

Service Order Management REST API Specification

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1 Introduction

The following document is the specification of the REST API for Service Order Management (TMF-641). This API will enable partners to establish a B2B with Bell Canada to manage service requests. It includes the model definition as well as all available operations. Possible actions are creating, updating and retrieving Service Orders (including filtering).

The following Assumptions were considered in the development of this document:

- The Partner has access to a catalog system
- A service order will describe a list of service order items.
- A service order item references an action on an existing service or service to be added.

Bell customers will be required to conform to the Bell TMF API as described in our swagger files and API specification. The customer must inform Bell if they do not intend to conform to the Bell TMF API, as different measures will be required to meet the customer's needs. This includes inbound and outbound transactions.

The Service Order API supports the following functions:

Sr No.	Operation	Flow	Origin	Description
1	CreateServiceOrder	Partner > Bell	Customer Initiated	Partner initiates a creation of Service Request. The API offer guaranteed message delivery.
2	PatchServiceOrder	Partner > Bell	Customer Initiated	Partner can send an Update request for an existing Service Request into Bell (by Bell SR ID). The API offers guaranteed message delivery. This API is used to update allowable SR details such as worklog.
3	Publish Notification	Bell > Partner	Bell Initiated	Bell sends update notifications, status change notifications, outbound communications or BELL initiated service order notification

2 High-level design

2.1 Customer-Initiated Service Request Creation

All services below are TMF compliant REST services with JSON payloads.



2.2 Updates to Service Request Triggered by Bell

All services below are TMF compliant REST services with JSON payloads.



Note: For Service Requests sent to Bell for informational purposes only, the only update that Bell would send is to return the BELL ID or the status of the creation.

3 Sample Use Cases

Use Case 1: Customer-Managed Service Order (Automated Change)

The ServiceOrder API can be used for Partners to Submit changes fully managed by the Partner but that require Bell attention (for informational purposes). In such use case, the service order will be owned by the partner and the lifecycle of the Order will be automated and triggered by the Partner through the B2B. The partner may decide to open the Service Order immediately and then perform the change later (planned ahead) or simply create the Service Order in Bell's System of Record and then automatically close the request (immediately). In case the informational Service Order received by Bell is among those classified as planned, then Bell SOR will close the Service Order upon receiving a Fail or Success related state.

Use Case 2: Bell-Managed Service Order

The Service Ordering API provides a standardized mechanism for placing a service order with all of the necessary order parameters. The API consists of a simple set of operations that Partner will use to submit a Service Order to Bell, receive updates on the order, send update requests and communication logs as well as retrieval of the representation of the submitted service order in a consistent manner. A Service order is created based on a Service offering that is defined in a catalog. The service offering identifies the service or set of services that are available to a partner, and includes characteristics such as what are the mandatory parameters required for selected offering.

4 Authentication

Currently, Bell Gateway accepts 2 forms of authentication; Basic and oAuth. Basic is the legacy method while all new request will be made using oAuth 2.0.

For oAuth 2.0, two calls must be made to the gateway – the first call is done to retrieve the Gateway token. This call is made by passing a client_id, client_secret, scope and grant type.

Once the token is received, the main call is made with the token for authorization (Bearer Token)



4.1 Encryption

Messages exchanged with the API Gateway, both between the gateway and client, and between the gateway and the endpoint, are at minimum protected with 1-way server-style TSL. Additional TSL options are available.

The API gateway enforces:

• TLS1.2 256 bits AES256-SHA

The Bell API gateway supports the following ciphers:

- TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384

5 TMF API Definition

5.1 Reactive Create Service Order (Customer to Bell)

The following table is the API definition for a POST BellServiceOrder_Create API call.

