left before the subscriber is removed from the current subscriber list.
BYTES_TX: Number of Bytes sent by the subscriber.
BYTES_RX: Number of Bytes sent to the subscriber.
PROXY_STATE: Current Proxy State of the Subscriber
NAT_IP: The NAT IP address that is used for data flows between this subscriber and the network (will show as 0.0.0.0 if no NAT IP address has been assigned to the subscriber yet).

Sample response XML:

```
<NSE COMMAND="CURR_USERS_RSP">
<SUBSCRIBER>
 <SUB_MAC_ADDR>00:11:22:33:44:55</SUB_MAC_ADDR>
 <SUB_IP>192.168.100.102</SUB_IP>
 <LOCATION>0</LOCATION>
 <ROOM_NUM />
 <USER_NAME>
 <![CDATA[ "test"  ]]>
</USER_NAME>
<GROUP_BW_ID>1</ GROUP_BW_ID >
<BW_UP>0</BW_UP>
<BW_DOWN>0</BW_DOWN>
<THRU_UP>0-0</THRU_UP>
<THRU_DOWN>0-0</THRU_DOWN>
<SUB_AAA_STATE>Valid</SUB_AAA_STATE>
<EXPIRY_TIME>3 hrs 52 min</EXPIRY_TIME>
<SUB_IDLE_TO>20 mins : 0 sec</SUB_IDLE_TO>
<BYTES_TX>11708</BYTES_TX>
<BYTES_RX>10111</BYTES_RX>
<PROXY_STATE>Off</PROXY_STATE>
<NAT_IP>67.130.148.131</NAT_IP>
```

```
</SUBSCRIBER>
</NSE>
```

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8. XML Format for Subscribers in Authorized Database

The list of subscriber records stored in the authorized database is obtained by sending an HTTP GET request to the following URL: **http[s]://NSE_IP/api/subAuth**

Response for the HTTP GET *subAuth*

The response is an HTTP reply containing XML data with the following DTD:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  DTD defines response for the HTTP GET subAuth request
-->

<!ELEMENT MAC_ADDR   (#PCDATA)>
<!ELEMENT USER_NAME (#CDATA)>
<!ELEMENT IP_ADDR     (#PCDATA)>
<!ELEMENT SUBNET      (#PCDATA)>
<!ELEMENT EXPIRY_TIME_SECS (#PCDATA)>
<!ELEMENT AMT_PAID    (#PCDATA)>
<!ELEMENT AMT_LEFT    (#PCDATA)>
<!ELEMENT AUTH_METHOD (#PCDATA)>
<!ELEMENT COUNT_DOWN (#PCDATA)>
<!ELEMENT COUNTING_DOWN (#PCDATA)>
<!ELEMENT IP_TYPE (#PCDATA)>
<!ELEMENT MAX_BW_UP  (#PCDATA)>
<!ELEMENT MAX_BW_DOWN (#PCDATA)>
<!ELEMENT BILLING_PLAN (#PCDATA)>
<!ELEMENT QOS_POLICY   (#PCDATA)>
<!ELEMENT SMTP_REDIRECTION   (#PCDATA)>

<!ELEMENT SUBSCRIBER_AUTH (MAC_ADDR, USER_NAME, IP_ADDR, SUBNET,
EXPIRY_TIME_SECS, AMT_PAID, AMT_LEFT, AUTH_METHOD, COUNT_DOWN,
COUNTING_DOWN, IP_TYPE?, MAX_BW_UP?, MAX_BW_DOWN?, BILLING_PLAN,
QOS_POLICY?, SMTP_REDIRECTION)>
<!ELEMENT USG (SUBSCRIBER_AUTH*)>

