



Inception REST API – Getting Started

Introduction

Inception release 3.0.0 includes support for a new REST-based Integration API. This API allows 3rd party applications to integrate directly with Inception units via a high level interface.

The API offers three main features, however this may be expanded in future:

1. **User Management** – Users can be remotely added and deleted and their details retrieved or updated. This allows 3rd party personnel management systems to integrate seamlessly with the Inception system.
2. **Live Item State** – The state of areas, doors, inputs, outputs and lift floors can be retrieved. The API supports a long polling technique where live, almost instantaneous state changes can be retrieved from the system.
3. **Item Control** - Areas, doors, inputs, outputs and lift floors can be controlled via the API. Detailed feedback from these control requests can also be retrieved, ensuring the success of the request or providing a detailed reason if it fails.

This document will guide you through the process of setting up the Inception REST API to enable external control and configuration, and sending some sample HTTP requests to your Inception device using the Postman API testing application.

REST API Documentation

The dynamic REST documentation can be found by logging onto an Inception running firmware 3.0.0 or above and navigating to the “ApiDocExamples” page. There isn’t a shortcut to the page, instead the URL should be modified to be [http://\[InceptionURL\]/ApiDocExamples](http://[InceptionURL]/ApiDocExamples).

Setting up the Inception API User

Using the Inception web interface, create a new user, and set its Web Page Profile to “REST Web API User”. This user represents the API and the permissions it has to view items and perform various actions.

In the User’s Credentials section, tick the Enable Web Login box, and set a username and password that will be used for authenticating the API session.

Enable Web Login	☒
Username	apiuser
Password	*****
Web Page Profile	REST Web API User

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Setting up the Inception API User (cont.)

In the User's Permissions section, set up some basic permissions for Areas, Doors, Outputs, etc. that you will be interacting with. These permissions determine which items you will be able to view and control using the API.

Permissions					
Permissions	Allowed	What			When
	Allow	Area	Area 1	Arm, Disarm, Access	Always
	Allow	Area	Area 2	Arm, Disarm, Access	Always
	Allow	Area	Area 3	Arm, Disarm, Access	Always
	Allow	Area	Default Area	Arm, Disarm, Access	Always
	Allow	Door	New Standard LAN Access Module (SLAM) - Door 1	Access	Always
	Allow	Custom Output	Output1	Control	Always

Add Items Remove Selected Items

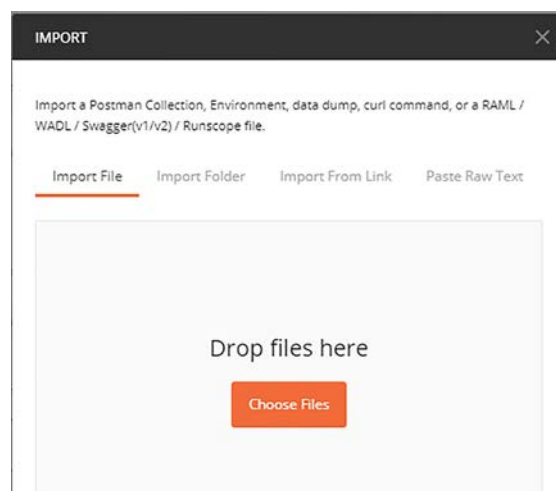
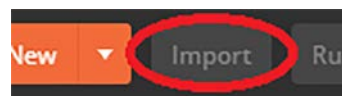
Downloading Postman and the Inception Postman Collection

Postman is an application for sending HTTP requests and testing web APIs for Windows, Mac and Linux. Inner Range provides a Postman request collection which demonstrates the capabilities of the Inception API.

Install Postman on your PC by following this link and downloading the appropriate version for your operating system: <https://www.getpostman.com/>

Download the Postman collection and environment files from your Inception's web server on the "ApiDocExamples" page. See the "REST API Documentation" section at the start of this document on accessing this page. Follow the instructions on the page to download the collection and environment files.

Click the "Import" button in the top-left corner of the main Postman window. Import the Inception environment file and the Inception Postman collection file.

