CHAPTER 8

# ETSI Ia Profile on SBC

The Ia profile is a part of the H.248 functionality that is required for communication on the data border element (DBE). The Ia profile is an H.248 profile for the reference point between the Service Policy Decision Function (SPDF) and the DBE, using the Border Gateway Function (BGF).

The ETSI Ia Profile (ETSI ES 283 018 V2.4.1 (2008-09)) makes the Bandwidth Description (b= line) of Session Description Protocol (SDP) mandatory. However, as per SDP RFC 2327 and SDP RFC 4566, Bandwidth Description is optional. To improve interoperability, the ETSI Ia Profile on SBC feature permits SBC to accept SDP without a Bandwidth Description, even when using the Ia Profile.

Cisco Unified Border Element (SP Edition) was formerly known as Integrated Session Border Controller, and may be commonly referred to as the session border controller (SBC) in this document.

For a complete description of the commands used in this chapter, see *Cisco Unified Border Element (SP Edition) Command Reference: Distributed Model* at:

http://www.cisco.com/en/US/docs/ios/sbc/command/reference/sbc_book.html

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# Information About ETSI Ia Profile on SBC

During registration, the DBE includes the ServiceChangeProfile parameter in the ServiceChange message to indicate support for Ia profile.

To improve interoperability, the SBC is configured to permit the Bandwidth Description parameter to be optional when using the ETSI Ia profile.

The SDP that is presented, permits bandwidth requirements to be determined through a full parse of the SDP. Although Bandwidth Description is configured as optional, it is not ignored. When present, the Bandwidth Description continues to take precedence over any other bandwidth information inferred from the SDP.

Any SDP that does not provide a Bandwidth Description provides sufficient codec information to permit bandwidth requirements to be determined. Omitted codec type information is not permitted and is rejected with the H.248 ErrorCode 421, as “Unknown action or illegal combination of actions”.

The following SDP information is acceptable since it uses static codec, and bandwidth requirements can also be determined:

```
v=0
c=IN4 192.168.0.1
m=audio $ RTP/AVP 4 8 18
a=ptime:30
```

By default, the Traffic Management (TMAN) or maximum burst size (MBS) parameter is optional. This ensures that the SBC does not reject the call if TMAN or MBS parameter is missing from the H.248 message.

## Differences Between ETSI Ia Profile Version 1 (ES 283 018 V1.1.4) and Ia Profile Version 2 (ES 283 018 V2.7.1)

Table 8-1 provides an overview of the differences between ETSI Ia Profile Version 1 (ES 283 018 V1.1.4) and Ia Profile Version 2 (ES 283 018 V2.7.1).

*Table 8-1 Differences Between ETSI Ia Profile Version 1 (ES 283 018 V1.1.4) and Ia Profile Version 2 (ES 283 018 V2.7.1*

| Topic | ES 283 018 [19] V1.1.4 (Ia Profile Version 1) | ES 283 018 V2.7.1 (Ia Profile Version 2) |
|---|---|---|
| QoS monitoring | Not Supported | Basic support via H.248 statistics (see clause 5.17.1.6) |
| TerminationID structure | ip/<group>/<interface>/<id> | ip/<group>/<interface>/<id> Field element "interface" is off-loaded from the semantic of "IP realm/domain" indication. |
| SDP Usage: "s=", "t=" and "o=" lines | Provides no guidance on this | Guidance provided in clause 5.16. |
| SDP Usage "b=" line | The bandwidth-value value defines the required protocol layer 2 (e.g. Ethernet) bandwidth for the specific H.248 Stream. | The bandwidth-value value defines the IP layer bandwidth for the specific H.248 Stream. |
| Semantic for ignoring SDP information. | Usage of "ignore" | Replacement of "ignore" by text describing the handling of received SDP at the BGF for both media aware and media agnostic cases. |
| **Packages** | | |

*Table 8-1 Differences Between ETSI Ia Profile Version 1 (ES 283 018 V1.1.4) and Ia Profile Version 2 (ES 283 018 V2.7.1*

| Topic | ES 283 018 [19] V1.1.4 (Ia Profile Version 1) | ES 283 018 V2.7.1 (Ia Profile Version 2) |
|---|---|---|
| RTP Package | Not Supported | Optional Version 1 |
| IP Domain Connection Package | Not Supported | Version 1 |
| Media Gateway Overload Control Package | Not Supported | Optional Version 1 |
| Application Data Inactivity Package | Not Supported | Optional Version 1 |
| Hanging Termination Package | Not Supported | Optional Version 1 |
| Statistics Conditional Reporting | Not Supported | Optional Version 1 |
| **Procedures** | | |
| Session Independent Procedures (also known as Call Independent Procedures or Non-Call Related Procedures) | Implicit[1] link to TR 183 025 [i.2]. | Explicit link to TR 183 025 [i.2] by clause 5.17.2. Additional details in clause 5.19. |
| | Call-independent procedures for ES 283 018 [19] are defined in a separate document (TR 183 025 [i.2]), which is an overall description for all ETSI defined H.248 profile specifications, i.e. TR 183 025 [i.2] complements each profile specification. The set of profile-applicable call-independent procedures is primarily given by the supported H.248 Command API capabilities for AuditValue (see clause 5.8.5), AuditCapabilities (see clause 5.8.6) and ServiceChange (see clause 5.8.8), and supported packages (for example, for overload control), by each profile. | |
| IP Domain/Realm Indication | Via semantical overloading of the TerminationID [2] | Explicit protocol element: via ipdc/realm property (ITU-T Recommendation H.248.41 [15]; see clause 5.17.1.10). |
| BGF Resource Reservation | One-stage mechanism | Additional support of a two-stage resource reservation (see clause 5.17.1.11) |
| RTCP Handling | High-level description in clause 5.17.1.1. | Additional information by clause 5.17.1.7. |

1. The TR was work in progress when Ia profile version 1 was published.
2. ITU-T Recommendation H.248.41 [15] was work in progress when Ia profile version 1 was published.

