

Configuring Enhanced Subscriber Management with CLI

This section provides information to configure subscriber management features using the command line interface. It is assumed that the reader is familiar with VPLS and IES services.

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Configuring RADIUS Authentication of DHCP Sessions

When RADIUS authentication for subscriber sessions is enabled, DHCP messages from subscribers are temporarily held by the BSA, while the user's credentials are checked on a RADIUS server.

Configuring RADIUS authentication for subscriber sessions is done in two steps:

- First define an authentication-policy in the **config>subscriber-mgmt>authentication-policy** context.
- Then apply the policy to one or more SAPs in the **config>service>vpls>sap>authentication-policy *auth-plcy-name*** context (for a VPLS service).

Or apply the policy to one or more interfaces **config>service>ies>if>authentication-policy *auth-plcy-name*** context (for an IES service):

The following example displays a partial BSA configuration with RADIUS authentication:

```
A:ALA-1>config>service# info
-----
subscriber-management
  authentication-policy BSA_RADIUS create
    description "RADIUS policy for DHCP users Authentication"
    password "mysecretpassword"
    radius-authentication-server
      server 1 address 10.100.1.1 secret "radiuskey"
      retry 3
      timeout 10
    exit
    re-authentication
    user-name-format circuit-id
  exit
exit
...
vpls 800 customer 6001
  description "VPLS with RADIUS authentication"
  sap 2/1/4:100 split-horizon-group DSL-group create
    authentication-policy BSA_RADIUS
  exit
  sap 3/1/4:200 split-horizon-group DSL-group create
    authentication-policy BSA_RADIUS
  exit
  no shutdown
exit
...
-----
A:ALA-1>config>service#
```

Configuring Enhanced Subscriber Management

Basic Configurations

Configuring and applying the Enhanced Subscriber Management profiles and policies are optional. There are no default Profiles or policies.

The basic Enhanced Subscriber Management profiles and policies must conform to the following:

- Unique profile or policy names (IDs)
 - Profiles and/or policies must be associated with a VPLS or IES service to facilitate Enhanced Subscriber Management.
 - QoS and IP filter entries configured in Enhanced Subscriber Management profiles and policies override the defaults and/or modified parameters or the default policies.
 - The Enhanced Subscriber Management profiles and policies must be configured within the context of VPLS or IES.
-

Subscriber Interface Configuration

The following output displays a basic subscriber interface configuration.

```
*A:ALA-48>config>service>ies>sub-if# info
-----
description "Routed CO - Antwerp 2018"
address 192.168.2.254/24
address 192.168.3.254/24
address 192.168.4.254/24
address 192.168.5.254/24
address 192.168.6.254/24
group-interface "DSLAM_01" create
  description "Routed CO - vlan / subscriber"
  sap 1/1/2:1001 create
    static-host ip 192.168.2.2 create
    exit
  sap 1/1/2:1002 create
    static-host ip 192.168.2.2 create
    exit
  sap 1/1/2:1004 create
    static-host ip 192.168.2.4 create
    exit
  sap 1/1/2:1100 create
    static-host ip 192.168.2.100 create
    exit
  exit
exit
-----
*A:ALA-48>config>service>ies>sub-if#
```

Configuring Enhanced Subscriber Management Entities

- [Configuring a Subscriber Identification Policy on page 1169](#)
- [Configuring a Subscriber Profile on page 1170](#)
- [Configuring a Subscriber Identification Policy on page 1169](#)
- [Configuring Explicit Mapping Entries on page 1173](#)
- [Applying the Profiles and Policies on page 1175](#)

Configuring a Subscriber Identification Policy

The following displays an example of a subscriber identification policy configuration:

```
A:ALA-48>config>subscr-mgmt# info
-----
...
    sub-ident-policy "Globocom" create
      description "Subscriber Identification Policy Id Globocom"
      sub-profile-map
        entry key "1/1/2" sub-profile "ADSL Business"
      exit
      sla-profile-map
        entry key "1/1/2" sla-profile "BE-Video"
      exit
      primary
        script-url "primaryscript.py"
        no shutdown
      exit
      secondary
        script-url "secondaryscript.py"
      exit
      tertiary
        script-url "tertiaryscript.py"
        no shutdown
      exit
    exit
  exit
...
-----
A:ALA-48>config>subscr-mgmt#
```