<!ATTLIST USG
COMMAND CDATA #FIXED "SUBSCRIBER_AUTH"
>
```

Where:
COMMAND attribute: 'SUBSCRIBER_AUTH'
MAC_ADDR: Subscriber's MAC address, exactly 12 hex-ascii characters in length. An empty string is returned if subscriber was added by name.

USER_NAME: Subscriber's username, up to 96 hex-ascii characters. An empty string is returned if subscriber was added by MAC.

IP_ADDR: Subscriber's IP address, up to 15 characters in length. (May not reflect the correct IP address assigned to this subscriber.) This value may change at the IP update time.

SUBNET: Subscriber's subnet.

EXPIRY_TIME_SECS: The amount of time left, in seconds, before the subscriber account times out. An empty string will be returned if this subscriber already expired.

AMT_PAID: Amount paid by the user of this account.

AMT_LEFT: Amount left on this account. For x-over-y subscribers this value does not reflect the The actual amount left on this account, which will be updated at the logout time.

AUTH_METHOD: String indicating by what method the subscriber was added to the authorized persistent database. Values are: "PMS", "CREDIT_CARD", "XML", "ADMIN". Radius and post-paid PMS subscribers will not appear in the authorized database. Some other methods of authorization may be added in the future and the users of this command should be prepared to handle such cases.

Note: "XML" will be returned for subscribers that were added via XML commands, regardless of the payment method.

COUNT_DOWN: String indicating if Count-down starts after Login for this subscriber; ("ENABLED" or "DISABLED").

COUNTING_DOWN: String indicating if the time is running down for this subscriber. ("TRUE" or "FALSE").

IP_TYPE (optional): String indicating what kind of IP the user is authorized to use. ("PRIVATE" or "PUBLIC").

MAX_BW_UP (optional): Configured maximum upstream bandwidth, in Kbps, for this subscriber. An empty string will be returned if this parameter was not configured when the account was created – meaning UNLIMITED.

MAX_BW_DOWN (optional): Configured maximum downstream bandwidth, in Kbps, for this subscriber. An empty string will be returned if this parameter was not configured when the account was created – meaning UNLIMITED.

BILLING_PLAN: Plan number associated with this account. An empty string is returned if there is no associated plan for this subscriber.

QOS_POLICY (optional): QoS policy associated with this account, up to 16 characters in length. An empty string will be returned if no policy is assigned to this subscriber.

SMTP_REDIRECTION: String indicating if the SMTP protocol redirection is enabled for this subscriber. ("ENABLED", or "DISABLED")

Note: This does not take into account a global status of SMTP redirect. Rather, how the individual subscriber was configured.

Note about optional elements:

Elements specified as optional will not be present if they are not licensed on a particular NSE or if they are not implemented on a hardware platform on which the NSE is running. However, if the feature is licensed but was not configured for the particular subscriber, the element will be present in the response but will contain no data. For example, if the quality of service on a particular unit is licensed but user did not select policy during configuration, the element QOS_POLICY will be present but will contain en empty string.

Implementation Notes for Portal/EWS Developers:

1) **Must gracefully ignore elements not recognized:** In the future, as new NSE features are implemented or as new requirements arise for the *subscriber_query_auth* command, new elements may be added to the response. An implementation must be prepared to gracefully ignore any unrecognized elements it may receive.

2) **Must gracefully handle missing optional elements:** Elements specified as optional in the DTD may or may not be present. An implementation must handle either case gracefully. See "note about optional elements" above for more detail.

3) **Must gracefully handle empty elements:** Many of the elements may be present but be empty of data, depending on NSE configuration and subscriber state. An implementation must be prepared to handle empty elements gracefully. See detailed element descriptions above and the "note about optional elements" above for more details.

Sample Response XML:

```
<USG COMMAND="SUBSCRIBER_AUTH">

  <SUBSCRIBER_AUTH>

     <MAC_ADDR>001122334455</MAC_ADDR>

     <USER_NAME>Gonzales</USER_NAME>

     <IP_ADDR>10.0.0.12</IP_ADDR>

     <SUBNET></SUBNET>

     <EXPIRY_TIME_SECS>40809</EXPIRY_TIME_SECS>

     <AMT_PAID>678.55</AMT_PAID>

     <AMT_LEFT>16.35</AMT_LEFT>

     <AUTH_METHOD>ADMIN</AUTH_METHOD>

     <COUNT_DOWN>ENABLED</COUNT_DOWN>

     <COUNTING_DOWN>TRUE</COUNTING_DOWN>

     <IP_TYPE>PRIVATE</IP_TYPE>

     <MAX_BW_UP>512</MAX_BW_UP>

     <MAX_BW_DOWN>1024</MAX_BW_DOWN>

     <BILLING_PLAN>5</BILLING_PLAN>

     <QOS_POLICY>RH_102</QOS_POLICY>

     <SMTP_REDIRECTION>ENABLED</SMTP_REDIRECTION>

  </SUBSCRIBER_AUTH>

  ...

