

Device Manager API Guide

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NETWORK FOR GREATER GOOD



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Getting Started

Using REST APIs with Device Manager

Device Manager registers devices by capturing information related to one or more devices through the REST API and responds with an environment URL that must be installed on each device to enable secure connections to the TraceLink Track & Trace Services.

Registering devices authorizes communication with TraceLink applications (e.g. Smart Inventory Tracker).



Devices can also be registered through the Company Administration Web UI. See the *Company Administration Online Help* for more information.

Authentication

The Smart Inventory Tracker REST APIs support user-based authentication using HTTP Basic Authentication.

URL

Use a Post request to the following URL:

- *itest*: itestmsapi.us1.tracelink.com/etapi/basic/itest/devmgr/device-management/manage
- *prod*: msapi.us1.tracelink.com/etapi/basic/prod/devmgr/device-management/manage

Header key-value pairs

- Content-Type - The media type for the message. Valid value is "application/json".
- Authorization - The Administrator's username and password, encoded using Base64.

If the message is sent through Postman, select *Basic Auth* on the Authorization tab to enter the Administrator's username and password. These credentials are encrypted and added to the header.

Prerequisites

1. The company owns Smart Inventory Tracker, in addition to Serialized Operations Manager, Smart Event Manager, or both.
2. The company has configured internal locations. See the *Company Administration Online Help* for more information.
3. The internal locations are linked to Smart Inventory Tracker to configure location-specific options (optional). See the Management Online Help for more information.

HTTP response status codes

Successful response

200	OK. The request was successful. For GET, this means that the resource has been fetched.
-----	---

Redirect message

307	Temporary Redirect. The client must get the requested resource at another URI with the same HTTP method that was used in the prior request.
-----	---

Client error status codes

400	Bad Request. The server could not understand the request due to invalid syntax.
401	Unauthorized. The client is unauthenticated, not allowed access, and should re-request credentials.
403	Forbidden. The request is valid and the client is authenticated, but the client is not allowed access rights to the content for any reason.
404	Not Found. The server cannot find the requested item. This can also mean that the endpoint is valid but the resource does not exist.

Server error status codes

500	Internal Server Error. The server has encountered an unknown error.
502	Bad Gateway. The server is working as a gateway to handle the request and received an invalid response.
503	Service Unavailable. The server is not ready to handle the request.
504	Gateway Timeout. The server is acting as a gateway and cannot get a response in time.

How to read the guidelines table

Body guidelines


- Element - The field name designated by the request or response guidelines.
- Type - The type of data format required for the value.
- Update - Indicates whether the value can be updated in a later request.
- Description - A description of the value, including its format and acceptable values, if needed.

Messages

Device Manager API Request


Administrators for the company that owns Smart Inventory Tracker send the Device Manager Request to provide information for devices that need authentication. Administrators can also update data attributes and configuration details for previously authenticated devices or delete device information.


Body guidelines

Element		Type	Update	Description
deviceInformationList		List Begin	-	Required. The list of devices that require authentication certificates.  The request must contain a maximum of 40 devices.
	deviceInformation	Section Begin	-	Required. The information about each device.
	deviceName	String	Yes	Required. The name of the device. Must be unique across all names defined for a single locationId.
	deviceUniqueIdentifier	String	No	Required. The Machine (e.g. MAC) address for the device. Must be 6 sets of 2 characters separated by colons or hyphens (e.g. <code>00:23:68:CF:A4:D8</code> or <code>00-23-68-CF-A4-D8</code>). Acceptable characters are numbers 0-9 and letters A-F.
	deviceType	Enum	No	Required. The type of device. Valid values: <ul style="list-style-type: none"> <code>Handheld</code> <code>SmartPhone</code>
	deviceMake	Enum	No	Required. The brand of the device. Valid values: <ul style="list-style-type: none"> <code>Zebra</code> (Only allowed if the deviceType is <code>Handheld</code>.) <code>Honeywell</code> (Only allowed if the deviceType is <code>Handheld</code>.) <code>Google</code> (Only allowed if the deviceType is <code>SmartPhone</code>.) <code>Samsung</code> (Only allowed if the deviceType is <code>SmartPhone</code>.)