Field Name	Length	Description
externalld	1024	Identifies the Customer Service Order Id associated to the Request.
description	200	Description of the Service Order.
note[id='LongDescription'].text	32000	Used to capture the Details of the Service Order.
serviceOrderItem.service.value.relatedEntity.role='PrimaryCI'.ref.name	150	Identifies the Device for the Service Order.
category	30	Used to identify the Classification of the Device
serviceOrderItem.service.value.category	30	Used to identify the Service of the device.
urgency	30	Used to identify the Urgency of the Service Order
requestedStartDate	DATETIME	The Date requested for the Service Order to begin.
requestedCompletionDate	DATETIME	The Date Requested for the Service Order to complete.
serviceOrderItem.action	20	Type of Action to be performed on the Item. (add, modify, delete, noChange)
orderDate	DATETIME	The Date the Service Order was placed.
notificationContact	100	Used to identify the Person who has requested the Service Order
note[id='Worklog'].date	DATETIME	Date the worklog was created
note[id='Worklog'].noteType	25	Type of worklog that was created
note[id='Worklog'].summary	200	Capture the details of the Log
note[id='Worklog'].text	32000	Long Description of the Worklog details.
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.addressLine	255	The address were the Service Order will occur
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.city	50	The city were the Service Order will occur

serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.stateOrProvince	25	The state or province were the Service Order will occur
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.postcode	12	The postal code were the Service Order will occur
attachment.value.name	100	The name of the attachment
attachment.value.content	BASE64	Base64 format of the attachment contents

5.2 Proactive Create Service Order (Bell to Customer)

The following table is the API definition for a POST ServiceOrderCreateEvent API call.

Field Name	Length	Description
externalReference[name='Maximo'].externalId	1024	Identifies the Bell Service Order Id associated to the Request.
description	200	Description of the Service Order.
note[id='LongDescription'].text	32000	Used to capture the Details of the Service Order.
serviceOrderItem.service.value.relatedEntity.role='PrimaryCI'.ref.name	150	Identifies the Device for the Service Order.
category	30	Used to identify the Classification of the Device
serviceOrderItem.service.value.category	30	Used to identify the Service of the device.
urgency	30	Used to identify the Urgency of the Service Order
requestedStartDate	DATETIME	The Date requested for the Service Order to begin.
requestedCompletionDate	DATETIME	The Date Requested for the Service Order to complete.
serviceOrderItem.action	20	Type of Action to be performed on the Item. (add, modify, delete, noChange)
orderDate	DATETIME	The Date the Service Order was placed.
notificationContact	100	Used to identify the Person who has requested the Service Order
note[id='Worklog'].date	DATETIME	Date the worklog was created
note[id='Worklog'].noteType	25	Type of worklog that was created
note[id='Worklog'].summary	200	Capture the details of the Log
note[id='Worklog'].text	32000	Long Description of the Worklog details.

serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.addressLine	255	The address were the Service Order will occur
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.city	50	The city were the Service Order will occur
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.stateOrProvince	25	The state or province were the Service Order will occur
serviceOrderItem.service.value.place.ref.@type='BellGeographicAddre ss'.postcode	12	The postal code were the Service Order will occur
attachment.value.name	100	The name of the attachment
attachment.value.content	BASE64	Base64 format of the attachment contents

5.3 Reactive Update Service Order (Customer to Bell)

The following table is the API definition for a POST BellServiceOrder_Update API call.

Field Name	Length	Description
nativeStatus	16	Status of the Service Order
resolution.code	50	Identifies the Closure Code for the SR
resolution.description	200	Captures the Resolution details
note.id='worklog'.date	DATETIME	Date the worklog was created
note.id='worklog'.noteType	25	Type of worklog that was created
note.id='worklog'.summary	200	Capture the details of the Log
note.id='worklog'.text	32000	Long Description of the Worklog details.
attachment.value.name	100	The name of the attachment
attachment.value.content	BASE64	Base64 format of the attachment contents

5.4 Proactive Update Service Order (Bell to Customer)

The following table is the API definition for a POST ServiceOrderAttributeValueChangeEvent API call.

