



Service Management APIs (Application Programming Interface)

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1. GENERAL

- 1.1 **Service Definition.** Service Management APIs is a suite of TM Forum standards based APIs built by Verizon that are designed to allow customers to manage and consume Verizon’s services from within their IT Service Management (ITSM) toolset in a digital manner. Service Management APIs are designed to support the administration of Verizon services through activities such as change management, incident management, inventory management, problem management, event management, ordering, and billing management. These Information Technology Infrastructure Library (ITIL) functions are a subset of the service orchestration and management APIs that Verizon offers which together form the basis of the Verizon as Code strategy.
- 1.2 **General.** Service Management APIs are published in Verizon’s Apigee API Management (APIGEE) gateway platform and can be accessed by Verizon customers using secure-sockets-layer- (SSL) based connectivity. A connection is established between the Customer’s ITSM systems and the Verizon APIGEE platform.
- 1.3 **Standard Features.** The features and responsibilities for the Service Management APIs - TMF APIs are summarized in the table below.

Feature	Details
Inventory Management APIs	<ul style="list-style-type: none">● CI (Customer Inventory) Reconciliation + Synchronization● CMDB (Configuration Management database) is made available to customers● Verizon augments its own CMDB with customer data such as customer nomenclature and references
Incident Management APIs	<ul style="list-style-type: none">● Exchange of incidents between Verizon and customers

	<ul style="list-style-type: none"> ● Incidents related to trouble tickets are available to customers ● Incidents will be augmented with customer nomenclature
Problem Management APIs	<ul style="list-style-type: none"> ● Exchange of problems between Verizon and customers ● Problems related to tickets are available to customers ● Tickets will be augmented with customer nomenclature
Change Management APIs	<ul style="list-style-type: none"> ● These APIs provides business context around Verizon-initiated changes and automates technical assessment of basic changes ● Verizon will augment change tickets with customer nomenclature ● Enhanced analysis of the business impact of a change
Event Management APIs	<ul style="list-style-type: none"> ● Exchange of events between Verizon and customers ● Events are raised against Configuration Items in customer nomenclature ● Service mapping provides an understanding of Business Impact ● Verizon will ingest data relating to events adjacent to or related to Verizon managed services
Ordering APIs	<ul style="list-style-type: none"> ● Cross tower “service request catalog” offering fixed priced services ● Library of catalog items built across customers that can be reused for multiple customers ● Agree customer service catalog items for use in customer ITSM portal ● Enable customer to click to order new service requests from their own ITSM ● Supported in the US for products (e.g., Access, PIP, Managed CPE/Standalone CPE, Internet Dedicated Services, Managed Services (MWAN), Broadband)
Billing APIs	<ul style="list-style-type: none"> ● Billing data that can be pulled across all towers via a common API ● Link customer data to relevant CI’s (including services within the CMDB) back to billing information. ● Automated responses to common customer billing inquiries

1.4 Verizon and Customer Responsibilities



Customers may need to make changes to their systems in order to make use of the Verizon Service Management APIs. Implementation timelines can range anywhere between a few weeks to a few months depending on customer engagement.

Below is a table outlining key customer and Verizon responsibilities during the API onboarding process.

As part of the onboarding/implementation process, Verizon and the customer shall work together to establish connectivity to the in-scope APIs. The work will be structured in 5 stages.

- Kick Off Call
- Stage 1 – Establish basic connectivity
- Stage 2 – Process mapping
- Stage 3 – Coding and development (Customer side)
- Stage 4 – User test and acceptance
- Stage 5 – Production
- Project closure

The following sections describe the work to be done by each party within each stage.

Kick-Off Call

Verizon will host an online meeting to explain to the Customer how the DEP APIs are designed to work and what will be required from both parties in order to successfully deliver the project.

Prior to this call Verizon shall:

- Provide technical documentation describing each of the In-Scope APIs
- Identify and have present at the meeting Verizon personnel fulfilling one or more of the following roles:
 - The lead project manager responsible for the delivery of the In-Scope APIs
 - The lead technical resource responsible for handling any technical issues. The relevant resource(s) responsible for explaining Verizon processes for the In-Scope APIs.