Element			Type	Update	Description
		deviceModel	Enum	No	<p>Required. The model of the device.</p> <p>Valid values:</p> <ul style="list-style-type: none"> MC3300 (Only allowed if the deviceMake is Zebra.) TC70x (Only allowed if the deviceMake is Zebra.) TC51 (Only allowed if the deviceMake is Zebra.) TC52 (Only allowed if the deviceMake is Zebra.) CN80L1N (Only allowed if the deviceMake is Honeywell.) Pixel2 (Only allowed if the deviceMake is Google.) GalaxyS9 (Only allowed if the deviceMake is Samsung.)
		action	Enum	-	<p>Required. The action that the Device Manager must take with the specified deviceUniquelIdentifier.</p> <p>Valid values:</p> <ul style="list-style-type: none"> add - Register a new device, and add the new device information. update - Update the device information for an existing device. delete - Delete all information stored for an existing device.
		companyExternalId	String	Yes	Required. The External ID for the company registering the device. Must match a valid company in the Track & Trace Services. Contact TraceLink Support or the company's TraceLink Technical Consultant for the External ID.
		locationId	String	Yes	Required. The identifier value for the device's specific location. Must match a valid location in the Track & Trace Services.
		locationType	Enum	Yes	<p>Required. The identifier type for the device's specific location.</p> <h2>Valid values</h2> <ul style="list-style-type: none"> AR_CUIT - 11-character Argentina Tax ID. Format is 00-00000000-0 (e.g. 33-56899856-8). Cannot be set as the Primary Identifier. AM_TIN - 8-character Armenia Taxpayer Identification Number (e.g. 53663456). Cannot be set as the Primary Identifier. BR_CNES - Brazil National Registry of Health Facilities Number (e.g. 3868249). BR_CNPJ - 14-character Brazil Tax/Legal Entity ID. Format is 00.000.000/0001-00 (e.g. 71.116.165/0001-71). BR_CPF - 11-character Brazil Individual Taxpayer Registration Number. Format is 000.000.000-00 (e.g. 605.085.153-00). The first 8 digits identify the company, the next 4 digits identify the branch or subsidiary ("0001" designates the headquarters), and the last 2 are check digits. BR_PROF_REG - Brazil Professional Registration Number (e.g. CRODFCD9952). BY_TIN - 9-character Belarus Taxpayer Identification Number (e.g. 004893223). Cannot be set as the Primary Identifier. CN_CHINA_ID - Alphanumeric China identifier (e.g. 352J685B548N). CN_FOREIGN_MAH - China Foreign MAH ID (e.g. 0678645).

Element	Type	Update	Description
			<ul style="list-style-type: none"> • CN_FOREIGN_MFR - China Foreign Manufacturer ID (e.g. 665S55D). • CN_USCID - China Unified Social Credit Identifier (e.g. 9771221453). • COMPANYID - Alphanumeric internal company identifier (e.g. KENDALL). • COMPANYSITEID - Alphanumeric internal location, plant, or site identifier (e.g. 465MEMPHIS). • DE_IFA_REG_NUM - 6-character Informationsstelle für Arzneispezialitäten (IFA) Registration Number (e.g. 548726). Cannot be set as the Primary Identifier. • DEA - 9-character US Drug Enforcement Agency Number (e.g. F92547851). • DUNS - 9-character Dunn and Bradstreet Number (e.g. 82-759-6961). • DUNS4 - 13-character Dunn and Bradstreet Number, which includes a 4 digit extension (e.g. 82-759-6961-KP89). • DUNS_PLUS_FOUR - 13-character Dunn and Bradstreet Number, which includes a 4 digit extension (e.g. 82-759-6961-KP89). • GCP - 6- to 12-character GS1 Global Company Prefix (e.g. 8856277). • GLN - 13-character Global Location Number (e.g. 8856277233311). To send and receive EPCIS messages, companies and locations need a GLN. • HIN - Maximum 9-alphanumeric character Health Industry Number assigned by HIBCC (e.g. 214Z65H00). • ID_BPOM_FACILITYID - Indonesia Facility ID (e.g. 45764574). • IN_COMPANY_ID - India Company ID (e.g. 5423695784236). • IN_GSTN - India Goods and Services Tax ID (e.g. 55876215). • IN_IEC - 10-character India Importer Exporter Code (e.g. 0255411222). Cannot be set as the Primary Identifier. • IN_LOCATION_ID - India Location ID (e.g. 65874532). • IN_MFR - India Manufacturing Code (e.g. 00552101). • IN_MRCH - India Merchant Exporter Code (e.g. 601227644). • IN_PAN - 10-character India Permanent Account Number. The first five characters are letters, next four numbers, last character is a letter (e.g. AFZPK7190K). Cannot be set as the Primary Identifier. • IN_TIN - 11-character India Taxpayer Identification Number (e.g. 95684444523). Cannot be set as the Primary Identifier. • KG_TIN - 14-character Kyrgyzstan Taxpayer Identification Number (e.g. 56200044505998). Cannot be set as the Primary Identifier. • KR_BUS_REG_NUMBER - 10-character South Korea Corporate Registration Number. Format is xxx-xx-xxxxx (e.g. 324-84-22451). • KR_PROVIDER_CODE - 8-character South Korea Provider Code (e.g. 45632196). • KZ_BIN - 12-character Kazakhstan Business Identification Number (e.g. 220110668755). Cannot be set as the Primary Identifier. • RU_ACCOUNT_NUMBER - 14- to 36-character Russia Account Number (e.g. 19527400000001 or 19406412-0001-000a-0000-000000000022). Cannot be set as the Primary Identifier. • RU_INN_FOREIGN_ENTITY - 10-character Russia Foreign Business Taxpayer Identification Number (e.g. 7744000912). Cannot be