Field Name	Length	Description
nativeStatus	16	Status of the Service Order
id	1024	Identifies the Bell Ticket Number associated to the Incident.

externalid	1024	Identifies the Customer Ticket Number associated to the Incident.
resolution.code	50	Identifies the Closure Code for the SR
resolution.description	200	Captures the Resolution details
requestedStartDate	DATETIME	Identifies the start date for the Service Order
requestedCompletionDate	DATETIME	Identified the end date for the Service Order
note.id='worklog'.date	DATETIME	Date the worklog was created
note.id='worklog'.noteType	25	Type of worklog that was created
note.id='worklog'.summary	200	Capture the details of the Log
note.id='worklog'.text	32000	Long Description of the Worklog details.
attachment.value.name	100	The name of the attachment
attachment.value.content	BASE64	Base64 format of the attachment contents

6 Endpoints

6.1 CreateServiceOrder

POST

Summary: Creates a Service Request in Bell from a customer

Description: This API enables a customer to create a Service Order in Bell's System of Record. In the case of customer-owned Service Orders (ie. Automated Change; services implemented by customer with no dependency to Bell as service provider), the Service Order is sent to Bell for informational purposes only. In the case of Bell-owned Service Orders (ie. Services implemented/fulfilled by Bell), Bell is expected to manage the lifecycle of the Service Order.

6.1.1 Behavior

Returns HTTP/1.1 status code 202 if the request was successful. Returns HTTP/1.1 status code 500 for Internal Error.

6.1.2 Headers and Parameters

Below is a list of header and parameter properties for Post Service Order

Name	Description	Туре
X-Correlation-Id	ID used to correlate request and response payloads	Header

6.1.3 Usage samples

Here's an example of a request for creating an SR.

Request

Content-Type: application/json Schema: #/definitions/BellServiceOrder_Create

Request Message

```
{
        "attachment": [{
                       "value": {
                              "content": "SnVzdGlmaWNhdGlvbjogCkltcGxlbWVudGF0aW9=",
                              "name": "test.txt"
               }}],
        "description": "Descrption of the Service Order",
               "category": "classification",
        "externalReference": [{
            "@baseType": "ExternalReference",
            "@type": "BellExternalReference",
            "externalId": "SR123456",
            "name": "Maximo"
        }],
        "note": [{
                       "id": "LongDescription",
```

```
"text": "Long Description of the Service Order"
           },
           {
                   "id": "WorkLog",
                   "date": "2023-02-22T14:09:23.199Z",
                   "summary": "Description of the WorkLog",
"noteType": "Customer",
                   "text": "Long Description of the WorkLog"
           }],
    "notificationContact": "John.smith",
    "orderDate": "2023-03-23T01:40:25.000Z",
    "requestedCompletionDate": "2023-03-23T21:00:00.000Z",
    "requestedStartDate": "2022-09-27T10:00:00.000Z",
    "serviceOrderItem": [{
        "@baseType": "ServiceOrderItem",
        "@type": "ServiceOrderItem",
                  "action": "add",
        "service": {
                           "value": {
                                   "place": [{
"@baseType": "Place",
                                           "@type": "RelatedPlaceRefOrValue",
                                           "ref": {
                                                   "@baseType": "GeographicAddress",
                                                   "@type": "BellGeographicAddress",
                                                   "addressLine": "1 Mansfield ST",
                                                   "city": "Montreal",
                                                   "postcode": "A1A 1A1",
                                                   "stateOrProvince": "QC"
                                           },
                                           "role": "SiteAddress"
                                   }],
                                   "category": "category",
                                   "relatedEntity": [{
                                           "@baseType": "RelatedEntity",
                                           "@type": "RelatedEntityRefOrValue",
                                           "ref": {
                                                   "name": "TEST-QC-MON-12345-SRTEST00"
                                           "role": "PrimaryCI"
                                   }]
                           }
                   }
    }],
    "urgency": "STANDARD"
}
```