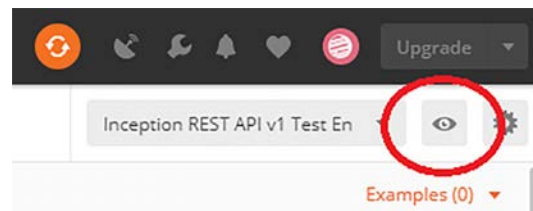


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Setting up the Postman environment

The Inception Postman collection makes use of Postman environment variables throughout the collection in order to make it easier to quickly customise aspects of the sample requests, including the server hostname and API login credentials. Environment variables can be used as text placeholders in URLs, requests headers and request bodies. For example, if the `API_ROOT` variable is set to `"http://192.168.0.123/api/v1"`, the URL `"{{API_ROOT}}/config/user"` will evaluate to `"http://192.168.0.123/api/v1/config/user"`.

Before the Inception request collection can be used, some environment variables need to be assigned first. Open the environment variable window in Postman (the eye button in the top-right corner) and set the following variables:



- **API_ROOT** – Set this to the hostname or IP address of your Inception device, followed by `/api/v1`. For example, if your Inception IP is 192.168.0.123, set the variable to `"http://192.168.0.123/api/v1"`.
- **login_username** – Set this to the Username of the API User that you set up in the previous steps.
- **login_password** – Set this to the Password of the API User that you set up in the previous steps.

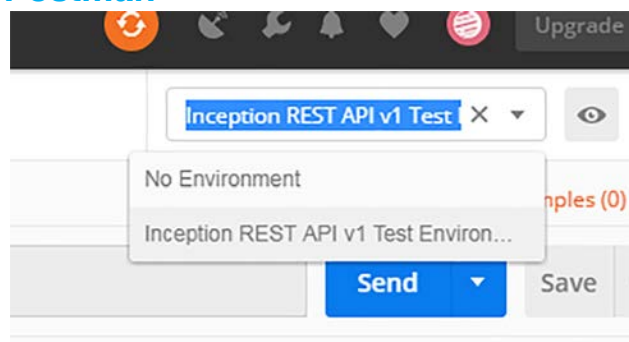
Environment Name

Inception REST API v1 Test Environment

	VARIABLE	INITIAL VALUE ⓘ	CURRENT VALUE ⓘ	...	Persist All	Reset All
☒	API_ROOT	http://example.local/api/v1	http://192.168.0.123/api/v1			
☒	login_username	apiuser	apiuser			
☒	login_password	password1	password1			

Sending sample HTTP Requests from Postman

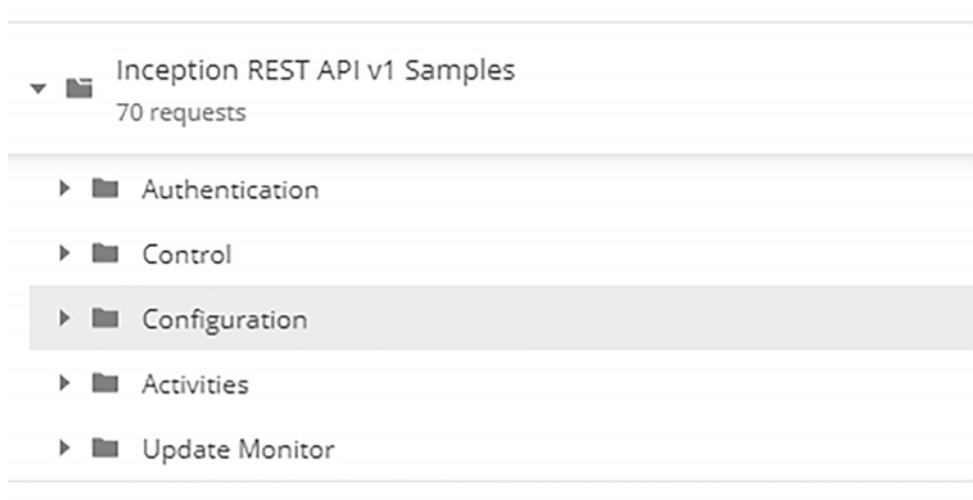
The following sample requests require that the API User you created has been assigned permission to control at least one Area in the system, make sure permission has been assigned via the Inception web interface before proceeding. Open the Postman application and set the current environment to the "Inception REST API v1 Test Environment".