Element			Type	Update	Description
					<p>set as the Primary Identifier. Only one of the following identifier types can be assigned to an entity: RU - INN Local, RU - IN Foreign, and RU - INN Individual.</p> <ul style="list-style-type: none"> RU_INN_INDIV - 12-character Russia Individual Taxpayer Identification Number (e.g. 123456789001). Cannot be set as the Primary Identifier. Only one of the following identifier types can be assigned to an entity: RU - INN Local, RU - IN Foreign, and RU - INN Individual. RU_INN_KPP_TAX_CODE - 9-character Russia KPP Registration Code (e.g. 771301001). Cannot be set as the Primary Identifier. RU_INN_LOCAL_ENTITY - 10-character Russia Local Business Taxpayer Identification Number (e.g. 7728640746). Cannot be set as the Primary Identifier. Only one of the following identifier types can be assigned to an entity: RU - INN Local, RU - IN Foreign, and RU - INN Individual. SGLN - 15-character SGLN format representation of Global Location Number: <ul style="list-style-type: none"> Format for company entities is [CompanyPrefix].[LocationRef].0 or [CompanyPrefix].0. The LocationRef segment is optional. If the LocationRef is included, the first two segments contain only digits separated by the dot, and must be 13 characters in total. If the LocationRef is not included, then the first segment must be 12 digits, followed by two dot separators. The third segment should always be the digit 0. For example, 539885451928.0 or urn:epc:id:sgln:0614141.12345.0. Format for location entities is [CompanyPrefix].[LocationRef].[sub-location identifier] or [CompanyPrefix].[sub-location identifier]. The LocationRef segment is optional. If the LocationRef is included, the first two segments contain only digits separated by the dot, and must be 13 characters in total. If the LocationRef is not included, then the first segment must be 12 digits, followed by two dot separators. The third segment is always alphanumeric and can be any length, with at least one character in it preceded by the dot separator. For example, 8856277.23331.6 or 539885451928.11. TRACELINK_ID - TraceLink Identification Number (e.g. KENDALLPHARM). UZ_TIN - 9-character Uzbekistan Taxpayer Identification Number (e.g. 000181244). Cannot be set as the Primary Identifier.
		countryCode	String	Yes	Conditionally required if the serialNumberEventManager is SEM , defaultSOM , or defaultSEM . The default market for reporting serial numbers to. Must be an ISO Alpha 2-digit code.
		environment	Enum	Yes	<p>Required. The Smart Inventory Tracker environment that the device must be authenticated within.</p> <p>Valid values:</p> <ul style="list-style-type: none"> beta itest production <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  If a device updates to a different environment, the authentication certificates must be retrieved from the response and installed on the device again. </div>
		port	Enum	Yes	<p>The firewall port that the individual device uses to communicate with the TraceLink Track & Trace Services.</p> <p>Valid values:</p>