Prior to this call Customer shall:

- Identify to Verizon and have present at the meeting:
 - The lead project manager responsible for the overall acceptance of the In-Scope APIs
 - The lead technical resource from Customer who will be responsible for developing the code required on the customer ITSM to support the In-Scope APIs
 - The business stakeholder(s) responsible for the relevant processes
 - Operational leader(s) who will ultimately become the recipients or users of the services
- Provide Verizon with details of the ITSM system(s) that they intend to use with the In-Scope APIs
- Clarify which test and/or production systems will be used.

This stage shall be deemed complete when the information detailed above has been exchanged and the kick off call completed.

Stage 1 – Establish basic connectivity

Both parties shall work to build and test IP connectivity between one another's systems using a 2-way SSL tunnel built across the public Internet. Verizon shall set up the customer data such that it is available and visible to Customer via the In-Scope APIs.

Unless otherwise agreed between the parties, details for both a "test" and "production" instance of the applications/services shall be exchanged.



Verizon Shall:

- Provide Customer with documentation detailing how the 2-Way SSL connection between both parties shall be built
- Provide a URL and signed certificate for Customer to use in order to configure/build the SSL tunnel on their systems
- Load Customer provided URL and signed certificate on to Verizon systems in order to configure/build the SSL tunnel
- Enable customer data for the relevant customer accounts such that it is visible (available) via the In-Scope APIs
- Host an online meeting if required, to discuss any questions or clarify technical points relating to the SSL connectivity and/or the API documentation
- Work with Customer to test the tunnel connectivity through pre-arranged online meetings

Customer Shall:

- Provide a URL and signed certificate for Verizon to use in order to configure/build the SSL tunnel on their systems
- Load the Verizon provided URL and signed certificate on to Customer systems in order to configure/build the SSL tunnel
- Provide Verizon with details of the account(s) that Customer wishes to use via the API.
- Attend with relevant participants, an online meeting if required, to discuss any questions or clarify technical points relating to the SSL connectivity and/or the API documentation
- Work with Verizon to test the tunnel connectivity through pre-arranged online meetings

Stage 1 shall be deemed complete when each party can demonstrate connectivity to the other via Postman or similar API developer tool and Customer can send and/or receive data via the In-Scope APIs.

Once complete, Verizon will commence monthly billing for the In-Scope APIs.

Stage 2 – Process Mapping

Both parties shall work together to mutually agree how their respective processes will be mapped onto one another such that relevant and accurate data is exchanged through the API.

Verizon Shall:

- Provide Customer with documentation:
 - Detailing how each of the relevant Verizon processes works
 - The key fields and meanings of each field that Verizon plan to exchange via the API
 - The Verizon standard template to capture field/process mappings
- Host an online meeting if required, to discuss any questions or clarify points relating to the relevant process(es) and/or the process documentation
- Work with Customer to agree how processes will map to one another
- Capture the process mapping in a Verizon standard template

Customer Shall:

- Review the stage 2 documentation provided by Verizon.
- Attend an online meeting if required, to discuss any questions or clarify points relating to the relevant process(es) and/or the process documentation
- Work with Verizon to agree how processes will map to one another
- Review and accept the process mapping documented by Verizon

Stage 2 shall be deemed complete when Customer accepts the field/process mapping document provided by Verizon.



Stage 3 – Coding and Development

Customer developers shall update Customer systems to send and receive Verizon data through the API in line with the process/field mapping agreed in stage 2.

Both parties shall work together to test that relevant and accurate data is exchanged through the API.

NOTE. *Verizon will expose a standard, TM Forum certified API to Customer. The Customer shall develop their tools/systems as required to interface with the Verizon API. The Verizon provided API shall not be changed by Verizon or deviate from the certified TM Forum standard specification.*

Verizon Shall:

- Expose the In-Scope APIs to customer
- Send test data to Customer such that Customer can test code on their system(s)
- Validate that data sent by customer is being received accurately by Verizon system(s)
- Host an online meeting if required, to discuss any technical questions or clarify points relating to the relevant APIs, code, business process(es) and/or test results

Customer Shall:

- Expose the In-Scope APIs to Verizon
- Develop code on their tools and systems to allow for the accurate exchange of data between customer and the Verizon standard API
- Send test data to Verizon such that Verizon can test their system(s)
- Validate that data sent by Verizon is being received accurately by Customer system(s)

Stage 3 shall be deemed complete when Customer confirms that data is being sent and received correctly between both Verizon and Customer systems

Stage 4 – User Test and Acceptance

Having developed the code and tested the functionality, the Customer shall now undertake any relevant UAT (User Acceptance Testing) that they may require prior to putting the service into their production environment.