Configuring a Subscriber Profile

Enhanced Subscriber Management subscriber profile configurations specify existing QoS scheduler profiles. In the following example, “BE-Video-max100M” is specified in the sub-profile “ADSL Business” for the ingress-scheduler-policy. “Upload” is specified in the sub-profile egress-scheduler-policy.

```
#-----  
echo "QoS Policy Configuration"  
#-----  
    qos  
        scheduler-policy "BE-Video-max100M" create  
            description "Scheduler Policy Id BE-Video-max100M"  
            tier 1  
                scheduler "tier1" create  
                    description "Scheduler Policy Id BE-Video-max100M Tier 1 tier1"  
                exit  
            exit  
        exit  
    scheduler-policy "Upload" create  
        description "Scheduler Policy Id Upload"  
        tier 3  
            scheduler "tier3" create  
                description "Scheduler Policy Id Upload Tier 3 tier3"  
            exit  
        exit  
    exit  
    sap-ingress 2 create  
        description "Description for Sap-Ingress Policy id # 2"  
        queue 1 create  
            parent "tier1"  
        exit  
        queue 11 multipoint create  
            parent "tier1"  
        exit  
    exit  
    sap-egress 3 create  
        description "Description for Sap-Egress Policy id # 3"  
        queue 1 create  
            parent "tier3"  
        exit  
    exit  
exit  
#-----
```

The following displays an example of a subscriber identification policy configuration:

```
A:ALA-48>config>subscr-mgmt# info
-----
...
    sub-profile "ADSL Business" create
      description "Subscriber Profile Id ADSL Business"
      ingress-scheduler-policy "BE-Video-max100M"
        scheduler "tier1" rate 99
      exit
      egress-scheduler-policy "Upload"
        scheduler "tier3" rate 1 cir 1
      exit
      sla-profile-map
        entry key "1/1/3" sla-profile "BE-Video"
      exit
    exit
-----
A:ALA-48>config>subscr-mgmt#
```

Configuring an SLA Profile

The following displays an example of a SLA Profile configuration:

```
A:ALA-48>config>subscr-mgmt# info
-----
subscriber-mgmt
  sla-profile "BE-Video" create
  description "SLA Profile Id BE-Video"
  ingress
    qos 2
    queue 1
    exit
  exit
  egress
    qos 3
    queue 1
    exit
  exit
  exit
  exit
-----
A:ALA-48>config>subscr-mgmt#
```


Configuring Explicit Mapping Entries

The following displays an example of a explicit subscriber mapping:

```
A:ALA-7>config>subscr-mgmt# info
-----
A:ALA-48>config>subscr-mgmt# info
-----
...
    explicit-subscriber-map
        entry key "1/1/1:1111" sub-profile "ADSL GO" aliy "Sub-Ident-1/1/1:
1111" sla-profile "BE-Video"
        exit
...
-----
A:A:ALA-48>config>subscr-mgmt#
```

Routed CO with Basic Subscriber Management Features

The following displays the output of an IES service configured with and without enhanced subscriber management.

```
A:term17>config>service>ies# inf
-----
subscriber-interface "s2" create
  address 11.20.1.1/16
  dhcp
    gi-address 11.20.1.1
  exit
group-interface "g3" create
  description "With Enhanced Subscriber Mgmt"
  arp-populate
  dhcp
    server 12.1.1.1
    trusted
    lease-populate 8000
    no shutdown
  exit
  sap lag-1:11 create
  sub-sla-mgmt
    def-sub-profile "subProf"
    def-sla-profile "slaProf"
    sub-ident-policy "foo"
    multi-sub-sap
    no shutdown
  exit
  host ip 11.20.1.10 mac 00:00:aa:aa:aa:dd subscriber "One" sub-profile
"subProf" sla-profile "slaProf"
  exit
  exit
exit
subscriber-interface "s3" create
  address 11.39.1.1/16
  dhcp
    gi-address 11.39.1.1
  exit
group-interface "g5" create
  description "Without Enhanced Subscriber Mgmt"
  arp-populate
  dhcp
    server 12.1.1.1
    trusted
    lease-populate 8000
    no shutdown
  exit
  sap 4/1/1:24.4094 create
  exit
  exit
  exit
  exit
  no shutdown
-----
A:term17>config>service>ies#
```

Applying the Profiles and Policies

NOTE: Subscriber interfaces operate only with basic (or enhanced) subscriber management. At the very least, a host, either statically configured or dynamically learned by DHCP must be present in order for the interface to be useful.