Element		Type	Update	Description
				<ul style="list-style-type: none"> 8883 - The standard port that the device uses to communicate with the TraceLink Track & Trace Services. 443 - Devices can use this port to communicate with the TraceLink Track & Trace Services if the company blocks port 8883. <p>If a device is currently registered with 8883 as the port element, the company must keep their 8883 firewall port open until the device is successfully updated to the 443 port.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 5px;">  If the port element is not present, the device defaults to 8883. </div>
	serialNumberEventManager	Enum	Yes	<p>Required. The serial number event manager that Smart Inventory Tracker integrates with.</p> <p>Valid values:</p> <ul style="list-style-type: none"> SOM - The device can integrate with Serialized Operations Manager only. SEM - The device can integrate with Smart Event Manager only. defaultSOM - The device can integrate with Serialized Operations Manager or Smart Event Manager, and Serialized Operations Manager is the default integration when logging in. defaultSEM - The device can integrate with Serialized Operations Manager or Smart Event Manager, and Smart Event Manager is the default integration when logging in.
	active	Boolean	Yes	<p>Required. Indicates whether the device can be used.</p> <p>Valid values:</p> <ul style="list-style-type: none"> true - Users can log in to Smart Inventory Tracker on the device. false - Users cannot log in to Smart Inventory Tracker on the device. Users that attempt to log in will receive an error.

Errors

Errors display in the Device Manager Response. Only the specified device fails authentication, not the entire list.

Element	Error	Description
username	User is not authorized to access this resource with an explicit deny	The username is not present, or the username and password pairing cannot be authenticated.
	user [username] does not have the Devices permission	The username can be authenticated, but the user is not an Administrator for the company where the device is being registered, or the user is not assigned a role with the Devices permission enabled.
password	User is not authorized to access this resource with an explicit deny	The password is not present or the username and password pairing cannot be authenticated.

Element	Error	Description
deviceInformationList	More than 40 devices defined within the request. Limit request to 40 devices.	The request must contain a maximum of 40 devices. Separate the request into multiple messages to add, update, or remove more than 40 devices.
deviceName	The device [deviceName] is not unique within the associated location [locationId]	At least one other device at that locationId exists with the same deviceName.
	deviceName for [deviceUniqueId] is required	The deviceUniqueId is present, but the deviceName is not.
	deviceName is required	Neither the deviceName nor the deviceUniqueId are present.
	deviceName must not contain spaces	The deviceName contains a space, which is an invalid character.
	deviceName contains invalid characters	The deviceName contains a character that is not alphanumeric or one of the following special characters: _ . , @ / : # -
deviceUniqueId	Device [deviceUniqueId] must be 6 sets of two characters, separated by a colon ":" or a hyphen "-" and containing numbers 0-9 and letters A-F	The deviceUniqueId does not follow the format requirements.
	Device [deviceUniqueId] already exists	Another device registered with the Device Manager uses the same deviceUniqueId, and the action specified in the request is add .
	deviceUniqueId is a required field	The deviceUniqueId is not present.
	Device [deviceUniqueId] does not exist in your company	The specified device exists at another company on the TraceLink network and cannot be added to, updated, or removed from the company of the user that sent the request.
deviceType	deviceType must be one of the supported values	The deviceType is not present, or is not Handheld or SmartPhone .
deviceMake	deviceMake must be one of the supported values	The deviceMake is not specified, or is not Zebra , Google , or Samsung .
	Invalid deviceMake based on deviceType, deviceMake must be Zebra or Honeywell when deviceType is Handheld	The deviceType is Handheld , but the deviceMake is not Zebra or Honeywell .
	Invalid deviceMake based on deviceType, deviceMake must either be Google or Samsung when deviceType is SmartPhone	The deviceType is SmartPhone , but the deviceMake is not Google or Samsung .
deviceModel	deviceModel must be one of the supported values	The deviceModel is not specified, or is not MC3300 , TC50x , TC51 , TC52 , CN80L1N , Pixel2 , or GalaxyS9 .
	Invalid deviceModel based on deviceMake, deviceModel must be MC3300, TC70x, TC51, or TC52 when deviceMake is Zebra	The deviceMake is Zebra , but the deviceModel is not MC3300 , TC50x , TC51 , or TC52 .
	Invalid deviceModel based on deviceMake, deviceModel must be CN80L1N when deviceMake is Honeywell	The deviceMake is Honeywell , but the deviceModel is not CN80L1N .
	Invalid deviceModel based on deviceMake, deviceModel must be Pixel 2 when deviceMake is Google	The deviceMake is Google , but the deviceModel is not Pixel2 .