Responses

Status Code: 202 (An Acknowledgement to Create Request) Message: Accepted Content-Type: application/json Schema: #/definitions/BellServiceOrder_Create

Response Message

```
"externalReference": [{
           "@baseType": "ExternalReference",
           "@type": "BellExternalReference",
           "externalId": "SR123456",
           "name": "Maximo"
       }],
       "note": [{
                      "id": "LongDescription",
                      "text": "Long Description of the Service Order"
              },
              {
                      "id": "WorkLog",
                      "date": "2023-02-22T14:09:23.199Z",
                      "summary": "Description of the WorkLog",
                      "noteType": "Customer",
                      "text": "Long Description of the WorkLog"
              }],
       "notificationContact": "John.smith",
       "orderDate": "2023-03-23T01:40:25.000Z",
       "requestedCompletionDate": "2023-03-23T21:00:00.000Z",
       "requestedStartDate": "2022-09-27T10:00:00.000Z",
       "serviceOrderItem": [{
           "@baseType": "ServiceOrderItem",
           "@type": "ServiceOrderItem",
                      "action": "add",
           "service": {
                              "value": {
                                     "place": [{
                                             "@baseType": "Place",
                                             "@type": "RelatedPlaceRefOrValue",
                                             "ref": {
                                                     "@baseType": "GeographicAddress",
                                                     "@type": "BellGeographicAddress",
                                                     "addressLine": "1 Mansfield ST",
                                                     "city": "Montreal",
                                                     "postcode": "A1A 1A1"
                                                     "stateOrProvince": "QC"
                                             },
"role": "SiteAddress"
                                     }],
                                     "category": "category",
                                     "relatedEntity": [{
                                             "@baseType": "RelatedEntity",
                                             "@type": "RelatedEntityRefOrValue",
                                             "ref": {
                                                     "name": "TEST-QC-MON-12345-SRTEST00"
                                             },
                                             "role": "PrimaryCI"
                                     }]
                              }
                      }
       }],
       "urgency": "STANDARD"
}
```

Message: Asynchronous Create Response with Bell Service Order ID **Content-Type:** application/json **Schema**: #/definitions/ BellServiceOrder_Update

Successful Response Message

```
{
    "customerTicketId": "SR123456",
    "id": "S214702"
}
```

Status Code: 500 Message: Asynchronous Internal Server Error Content-Type: application/json Schema: #/definitions/Error

Failure Response Message – Internal Server Error

```
{
   "code": 500,
   "status": "FAIL",
   "reason": "Internal Server Error : ITSM system unavailable"
}
```

6.2 PatchServiceOrder

PATCH

Summary: Request to partially update a Service Request by Bell SR Id.

Description: This API enables a customer to send an Update or Update Request against a given Service Order, based on Bell SR Id. In the case of customer-owned Service Orders (ie. Automated Change), updates are submitted to Bell for informational purposes only (ex. a notification is sent when Service Order status is updated to "Completed"). In the case of Bell-owned Service Orders (ie. to be fulfilled by Bell), Update Requests from the customer are subject to approval by Bell Operations team. Once approved, the update will be made in Bell and a notification will be published to the customer. If the request is not approved, this will be communicated to the customer via Worklog. Please reference the Service Catalog section, automatic updates are not subject to approval by Bell Operations Team.

<u>Note</u>: When adding an Attachment or Note to a Service Order, the new object will be appended to the existing list, ie. there will be no replacement of existing Attachments/Notes.

6.2.1 Behavior

Returns HTTP/1.1 status code 200 if the request was successful. Returns HTTP/1.1 status code 500 for Internal Error.

6.2.2 Headers and Parameters

Below is a list of header and parameter properties for Patch Service Order

Name	Description	Туре
X-Correlation-Id	ID used to correlate request and response payloads	Header

6.2.3 Usage samples

Here's an example of a request for updating an SR.