Verizon Shall:

- Send test data to Customer such that Customer can perform UAT
- Validate that data sent by customer is being received accurately by Verizon system(s)
- Host an online meeting if required, to discuss any questions or clarify points relating to the relevant APIs, code, business process(es) and/or test results

Customer Shall:

- Provide Verizon with a User Acceptance Test (UAT) plan detailing the tests that are planned and the expected results
- Plan testing with the relevant Customer stakeholders
- Where Verizon are required to participate in UAT, arrange testing for a mutually agreed time.
- Send test data to Verizon such that Verizon validate functionality in their system(s)
- Validate that data sent by Verizon is being received accurately by Customer system(s)

Stage 4 shall be deemed complete when Customer confirms that UAT has been successfully completed.

Stage 5 – Production



Once the code has been fully tested, both parties will migrate the implementation of the In-Scope APIs from test to production systems and any Customer process changes identified in Stage 2 will be implemented by the relevant party, as agreed in the Stage 2 documentation.

Verizon Shall:

- Enable services on production systems for Customer
- Provide commercially reasonable online support customer with migration from test to production
- Host an online meeting if required, to discuss any questions or clarify points relating to the relevant APIs, code and business process(es)
- Provide customer with details for the ongoing support of the API including but not limited to:
 - Contact details for API helpdesk
 - Escalation contacts
 - Process for communicating issues in the future
 - Service Level Agreements (Verizon obligations) relating to the ongoing support of the APIs

Customer Shall:

- Enable services on production systems for Customer
- Provide written confirmation to Verizon that services are live within 3 business days of the services becoming live in their production environment.

Stage 5 shall be deemed complete when Customer confirms to Verizon in writing that the service has been migrated to production systems.

The table below contains a summarized version of the roles and responsibilities described in detail in the section above.

Role	Responsibility	Providing Party
Project and Implementation Manager	<ul style="list-style-type: none">● Manage Project Activity (Onboarding – Customer Profile set up and Security alignment, connectivity)● Hold periodic sessions to update Stakeholders with Project Progress● Support Testing- create test plan / validate snow WORKFLOW – unit test to Production● Support all Project activities	Verizon
Service Now Developer/Technical Lead	<ul style="list-style-type: none">● Procure Certificates to Verizon for Secure SSL connectivity between Customer's ITSM systems and Verizon's APIGEE gateway● Customer Application setup and Install● Design, Data and process mapping review	Customer



	<ul style="list-style-type: none">• Coding and development. Configure API/ Scripts per design• User acceptance Testing• Production Implementation•	
VZ Account Manager	<ul style="list-style-type: none">• Support IT PM with information needed to complete customer configuration in Verizon ETMS for Test and Prod go live	Verizon
Customer Process Team	<ul style="list-style-type: none">• Support design review and provide feedback and approvals• Support UAT	Customer
Verizon Ops - SD/NOC	<ul style="list-style-type: none">• Support process discussions• Support go live validation testing	Verizon
Verizon IT Back Systems Configuration	<ul style="list-style-type: none">• Configure back end systems to support testing	Verizon

2. Supplemental Terms

- 2.1 **Restriction on Encryption Functionality in India.** Due to differing license requirements attached to different Services in India, with respect to: (a) Internet Dedicated Services, Customer may use encryption up to 40 bit key length in RSA algorithm. If Customer requires encryption higher than this limit, then Customer must obtain approval from the relevant telecom authority. Customer will not employ bulk encryption equipment in connection with Verizon Facilities in India; and (b) Broadband Services, the use of encryption shall be governed by the government policy/rules made under the Information Technology Act, 2000.
- 2.2 **Turkey Use Prohibition.** Connections to and use of the Public Internet, World Wide Web, and Social Media by a user in Turkey requires the exclusive use of the service of a locally licensed internet service provider (such as Verizon) in a manner that is compliant with all applicable laws and with any licenses, codes of practice, instructions, or guidelines issued by regulatory authorities. Customer must immediately notify Verizon of any known contravention of the foregoing. Any violation of this express prohibition may result in immediate suspension of the relevant Services by Verizon until, in Verizon's sole judgment, the violation has been cured. Customer is responsible for any fines, penalties, losses, damages, costs or expenses incurred by Verizon due to Customer's violation of this prohibition.
- 2.3 **Network Discovery.** Customer will provide Verizon with accurate information about proper scope of the Network Discovery, represents that it has all necessary authority to have Verizon undertake the Network Discovery requested under these terms, and will indemnify Verizon and its employees, affiliates and agents against any liability if it does not. Verizon reserves the right to stop or withhold from performing Network Discovery, at its sole discretion. Customer's sole remedy for any failure, inadequacy or other problem of Network Discovery is to request that Verizon re-perform it.