## Gate Controller Profile

The Gate Controller (GC) is a logical entity that controls gates and associated resources in a Multimedia Border Gateway (MBG). By default, the GC profile is enabled on the SBC, and the Bandwidth Description parameter is optional. Table 8-2 lists the packages supported by GC profiles. The supported GC profile versions are 1, 2, and 3.

*Table 8-2 Packages Supported by the GC Profile*

| Package Name | ID | Version |
|---|---|---|
| Network | nt | 1 |
| DTMF Detection | dd | 1 |
| DTMF Generation | dg | 1 |

*Table 8-2 Packages Supported by the GC Profile (continued)*

| | | |
|---|---|---|
| RTP | rtp | 1 |
| Congestion Handling | chp | 1 |
| Inactivity Timer | it | 1 |
| NAT Traversal | ntr | 1 |
| Middlebox | emp | 1 |
| Diffserv | ds | 1 |
| Extended VPN Discrimination | evpnd | 1 |
| Gate Information | ginfo | 1 |
| Enhanced base root package | eroot | 2 |
| Gate recovery information | gri | 1 |
| Traffic Management | tman | 1 |
| Enhanced Traffic Management | etman | 1 |
| End-point Statistics | epstat | 1 |
| Media gateway overload control | ocp | 1 |
| IP NAPT Traversal Package | ipnapt | 1 |
| Address Reportýng Package | adr | 1 |
| Gate Management | gm | 1 |
| Base root | root | 2 |
| VLAN | vlan | 1 |
| MGC Information Package | mgcinfo | 1 |
| Segmentation | seg | 1 |
| Application Inactivity Detection | adid | 1 |
| IP Domain Connectivity | ipdc | 1 |
| IP Realm Availability | ipra | 1 |

# Restrictions for ETSI Ia Profile on SBC

The ETSI Ia Profile on SBC feature has the following restrictions:

- TMAN package function is not implemented on the dataplane module.
- Remote port filter is not supported.

# Memory and Performance Impact

In the absence of a Bandwidth Description, the SBC has to perform an extensive parse of the SDP to calculate bandwidth requirements. This results in a slight degradation of performance that is relative to an Ia Profile compliant call. However, the degradation is less than 1%.

# Configuring ETSI Ia Profile on SBC

This section contains steps to configure the ETSI Ia Profile on SBC feature on the Cisco ASR 1000 Series Routers.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **sbc** {*sbc-name*} **dbe**
4. **vdbe** [**global**]
5. **no bandwidth-fields**
6. **h248-profile etsi-bgf** *version*
7. **exit**
8. **end**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br><br>**Example:**<br>`Router> enable` | Enables privileged EXEC mode. Enter your password if prompted. |
| **Step 2** | **configure terminal**<br><br>**Example:**<br>`Router# configure terminal` | Enters global configuration mode. |
| **Step 3** | **sbc** {*sbc-name*} **dbe**<br><br>**Example:**<br>`Router(config)# sbc global dbe` | Creates the DBE service on the SBC, and enters into SBC-DBE configuration mode. |
| **Step 4** | **vdbe** [**global**]<br><br>**Example:**<br>`Router(config-sbc-dbe)# vdbe global` | Enters into Virtual Data Border Element (VDBE) configuration mode with a default DBE named “global”.<br>Only one DBE is supported, and its name must be “global”. |
| **Step 5** | **bandwidth-fields mandatory**<br><br>**Example:**<br>`Router(config-sbc-dbe-vdbe)# no bandwidth-fields` | Sets the Bandwidth Description of the SDP as mandatory. The **no** form of the **bandwidth-fields mandatory** command sets the bandwidth as optional.<br>**Note** By default, the Bandwidth Description is set as optional. |
| **Step 6** | **h248-profile etsi-bgf** *version*<br><br>**Example:**<br>`Router(config-sbc-dbe-vdbe)# h248-profile etsi-bgf version 2` | Configures the VDBE H.248 profile name to interoperate with the DBE.<br>Version 2 is the default version number for the Ia ETSI BGF profile.<br>When the H.248 profile is configured with the **h248-profile etsi-bgf version 2** command, the ServiceChange message that the DBE sends to SBE (MGC) during startup is as follows:<br>`T=1{`<br>`C=-{`<br>`SC=ROOT{`<br>`SV{MT=RS,DL=0,RE="901 Cold Boot",V=3,PF=ETSI_BGF/02,20091229T01364500}}}` |
| **Step 7** | **exit**<br><br>**Example:**<br>`Router(config-sbc-dbe-vdbe)# exit` | Exits VDBE configuration mode. |
| **Step 8** | **end**<br><br>**Example:**<br>`Router(config-sbc-dbe)# end` | Exits SBC-DBE configuration mode and returns to privileged EXEC mode. |

# Configuration Example of ETSI Ia Profile on SBC

The following example shows how to configure the ETSI Ia Profile on SBC feature on a Cisco ASR 1000 series router:

```
config terminal
 sbc mySBC dbe
  vdbe global
   no bandwidth-fields
   h248-profile etsi-bgf version 2
```