  <SUBSCRIBER_AUTH>

     <MAC_ADDR>001122334456</MAC_ADDR>

     <USER_NAME>Johnson</USER_NAME>

     <IP_ADDR>67.130.130.12</IP_ADDR>

     <SUBNET></SUBNET>

     <EXPIRY_TIME_SECS>2400</EXPIRY_TIME_SECS>

     <AMT_PAID>67.55</AMT_PAID>

     <AMT_LEFT>1.35</AMT_LEFT>

     <AUTH_METHOD>XML</AUTH_METHOD>

     <COUNT_DOWN>ENABLED</COUNT_DOWN>

     <COUNTING_DOWN>FALSE</COUNTING_DOWN>

     <IP_TYPE>PUBLIC</IP_TYPE>
```

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```
    <MAX_BW_UP>512</MAX_BW_UP>
    <MAX_BW_DOWN>1024</MAX_BW_DOWN>
    <BILLING_PLAN>0</BILLING_PLAN>
    <QOS_POLICY></QOS_POLICY>
    <SMTP_REDIRECTION>ENABLED</SMTP_REDIRECTION>
  </SUBSCRIBER_AUTH>
</USG>
```

The status of the response will be conveyed through the standard http protocol mechanism.

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9. XML Format for Group Bandwidth Policy List

The NSE will send an XML-encoded list representing installed bandwidth policies after a get request is sent to the following Web address: **http[s]://NSE_URI/api/bw/v1/groupPolicy**. This is the XML Command with the following DTD:

```
<!ELEMENT USG (GROUP_BW_POL*)>
<!ATTLIST USG COMMAND CDATA #FIXED "GROUP_BW_POLICIES">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT GROUP_BW_POL (ID, MAX_BW_UP, MAX_BW_DOWN)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a policy.  Valid
range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!-- MAX_BW_UP contains an unsigned integer number in base 10. It represents the maximum upstream
(ie towards the Internet) bandwidth of the policy. -->
<!ELEMENT MAX_BW_UP (#PCDATA)>

<!-- MAX_BW_DOWN contains an unsigned integer number in base 10. It represents the maximum
downstream bandwidth of the policy. -->
<!ELEMENT MAX_BW_DOWN (#PCDATA)>
```

Note: The DTD for this command is stored in a file called "GroupBwPolicies-1.0.dtd" that can be accessed on the Nomadix web site.

Sample response XML:

```
<USG COMMAND="GROUP_BW_POLICIES" VERSION="1.0">
   <GROUP_BW_POL>
      <ID>10</ID>
      <MAX_BW_UP>1024</MAX_BW_UP>
      <MAX_BW_DOWN>2048</MAX_BW_DOWN>
   </GROUP_BW_POL>
   <GROUP_BW_POL>
      <ID>17</ID>
      <MAX_BW_UP>4096</MAX_BW_UP>
      <MAX_BW_DOWN>4096</MAX_BW_DOWN>
   </GROUP_BW_POL>
```

</USG>

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10. XML Format for Individual Group Bandwidth Policy

The NSE will send an XML-encoded representation of a bandwidth policy after a get request is sent to the following Web address: **http[s]://NSE_URI/api/bw/v1/groupPolicy/policyNumber**. This is the XML Command with the following DTD:

```
<!ELEMENT USG (GROUP_BW_POL)>
<!ATTLIST USG COMMAND CDATA #FIXED "GROUP_BW_POLICY">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT GROUP_BW_POL (ID, MAX_BW_UP, MAX_BW_DOWN)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a policy.  Valid
range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!-- MAX_BW_UP contains an unsigned integer number in base 10. It represents the maximum upstream
(ie towards the Internet) bandwidth of the policy. -->
<!ELEMENT MAX_BW_UP (#PCDATA)>

<!-- MAX_BW_DOWN contains an unsigned integer number in base 10. It represents the maximum
downstream bandwidth of the policy. -->
<!ELEMENT MAX_BW_DOWN (#PCDATA)>
```

Note: The DTD for this command is stored in a file called "GroupBwPolicy-1.0.dtd" that can be accessed on the Nomadix web site.

