The Microsoft Skype for Business SDN Interface provides an interface for network controllers or network management systems to receive call and quality data to monitor and analyze network traffic to optimize the Skype for Business media stream quality.

The Skype for Business SDN Interface versions 3.0 includes several new features.

New features in Skype for Business SDN Interface version 3.0, build 7.0.1459.1

Following is a summary of the key new features in Skype for Business SDN Interface version 3.0

- **New Fields in 3.0:**

  Some new requested fields have been added to Schema D. This might break backward compatibility with some receivers and therefore requires a specific activation using a hidden `schemaextension` setting.

  We have added Wi-Fi metrics to QualityUpdate and IncallQuality messages in addition to the previously available Subnet, TenantId (online only) and, RTT (if traceroute is active in SfB, an attribute will give the round-trip time (RTT) for every hop). The latest provided schema definition (SDNInterface.Schema.D.xsd) optionally allows for these new fields.

- **Schema Validation:**

  Schema validation of messages from Dialog Listener to SDN Manager is (now) disabled (`minimalschemavalidation=true)` by default. Minimal validation is performed on messages (specifically client QoE messages). Schema validation can be enabled by setting the SdnManager parameter `minimalschemavalidation=false`. Schema validation errors found will only be logged.

  This setting's default has been changed to respond an increasing number of schema validation errors due to recent changes in the SfB client's QoE structure.

  Per the Microsoft REST API Guidelines, clients must safely ignore new added information (see Rule 6.1).

- **Support for TLS 1.2**

  SSL connections between SDN Manager and Dialog Listener now require TLS1.2 support. SSL connections between SDN manager and subscribers now support TLS1.2 and TLS1.1. SSL 3.0 is, for security reasons, rejected. Some older OS versions might need to adjustments.

App sharing streams will continue to be measured based on the 500kbps/1Mbps limit for poor, bad, good in end of call stream quality. If VbSS is used AppSharing data streams will check different limits (15/14K)

- **Customer Experience reporting**:

  The SDN Interface will report anonymous usage data as part of the Customer Experience program. No user PII or organizational data is collected.

- **New fields available with 3.0 when schema preview is enabled**

Element	Type	Description
SSID	Xs:string	Name of WiFi Service Set Identifier.
WifiChannel	Xs:int	WiFi channel used during session.
WifiHandovers	Xs:int	Number of WiFi hand overs to other access points during session.
WifiSignalStrength	Xs:int	The Wi-Fi signal strength in percentage points [0-99]
WifiRadioType	Xs:unsignedByte	Refer to this link for the definition of this flag https://msdn.microsoft.com/en-us/library/windows/desktop/ms706015(v=vs.85).aspx
WifiRSSI	Xs:int	Average WiFi Received Signal Strength Indication value expressed in percentage points [0-99].
WifiChannelReassociations	Xs:int	Number of WiFi channel associated during session
WifiRadioFrequency	Xs:int	WiFi frequency used during session.
WifiChannelSwitches	Xs:int	Number of times the WiFi channel switched during session.
WifiStatusFlags	Xs:int	A flag that indicates the current connection status. StatusFlag_VPN = (1<<0)
WifiBatteryCharge	Xs:int	The estimated remaining battery charge in percentage points [0-99], with 0 indicating that the device was plugged in.
WifiDNSSuffix	Xs:string	The DNS suffix associated with the network adapter.
Name	Xs:string	Netbios name of the endpoint

```
</xs:element>

    <xs:element minOccurs="0" name="NetbiosName" type="xs:string">
```

```xml
        <xs:annotation>

          <xs:documentation>Netbios name of the endpoint.</xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="SSID" type="xs:string">

        <xs:annotation>

          <xs:documentation>Name of WiFi Service Set Identifier.</xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="WiFiChannel" type="xs:int">

        <xs:annotation>

          <xs:documentation>WiFi Channel used during the session.</xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="WifiHandovers" type="xs:int">

        <xs:annotation>

          <xs:documentation>Number of WiFi hand overs to other access points during the
session.</xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="WifiSignalStrength" type="DoubleBetween0And100">

        <xs:annotation>

          <xs:documentation>The WiFi signal strength (Percent).</xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="WifiRadioType" type="xs:byte">

        <xs:annotation>

          <xs:documentation>Refer to this link for the definition of this flag.

            https://msdn.microsoft.com/en-us/library/windows/desktop/ms706015(v=vs.85).aspx

          </xs:documentation>

        </xs:annotation>

      </xs:element>

      <xs:element minOccurs="0" name="WifiRSSI" type="DoubleBetween0And100">

        <xs:annotation>

          <xs:documentation>Average WiFi Received Signal Strength Indication value.
(Percent)</xs:documentation>

        </xs:annotation>
```

```xml
        </xs:element>

        <xs:element minOccurs="0" name="WifiChannelReassociations" type="xs:int">

          <xs:annotation>

            <xs:documentation>Number of WiFi channel reassociated during session</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="WifiRadioFrequency" type="xs:int">

          <xs:annotation>

            <xs:documentation>WiFi frequency used during session</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="WifiSupportFlags" type="xs:byte">

          <xs:annotation>

            <xs:documentation>A flag that indicates whether the IPv4 or IPv6 protocols are supported.
SupportFlag_IPv4=1, IPv6=2.</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="WifiStatusFlags" type="xs:byte">

          <xs:annotation>

            <xs:documentation>A flag that indicates the current connection status.
StatusFlag_VPN=1.</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="WifiBatteryCharge" type="DoubleBetween0And100">

          <xs:annotation>

            <xs:documentation>The estimated remaining battery charge in percentage points [0-99], with 0
indicating that the device was plugged in.</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="DNSSuffix" type="xs:string">

          <xs:annotation>

            <xs:documentation>The DNS suffix associated with the network adapter</xs:documentation>

          </xs:annotation>

        </xs:element>

        <xs:element minOccurs="0" name="WifiChannelSwitches" type="xs:string">

          <xs:annotation>

            <xs:documentation>Number of times the WiFi channel switched during the
session</xs:documentation>
```

```
        </xs:annotation>
```