Request

```
Content-Type: application/json
Schema: #/definitions/BellServiceOrder_Update
```

```
Request Type
```

```
{
    "nativeStatus": "cancelled",
       "attachment": [{
                       "value": {
                              "content": "SnVzdGlmaWNhdGlvbjogCkltcGxlbWVudGF0aW9=",
                              "name": "test.txt"
              }}],
       "resolution": {
               "code": "code",
               "description": "Description of the Resolution"
               },
    "note": [{
        "date": "2022-03-17T09:28:28-04:00",
        "id": "Worklog",
        "noteType": "Customer",
        "summary": "Description of the WorkLog",
        "text": "Long Description of the WorkLog"
   }]
}
```

Responses

Status Code: 202 Message: Accepted Content-Type: application/json Schema: #/definitions/BellServiceOrder_Update

Response Message

```
{
    "nativeStatus": "cancelled",
       "attachment": [{
                       "value": {
                              "content": "SnVzdGlmaWNhdGlvbjogCkltcGxlbWVudGF0aW9=",
                              "name": "test.txt"
              }}],
       "resolution": {
               "code": "code",
               "description": "Description of the Resolution"
               },
    "note": [{
       "date": "2022-03-17T09:28:28-04:00",
        "id": "Worklog",
        "noteType": "Customer",
        "summary": "Description of the WorkLog",
        "text": "Long Description of the WorkLog"
   }]
}
```

Status Code: 404 Message: Not Found Content-Type: application/json Schema: #/definitions/Error

Failure Response Message – Not found

```
{
   "code": 404,
   "message": "Not found",
   "status": "FAIL"
}
```

Status Code: 500 Message: Internal Server Error Content-Type: application/json Schema: #/definitions/Error

Failure Response Message – Internal Server Error

```
{
   "code": 500,
   "status": "FAIL",
   "reason": "Internal Server Error : ITSM system unavailable"
}
```

6.3 Notifications - publish events

Notifications are published to the customer-provided listener URL whenever there is a update or state change on the Service Order triggered in Bell ITSM.

<u>Note</u>: Partners should provide the root of their callback URLs at design time for Bell to configure & whitelist internally. Sub-domain callback URLs can then be registered as listeners in real-time by providing while creating a Hub. Also if customer URLs are SSL secured, the customer is responsible for providing the required SSL certificates at design time.

6.3.1 Headers and Parameters

Below is a list of header and parameter properties for Bell Event Service Order

Name	Description	Туре
X-Correlation-Id	ID used to correlate request and response payloads	Header

6.3.2 ServiceOrderCreateEvent

JSON representation

This notification is published when an SR has been successfully created in Bell ITSM. Below is the JSON representation of an example of a 'ServiceOrderCreateEvent' notification object.

Notification Message

Content-Type: application/json **Schema**: #/definitions/EventSubscription

```
"@baseType": "ExternalReference",
        "@type": "BellExternalReference",
        "externalId": "SR123456",
        "name": "Maximo"
    }],
    "note": [{
                   "id": "LongDescription",
                   "text": "Long Description of the Service Order"
           },
           {
                   "id": "WorkLog",
                   "date": "2023-02-22T14:09:23.199Z",
                   "summary": "Description of the WorkLog",
                   "noteType": "Customer",
                   "text": "Long Description of the WorkLog"
           }],
    "notificationContact": "John.smith",
    "orderDate": "2023-03-23T01:40:25.000Z",
    "requestedCompletionDate": "2023-03-23T21:00:00.000Z",
    "requestedStartDate": "2022-09-27T10:00:00.000Z",
    "serviceOrderItem": [{
        "@baseType": "ServiceOrderItem",
        "@type": "ServiceOrderItem",
                   "action": "add",
        "service": {
                           "value": {
                                   : {
"place": [{
"@baseType": "Place",
". "RelatedPlac
                                           "@type": "RelatedPlaceRefOrValue",
                                           "ref": {
                                                   "@baseType": "GeographicAddress",
                                                   "@type": "BellGeographicAddress",
                                                   "addressLine": "1 Mansfield ST",
                                                   "city": "Montreal",
                                                   "postcode": "A1A 1A1"
                                                   "stateOrProvince": "QC"
                                           "role": "SiteAddress"
                                   }],
                                   "category": "category",
                                   "relatedEntity": [{
                                           "@baseType": "RelatedEntity",
                                           "@type": "RelatedEntityRefOrValue",
                                           "ref": {
                                                   "name": "TEST-OC-MON-12345-SRTEST00"
                                           },
                                           "role": "PrimaryCI"
                                   }]
                           }
                   1
    }],
    "urgency": "STANDARD"
} 

"eventType": "ServiceOrderCreateEvent"
```