Apply the Enhanced Subscriber Management profiles and policies to the following entities:

- [SLA Profile on page 1175](#)
- [Subscriber Identification Policy on page 1182](#)
- [Subscriber Profile on page 1182](#)

SLA Profile

```

CLI Syntax: configure>service>ies service-id
                interface ip-int-name
                sap sap-id
                host {[ip ip-address] [mac ieee-address] [subscriber
                    sub-ident-string] [sub-profile sub-profile-name]
                    [sla-profile sla-profile-name]}
                sub-sla-mgmt
                def-sla-profile default-sla-profile-name
                single-sub-parameters
                non-sub-traffic sub-profile sub-profile-name
                    sla-profile sla-profile-name [subscriber sub-
                    ident-string]
                subscriber-interface ip-int-name
                group-interface ip-int-name
                sap sap-id
                host ip ip-address [mac ieee-address] [subscriber
                    sub-ident-string] [sub-profile sub-profile-
                    name] [sla-profile sla-profile-name]
                sub-sla-mgmt
                def-sla-profile default-sla-profile-name
                single-sub-parameters
                non-sub-traffic sub-profile sub-profile-
                    name sla-profile sla-profile-name [sub-
                    scriber sub-ident-string]

```

CLI Syntax: `configure>service>vpls service-id`
`sap sap-id`
`host {[ip ip-address] [mac ieee-address]} [subscriber sub-`
`ident-string] [sub-profile sub-profile-name] [sla-pro-`
`file sla-profile-name]`
`sub-sla-mgmt`
`def-sla-profile default-sla-profile-name`
`single-sub-parameters`
`non-sub-traffic sub-profile sub-profile-name sla-`
`profile sla-profile-name [subscriber sub-ident-`
`string]`

CLI Syntax: `configure>service>vprn service-id`
`interface ip-int-name`
`sap sap-id`
`host {[ip ip-address] [mac ieee-address]} [subscriber`
`sub-ident-string] [sub-profile sub-profile-name]`
`[sla-profile sla-profile-name]`

CLI Syntax: `configure>subscriber-mgmt`
`explicit-subscriber-map`
`entry key sub-ident-string [sub-profile sub-profile-name]`
`[alias sub-alias-string] [sla-profile sla-profile-`
`name]`
`sub-ident-policy sub-ident-policy-name`
`sla-profile-map`
`entry key sla-profile-string sla-profile sla-profile-`
`name`
`sub-profile sla-profile-map`
`sla-profile-map`
`entry key sla-profile-string sla-profile sla-profile`

Configuring Dual Homing

The following displays an example of a dual homing configuration. The configuration shows dual homing with a peer node with a system address of 1.1.1.23. The DHCP server returns a default route with a 11.21.1.3 next hop.

```
A:ALA-48#
#-----
echo "Redundancy Configuration"
#-----
    redundancy
        multi-chassis
            peer 1.1.1.23 create
                sync
                    srrp
                    sub-mgmt
                    port lag-100 sync-tag "Tag1" create
                    exit
                    no shutdown
                exit
            exit
        no shutdown
    exit
exit
#-----
echo "Service Configuration"
#-----
    service
        customer 1 create
            description "Default customer"
        exit
        sdp 23 create
            far-end 1.1.1.23
            no shutdown
        exit
        ies 40 customer 1 create
            redundant-interface "r40-1" create
                address 2.1.1.1/31
                spoke-sdp 23:1 create
                exit
            exit
            subscriber-interface "s40-1" create
                address 11.21.1.1/16 gw-ip-address 11.21.1.3
                dhcp
                    gi-address 11.21.1.1
                exit
            group-interface "g40-1" create
                dhcp
                    server 12.1.1.1
                    lease-populate 8000
                    no shutdown
                exit
            redundant-interface r40-1
            remote-proxy-arp
            sap lag-100:1 create
                sub-sla-mgmt
                    def-sub-profile "subProf"
                    def-sla-profile "slaProf"
                    sub-ident-policy "subIdentPolicy"
                multi-sub-sap
```

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```
                no shutdown
                exit
            exit
        sap lag-100:4094 create
        exit
        srrp 1 create
            message-path lag-100:4094
            no shutdown
        exit
    exit
exit
no shutdown
exit
exit
...
-----
A:ALA-48#
```

Configuring Wholesale/Retail Parameters

In the following example, the wholesaler is configured in VPRN service 10. The retailers are configured in VPRN services 102 and 105.