Sample response XML:

```
<USG COMMAND="GROUP_BW_POLICY" VERSION="1.0">
   <GROUP_BW_POL>
     <ID>10</ID>
     <MAX_BW_UP>1024</MAX_BW_UP>
     <MAX_BW_DOWN>2048</MAX_BW_DOWN>
   </GROUP_BW_POL>
</USG>
```

11. XML Format for PMS Pending Transaction List

The NSE will send an XML-encoded list representing PMS Pending Transactions after a get request is sent to the following Web address:
http[s]://NSE_URI/pmsRedirection/bw/v1/pendingTransaction. This is the XML Command with the following DTD:

```
<!ELEMENT USG (P_TRANSACTION)>
<!ATTLIST USG COMMAND CDATA #FIXED "PMS_PENDING_TRANSACTIONS">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT P_TRANSACTION (ID, LINK_STATE, TRANSACTION_ID, DATA)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a transaction.
Valid range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!—LINK_STATE is present only if the serial link between the NSE and the attached PMS device is
down.  In this case it contains the value "DOWN". -->
<!ELEMENT LINK_STATE (#PCDATA)>

<!—TRANSACTION_ID contains an unsigned integer number in base 10. It contains the transaction id
that was specified when the transaction when the transaction was created, or 0 if a transaction id was not
specified. . -->
<!ELEMENT TRANSACTION_ID (#PCDATA)>

<!—DATA contains the data that will be sent to the attached PMS system. Before sending, the data is
framed with an ETX (hex 02) and an STX (hex 03) and appended with a checksum-->
 <!ELEMENT DATA (#PCDATA)>
```

Sample response XML:

```
<USG COMMAND="PMS_PENDING_TRANSACTIONS" VERSION="1.0">
   <P_TRANSACTION URI="/pmsRedirector/v1/pendingTransaction/2>
     <ID>2</ID>
     <LINK_STATE>DOWN</LINK_STATE>
     <TRANSACTION_ID>111111</TRANSACTION_ID>
     <DATA>
      PS|RN1002  |PTC|TA1100|S11000|T1100|DA110810|TI113143|P#0005|CTPlan A = Pri
```

```
      </DATA>
    </P_TRANSACTION>
  <P_TRANSACTION URI="/pmsRedirector/v1/pendingTransaction/3>
      <ID>3</ID>
      <LINK_STATE>DOWN</LINK_STATE>
      <TRANSACTION_ID>223344</TRANSACTION_ID>
      <DATA>
       PS|RN1015  |PTC|TA2200|S12000|T1200|DA110810|TI113147|P#0005|CTPlan A = Pri
      </DATA>
    </P_TRANSACTION>
</USG>
```

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12. XML Format for Individual PMS Pending Transaction

The NSE will send an XML-encoded representation of a PMS Pending Transaction after a get request is sent to the following Web address:
http[s]://NSE_URI/pmsRedirection/bw/v1/pendingTransaction/job id. This is the XML Command with the following DTD:

```
<!ELEMENT USG (P_TRANSACTION)>
<!ATTLIST USG COMMAND CDATA #FIXED "PMS_PENDING_TRANSACTION">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT P_TRANSACTION (ID, LINK_STATE, TRANSACTION_ID, DATA)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a transaction.
Valid range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!—LINK_STATE is present only if the serial link between the NSE and the attached PMS device is
down.  In this case it contains the value "DOWN". -->
<!ELEMENT LINK_STATE (#PCDATA)>

<!—TRANSACTION_ID contains an unsigned integer number in base 10. It contains the transaction id
that was specified when the transaction when the transaction was created, or 0 if a transaction id was not
specified. . -->
<!ELEMENT TRANSACTION_ID (#PCDATA)>

<!—DATA contains the data that will be sent to the PMS.  Before sending, the data is framed in an EXT
and STX characters and appended with a checksum. . -->
<!ELEMENT DATA (#PCDATA)>
```

Sample response XML:

```
<USG COMMAND="PMS_PENDING_TRANSACTION" VERSION="1.0">
   <P_TRANSACTION URI="/pmsRedirector/v1/pendingTransaction/2>
     <ID>2</ID>
     <LINK_STATE>DOWN</LINK_STATE>
     <TRANSACTION_ID>111111</TRANSACTION_ID>
     <DATA>
      PS|RN1002  |PTC|TA1100|S11000|T1100|DA110810|TI113143|P#0005|CTPlan A = Pri
     </DATA>
   </P_TRANSACTION>
```