6.3.3 ServiceOrderAttributeValueChangeEvent

JSON representation

This notification is published when there is any update/patch to any attribute on the SR in Bell ITSM triggered either internally or externally. Below is the JSON representation of an example of a 'ServiceOrderAttributeValueChangeEvent' notification object.

Notification Message

Content-Type: application/json **Schema**: #/definitions/EventSubscription

```
"@baseType": "ServiceOrderAttributeValueChangeEvent",
"@type": "ServiceOrderAttributeValueChangeEvent",
"event": {"serviceOrder": {
    "@baseType": "ServiceOrder",
    "@type": "BellServiceOrder",
    "attachment": [{
                     "value": {
                             "content": "SnVzdGlmaWNhdGlvbjogCkltcGxlbWVudGF0aW9=",
                             "name": "test.txt"
            }}],
    "externalId": "REQ0000001",
    "id": "SR123456",
    "nativeStatus": "inProgress",
    "note": [{
                     "date": "2023-03-17T09:28:28-04:00",
                     "id": "Worklog",
                     "noteType": "Customer",
"summary": "Description of the WorkLog",
"text": "Long Description of the WorkLog"
            }],
    "requestedCompletionDate": "2023-03-23T20:17:00.000Z",
    "requestedStartDate": "2023-03-10T12:00:00.000Z",
    "resolution": {
         "@baseType": "Resolution",
        "@type": "Resolution",
"code": "code",
"description": "Description of the Resolution"
    }
}},
"eventType": "ServiceOrderUpdateEvent"
```

7 Appendix

Below is a list of all values that are acceptable in the indicated fields, along with a description of each possible value:

Field	Value	Description
Urgency	standard	
	emergency	
	normal	
Status	submitted	Service Order has been created in Bell ITSM and allocated a unique Service ID.
	in Progress	Service Order has been accepted and is being processed for troubleshooting.
	pending	Awaiting Bell internal action or verification prior proceeding with the troubleshooting/completion the service order.
	held	Awaiting originator input, additional info, authorization etc.
	resolved	Service Order has been resolved and awaits acknowledgement from Originator
	closed	Originator has acknowledged the resolution or the time frame to accept the resolution has passed.
	rejected	Service Order has been rejected by Originator
	cancelled	Service Order has been cancelled.

8 Version history

Version	Change description	Date
1.0	Initial version	September 22 th 2019
1.1	Updated to reflect the need for the customer to provide their ITSM's ticket ID for Bell- Initiated tickets. Also added Version History tracking	October 28 th 2019
1.2	Bell branding	March 23 rd 2020
1.3	Updated 10.6 GetServiceOrderList and 10.8 GetServiceOrder to include real examples with response messages and errors Reworded Section 9 Service Catalog to better represent Automatic Changes Reworded Section 10.9 PatchServiceOrder Description to better reflect Automatic Changes vs standard Service Requests	August 24 th 2020
1.4	Updated TMF version from 18.5.1 to 21.0.0 and subsequent payload samples	February 27 th 2023