Element	Error	Description
	Invalid deviceModel based on deviceMake, deviceModel must be GalaxyS9 when deviceMake is Samsung	The deviceMake is Samsung , but the deviceModel is not GalaxyS9 .
action	Device [deviceUniqueIdentifier] does not exist and cannot be deleted	The Device Manager does not have record of the device specified and cannot delete it.
	action is a required field	An action is not present.
	[action] failed	The Device Manager did not successfully store the device information.
companyExternalId	companyExternalId is a required field	The companyExternalId is not present.
locationId	Invalid locationId [locationId]	The locationId does not exist in the Track & Trace Services.
	locationId is a required field	The locationId is not present.
locationType	locationType is a required field	The locationType is not present.
	Invalid locationType [locationType]	The locationType is not one of the supported values (see Guidelines above).
	locationType does not match expected locationType for locationID [locationID]	The locationId is found in the Track & Trace Services, but the locationType value does not match the locationType associated with that locationId.
countryCode	countryCode is a required field when serialNumberEventManager is SEM	The serialNumberEventManager is SEM , but the countryCode is not present.
	countryCode must be a valid ISO 3166 Alpha 2-Code	The countryCode is not a valid ISO 3166 Alpha 2-Code.
environment	environment is a required field	The environment is not present or is not Beta , Test , or Production .
port	port must be one of the supported values, '8883' or '443'	The port is entered, but is not 8883 or 443 .
serialNumberEventManager	serialNumberEventManager is a required field	The serialNumberEventManager is not present.
	serialNumberEventManager must be one of the supported values, 'SOM', 'SEM', 'defaultSOM', or 'defaultSEM'	The serialNumberEventManager is not SOM , SEM , defaultSOM , or defaultSEM .
active	active is a required field	The active value is not present.
	active value must be true or false	The active value is not true or false .

Body example

```
{"deviceInformationList":  
  [{"deviceName": "HH_QE_OMICRON-C5",  
    "deviceType": "Handheld",  
    "deviceMake": "Zebra",  
    "deviceModel": "MC3300",  
    "action": "add",  
    "deviceUniqueIdentifier": "94:FB:29:29:0C:C5",  
    "companyExternalId": "kendallpharm",  
    "locationId": "MUNICHWOBURN-326",  
    "locationType": "COMPANYSITEID",  
    "countryCode": "DEUS",  
    "environment": "itest",  
    "port": "8883",  
    "serialNumberEventManager": "defaultSEM",  
    "active": "true"  
  }  
}]}
```

Device Manager API Response

The Device Manager Response contains the list of devices successfully registered or updated, or errors indicating why the device could not be authenticated. The authentication certificates must then be installed on each device. Download the [Smart Inventory Tracker Installation Qualification Document](#) for more information.

 A Curie 6 Known Issue impacts this response. See the *TraceLink Release Summary: Curie 6* on the [Customer Success Portal](#) for more information.

Body guidelines

Element	Type	Description
errorInfoList	List Begin	The list of errors returned by the request. Only present if the request returned at least one error.
errorInformation	Section Begin	The error information.
deviceName	String	Required. The name of the device that failed authentication.
deviceUniqueIdentifier	String	Required. The Machine (e.g. MAC) address of the device that failed authentication.
errorMessage	String	Required. The errors returned by the request.
deviceConfigurationFileInformation	Section Begin	The list of environment URLs for each device added in the request. Present only if at least one device is added successfully.
environment	String	Required. The environment URL that the device is registered on.
deviceSuccessList	List Begin	The list of devices that were successfully added, updated, or deleted with the request message. Present only if at least one device was successfully added, updated, or deleted.
deviceSuccessInformation	Section Begin	The success information.
deviceName	String	Required. The name of the device that was successfully added, updated, or deleted.

Element	Type	Description
deviceUniqueIdentifier	String	Required. The Machine (e.g. MAC) address of the device that was successfully added, updated, or deleted.
successMessage	String	Required. A message indicating the success of the request. Possible options: <ul style="list-style-type: none"> For add action requests: <code>Device <deviceName> has been pre-registered successfully</code> For update action requests: <code>Device <deviceName> has been updated successfully</code> For delete action requests: <code>Device <deviceName> has been deleted successfully</code>

Errors

The Response includes errors returned by the original Device Administration Request, but does not return errors of its own.

Body example

```

{"deviceConfigurationFileInformation":
  {
    "environment": "https://ki53q5hjo0.execute-api.us-east-
1.amazonaws.com/etapi/basic/qetauvir/devmgr"
  }
"deviceSuccessList":
  [{"deviceSuccessInformation":
    [{"deviceName": "HH_1",

```

```
    "deviceUniqueIdentifier": "94:FB:29:29:0C:C5",  
    "successMessage": "Device HH_1 has been pre-registered successfully"  
  }  
}  
}
```