13. XML Format for PMS Completed Transaction List

The NSE will send an XML-encoded list representing PMS Completed Transactions after a get request is sent to the following Web address:
http[s]://NSE_URI/pmsRedirection/bw/v1/completedTransaction. This is the XML Command with the following DTD:

```
<!ELEMENT USG (C_TRANSACTION)>
<!ATTLIST USG COMMAND CDATA #FIXED "PMS_COMPLETED_TRANSACTIONS">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT C_TRANSACTION (ID, TRANSACTION_ID, COMPLETION_STATUS,
RESPONSE_COUNT)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a transaction.
Valid range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!—TRANSACTION_ID contains an unsigned integer number in base 10. It contains the transaction id
that was specified when the transaction when the transaction was created, or 0 if a transaction id was not
specified. -->
<!ELEMENT TRANSACTION_ID (#PCDATA)>

<!—COMPLETION_STATUS indicates the status of the transaction and is one of the following values:
 0 – The transaction is complete.
 1 – The transaction is not yet complete, additional responses from the attached PMS device are expected.
 2 – The transaction was "NAKed" by the attached PMS device and therefore failed.
 3 – The transaction timed out.  A response to the transaction was not received.
 4 – The transaction was filtered by the NSE and not transmitted to the attached PMS device. -->
<!ELEMENT COMPLETION_STATUS (#PCDATA)>

<!—RESPONSE_COUNT is an unsigned number in base 10.  It represents the number of responses that
were received from the PMS that were considered responses to the transaction. -->
<!ELEMENT RESPONSE_COUNT (#PCDATA)>
```

Sample response XML:

```
<USG COMMAND="PMS_COMPLETED_TRANSACTIONS" VERSION="1.0">
  <C_TRANSACTION URI="/pmsRedirector/v1/completedTransaction/2>
    <ID>2</ID>
    <TRANSACTION_ID>111111</TRANSACTION_ID>
    <COMPLETION_STATUS>0</COMPLETION_STATUS >
    <RESPONSE_COUNT>1</RESPONSE_COUNT >
```

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```
    </C_TRANSACTION>
    <C_TRANSACTION URI="/pmsRedirector/v1/completedTransaction/3>
        <ID>3</ID>
        <TRANSACTION_ID>223344</TRANSACTION_ID>
        <COMPLETION_STATUS>0</COMPLETION_STATUS >
        <RESPONSE_COUNT>1</RESPONSE_COUNT >
    </C_TRANSACTION>
</USG>
```

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14. XML Format for Individual PMS Completed Transaction

The NSE will send an XML-encoded representation of a PMS Completed Transaction after a get request is sent to the following Web address:
http[s]://NSE_URI/pmsRedirection/bw/v1/completedTransaction/job id. This is the XML Command with the following DTD:

```
<!ELEMENT USG (C_TRANSACTION)>
<!ATTLIST USG COMMAND CDATA #FIXED "PMS_COMPLETED_TRANSACTION">
<!ATTLIST USG VERSION CDATA "1.0">

<!ELEMENT C_TRANSACTION (ID, TRANSACTION_ID, COMPLETION_STATUS,
RESPONSE_COUNT)>

<!-- ID contains an unsigned integer number in base 10.  It represents a unique identifier of a transaction.
Valid range is between 1 and 16777215 inclusively -->
<!ELEMENT ID (#PCDATA)>

<!—TRANSACTION_ID contains an unsigned integer number in base 10. It contains the transaction id
that was specified when the transaction when the transaction was created, or 0 if a transaction id was not
specified. -->
<!ELEMENT TRANSACTION_ID (#PCDATA)>

<!—COMPLETION_STATUS indicates the status of the transaction and is one of the following values:
 0 – The transaction is complete.
 1 – The transaction is not yet complete, additional responses from the attached PMS device are expected.
 2 – The transaction was "NAKed" by the attached PMS device and therefore failed.
 3 – The transaction timed out.  A response to the transaction was not received.
 4 – The transaction was filtered by the NSE and not transmitted to the attached PMS device. -->
<!ELEMENT COMPLETION_STATUS (#PCDATA)>

<!—RESPONSE_COUNT is an unsigned number in base 10.  It represents the number of responses that
were received from the PMS that were considered responses to the transaction. -->
<!ELEMENT RESPONSE_COUNT (#PCDATA)>
```

Sample response XML:

```
<USG COMMAND="PMS_COMPLETED_TRANSACTION" VERSION="1.0">
  <C_TRANSACTION URI="/pmsRedirector/v1/completedTransaction/2>
    <ID>2</ID>
    <TRANSACTION_ID>111111</TRANSACTION_ID>
    <COMPLETION_STATUS>0</ COMPLETION_STATUS >
    <RESPONSE_COUNT>1</ RESPONSE_COUNT >
  </C_TRANSACTION>
```

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15. Contact Information:

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