Bug Fixes in Skype for Business SDN Interface version 3.0

The following bugs have been fixed in SDN 3.0

- In a Federation call scenario, some messages are not transmitted
- During retransmission, some call ended events are incorrectly re-ordered
- SdnManager Performance Counter '# calls completed' would not account for some calls leading to an incorrect c
- Logs created for replay do not account for some fields in the message
- Trunk field was inconsistently reported in QoE and Signaling messages were being filtered
- Log level Debug didi not have sufficient detail to troubleshoot an issue
- Fixed association of protocols name in signaling messages with different capitalization.
- SDNManager does not accept all 2xx code to indicate successful receipt of a message (only accepts 200 OK)
- AppliedBandwidth limit in VSS scenario Is not being handled correctly

In previous versions QoE message processing sometimes failed on XSD validation errors. The reason is incompatible cha
of QoE message in some client. The current SDN Interface version is more tolerant to QoE message format changes.
Default configuration settings have been adjusted to reduce message dropping in enterprise deployments. Further adjus
specific deployment environment.

Notes and known issues in Skype for Business SDN Interface version 3.0

1. LDL Unattended install parameters are not validated
2. There is no way to specify an output file for all Subscribers or Listeners.
3. Previous instances of REDIS allowed case-sensitive subscriber names. These are no longer supported, and are ignored. Users must either drop the entire REDIS data cache OR remove the case-sensitive subscriber name by matching the case-sensitivity.
4. Dialog Listener install, by default, configures a Service startup dependency on Skype for Business Server Front-End service. The installer then attempts to start the LDL service, **which will attempt to start the FE service**. If this is undesirable, the workaround is to add the installer parameter 'SKIPREGISTRATION=1' to the invocation of msiexec.exe.
5. The contents of the MSDiagnostics field reported to subscribers may contain PII, SDN Interface does not obfuscate this field.
6. After the SDN Manager has been upgraded to 3.0, active Dialog Listener services MAY require restart.

   If the new SDN Manager uses a new MSPL script it is not updated in active Dialog Listeners until that Dialog Listener settings are updated. Certain settings need to be updated in the Dialog Listeners after the SDN Manager has been upgraded to 3.0. Please either restart the Dialog Listener services, or as a simple trick, add a random Listener setting or change some setting.

7. LSM Unattended install does not check for missing required parameters Subsequent errors provide little information.

   For example, a new SQL database install, but with 'ComputerName' is missing:

   > msiexec /i SkypeForBusinessSDNManager.msi /quiet /lv* install.log LOGPATH=c:\Temp TOPOLOGY=2 DATABASE_SERVER=dblneprod

   Result:

   > MSI (s) (18:80) [14:02:27:052]: Invoking remote custom action. DLL: C:\Windows\Installer\MSI1D29.tmp, Entrypoint: ExecuteSqlStrings
   > ExecuteSqlStrings: Error 0x80040e14: failed to execute SQL string, error: An object or column name is missing or empty. For SELECT INTO statements, verify each column has a name. For other statements, look for empty alias names. Aliases defined as "" or are not allowed. Change the alias to a valid name., SQL key: CreateUserScript25 SQL string: BEGIN TRY CREATE USER FROM LOGIN$ END TRY BEGIN CATCH END CATCH
   > MSI (s) (18!10) [14:02:27:364]: Product: Microsoft Skype for Business SDN Manager -- Error 26204. Error -2147217900: failed to execute SQL string, error detail: An object or column name is missing or empty. For SELECT INTO statements, verify each column has a name. For other statements, look for empty alias names. Aliases defined as "" or [] are not allowed. Change the alias to a valid name., SQL key: CreateUserScript25 SQL string: BEGIN TRY CREATE USER [] FROM LOGIN[\$] END TRY BEGIN CATCH END CATCH

   Expected:

   An actionable error, like: "Error: Aborting because COMPUTERNAME was not specified".

8. Connection attempts using SSL from Dialog Listener to an SDN Manager installed on WS2008R2 fails. WS2008R2 machines do not support TLS1.2 by default. When hosting SDN Manager, the host needs to enable TLS1.2 support in its registry. See https://technet.microsoft.com/en-us/library/dn786418(v=ws.11).aspx
9. Support for Lync 2010 is now deprecated.
10. After installing version 3.0 in an active deployment, there may be some errors reported in the logs and reports lost for some calls due to a change in how QoE reports are kept in the data

store. Only reports for events during the time of the upgrade may be affected. This is still true if they jump from 2.2 to 3.0.
11. InCallQoE is referred to as InCallQoS in the SfB front-end powershell configuration, which can be misleading if you look for the setting to activate/deactivate.
12. Due to some changes to how we store state for calls, during an upgrade, some failures may be reported for ongoing calls during the upgrade.