- 2.4 **VEC, API Gateway, or Web Portal User Names and Passwords.** Customer must immediately notify Verizon upon learning of any unauthorized use of Customer’s login credentials. Customer is responsible for all activities and Charges incurred through the use of the compromised login credentials.
- 2.5 **VoIP Restrictions.** Customer acknowledges that a number of jurisdictions impose restrictions and/or licensing or registration conditions on VoIP transmission over the network. Customer shall comply with such regulations, as applicable.
- 2.6 **Service Management API for End-Use in Burma, China, Russia and Venezuela.** Without limiting the foregoing or its obligations to comply with applicable export law, Customer specifically represents that the Service Management API service and related software used in conjunction with any services provided hereunder, including equipment or software that is virtualized or cloud based, will not be used by a military or military-intelligence end-user or for a military, military-intelligence, or any other prohibited end-use, as defined by the U.S. Export Administration Regulations, in Burma, China (including Hong Kong), Russia or Venezuela.

3. SERVICE LEVEL AGREEMENT (SLA)

Given below are the “Time to Repair” SLA’s for this product. New tickets are assigned the same day.

Parameter	Priority 1	Priority 2	Priority 3
Time to Repair (TTR)	24 hours (outage)	As soon as possible (code fix may take up to 45 days)	As soon as possible (code fix may take up to 90 days)

The availability SLA for all the features (APIs) provided as part of the service is 97.96%. Availability of the APIs is based on the total number of minutes in a calendar month during which the APIs are available (excluding scheduled maintenance) divided by the total number of minutes in that month. It is the percentage of time the service is available within a given calendar month. Availability only applies to hard outages.

Total Minutes of hard outage

$$\text{Monthly availability \%} = 1 - \left(\frac{\text{Total Minutes of hard outage}}{\# \text{ of days in month} \times 24 \text{ hours} \times 60 \text{ min}} \right) \times 100$$

4. FINANCIAL TERMS

- 4.1 **Service Management APIs.** Customer will pay the Charges for Service Management APIs + specified in the Agreement, including those below and at the following URL: www.verizon.com/business/service_guide/reg/applicable_charges_toc.htm. Charges below are in U.S. dollars and will be billed in the invoice currency for the associated Service. Monthly recurring Charges (MRC) and non-recurring Charges (NRC) are based on management level and size of Managed Device.
- 4.2 **Setup Charges.** The following administrative charges are applicable to Service Management APIs.

Setup	NRC
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One-time charges for the implementation of Service Management APIs	\$10,000
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5. **DEFINITIONS.** The following definitions apply to Service Management APIs, in addition to those identified in the Master Terms and the administrative Charge definitions at the following URL: www.verizon.com/business/service_guide/reg/definitions_toc_2017DEC01.htm.

Term	Definition
TM Forum	Tele Management Forum is a global industry association for service providers and their suppliers in the telecommunications industry.
API	An application programming interface is a way for two or more computer programs or components to communicate with each other. It is a type of software interface, offering a service to other pieces of software.
APIGEE	Apigee is Google Cloud's native API management platform that can be used to build, manage, and secure APIs — for any use case, environment, or scale.
ITSM	Information technology service management (ITSM) are the activities performed by an organization to design, build, deliver, operate and control information technology (IT) services offered to customers.
DEP	Digital Engagement platform is one of the vehicles/methods offered by Verizon to access the Service Management APIs
CI	Customer Inventory which is a representation of the customer's service identifier.
CMDB	A configuration management database (CMDB) is an industry term for a database used by an organization to store information about hardware and software assets (commonly referred to as configuration items).
SSL	Standard security technology for establishing an encrypted link between a server and a client. TLS is the successor of SSL.