```
A:ALA-48#
#-----
...
  service
    customer 1 create
      description "Default customer"
    exit
  vprn 101 customer 1 create
    route-distinguisher 1:101
    vrf-target target:1:101
    subscriber-interface "s101-1" create
      address 101.1.1.1/24
      dhcp
        gi-address 101.1.1.1 src-ip-addr
      exit
    group-interface "g101-1" create
      dhcp
        server 12.1.1.1
        trusted
        lease-populate 8000
        gi-address 101.1.1.1
        no shutdown
      exit
    authentication-policy "rad101"
    remote-proxy-arp
    sap lag-1:101 create
      sub-sla-mgmt
        def-sub-profile "defSubProf"
        def-sla-profile "defSlaProf"
        sub-ident-policy "subIdentPol2"
        multi-sub-sap
        no shutdown
      exit
    host ip 102.1.2.100 mac 00:00:aa:aa:aa:aa subscriber "Static1" sub-
profile "subProf" sla-profile "slaProf"
    host ip 102.1.2.101 mac 00:00:aa:aa:aa:aa subscriber "Static2" sub-
profile "subProf" sla-profile "slaProf"
    host ip 102.1.2.102 mac 00:00:aa:aa:aa:aa subscriber "Static3" sub-
profile "subProf" sla-profile "slaProf"
    exit
  exit
  subscriber-interface "s101-2" create
    address 103.1.1.1/24
    address 103.3.1.1/24
    group-interface "g101-4" create
      arp-populate
      dhcp
        server 12.1.1.1
        trusted
        lease-populate 8000
        gi-address 103.3.1.1
        no shutdown
      exit
    authentication-policy "rad101"
```

Configuring Enhanced Subscriber Management with CLI

```
        sap lag-1:105 create
            sub-sla-mgmt
                def-sub-profile "defSubProf"
                def-sla-profile "defSlaProf"
                sub-ident-policy "subIdentPol2"
                multi-sub-sap
                no shutdown
            exit
        exit
    exit
    no shutdown
exit
vprn 102 customer 1 create
    route-distinguisher 1:102
    subscriber-interface "r102-1" fwd-service 101 fwd-subscriber-interface "s101-
1" create
        address 102.1.1.1/24
        address 102.1.2.1/24
        address 101.1.3.1/24
        dhcp
            proxy-server
                emulated-server 102.1.1.1
                lease-time min 5
                no shutdown
            exit
            option
                vendor-specific-option
                    sap-id
                    string "Retailer"
                exit
            exit
            server 102.1.1.2 12.1.1.1
            lease-populate 8000
            no shutdown
        exit
        authentication-policy "rad102"
    exit
    subscriber-interface "r102-2" fwd-service 101 fwd-subscriber-interface "s101-
2" create
        address 103.2.1.1/24
        dhcp
            lease-populate 8000
            no shutdown
        exit
    exit
exit
vprn 105 customer 1 create
    route-distinguisher 1:105
```



```
subscriber-interface "s105-1" fwd-service 101 fwd-subscriber-interface "s101-
2" create
    address 103.3.2.1/24
    dhcp
        proxy-server
            emulated-server 103.3.2.1
            lease-time min 5
            no shutdown
        exit
        lease-populate 8000
        no shutdown
    exit
    authentication-policy "rad105"
exit
no shutdown
exit
...
#-----
A:ALA-48#
```

Subscriber Identification Policy

```
CLI Syntax: configure>service>ies service-id
            interface ip-int-name
            sap sap-id
            host {[ip ip-address] [mac ieee-address]} [subscriber
            sub-ident-string] [sub-profile sub-profile-name]
            [sla-profile sla-profile-name]
            sub-sla-mgmt
            single-sub-parameters
            non-sub-traffic sub-profile sub-profile-name
            sla-profile sla-profile-name [subscriber sub-
            ident-string]
            sub-ident-policy sub-ident-policy-name
```

Subscriber Profile

```
CLI Syntax: configure>service>ies service-id
            interface ip-int-name
            sap sap-id
            host {[ip ip-address] [mac ieee-address]} [subscriber
            sub-ident-string] [sub-profile sub-profile-name]
            [sla-profile sla-profile-name]
            sub-sla-mgmt
            def-sub-profile default-subscriber-profile-name
            single-sub-parameters
            non-sub-traffic sub-profile sub-profile-name
            sla-profile sla-profile-name [subscriber sub-
            ident-string]
```

```
CLI Syntax: configure>service>vpls service-id
            sap sap-id
            host {[ip ip-address] [mac ieee-address]} [subscriber sub-
            ident-string] [sub-profile sub-profile-name] [sla-pro-
            file sla-profile-name]
            sub-sla-mgmt
            def-sub-profile default-sub-profile-name
            single-sub-parameters
            non-sub-traffic sub-profile sub-profile-name sla-
            profile sla-profile-name [subscriber sub-ident-
            string]
```

CLI Syntax: configure>subscriber-mgmt
sub-profile *subscriber-profile-name*
explicit-subscriber-map
 entry key *sub-ident-string* [**sub-profile** *sub-profile-name*]
 [alias *sub-alias-string*] [sla-profile *sla-profile-*
 name]
sub-ident-policy *sub-ident-policy-name*
sub-profile-map
 entry key *sub-profile-string* **sub-profile** *sub-profile-*
 name