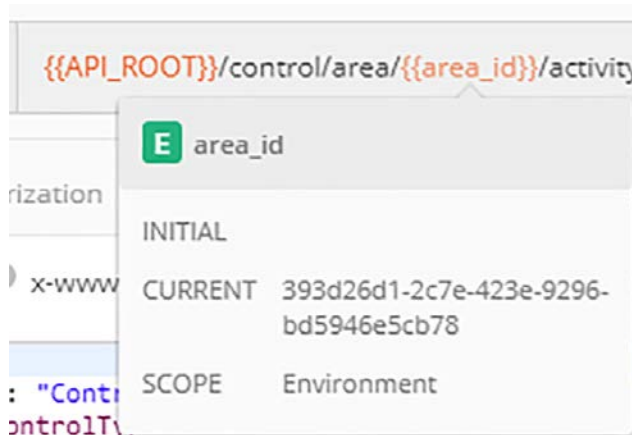
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Sending sample HTTP Requests from Postman (cont.)

The “Inception REST API v1 Samples” collection should be visible in the Collections tab in Postman. Open and send the Authentication -> Login request, which should log in and create a new session if the credentials were correct and the server is accessible, if not, diagnose that the requests are coming through, and then check that the username and password are correct. If the request was successful, you should see that the session_id environment variable has been populated with the ID from the response data. This environment variable is used in all of the requests that require authentication (see the Cookie field in the request’s Headers section to see how this is implemented).



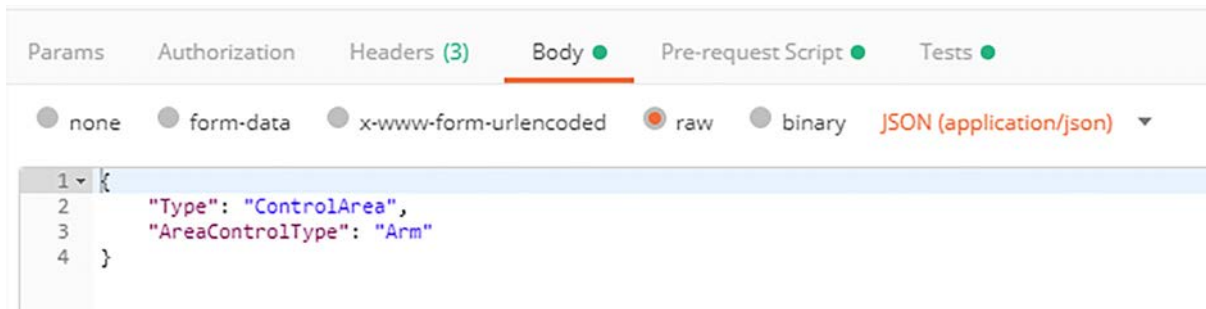
To demonstrate how item data can be retrieved from the system using the API, we’re going to retrieve a list of all the Areas in the system that we can control. Open the Control -> Areas -> Get Visible Areas request and click the “Send” button in the top-right of the window, and the API should respond with a list of all the area IDs, names and ReportingIDs that the API user has permission to see. If the request was successful, the area_id environment variable should now be automatically populated with the first area ID from the response data (if it was previously empty). Click the “eye” button in the top-right corner of the Postman window to inspect the current values of environment variables. Variables can also be inspected by hovering the mouse over them.



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Sending sample HTTP Requests from Postman (cont.)

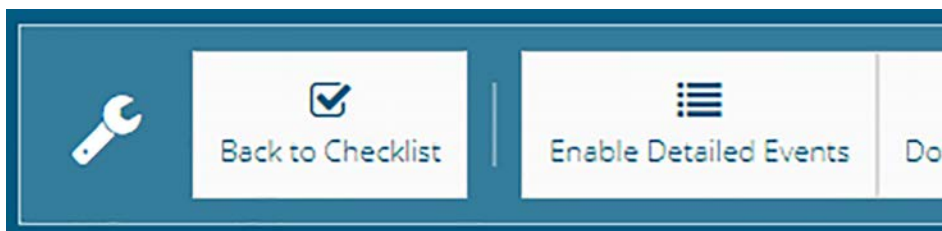
To demonstrate how we can control items in the system using the API, we're going to execute an arm activity on an Area that we have permission to arm. Open the Control -> Areas -> Arm Area (Standard Mode) request and click the Send button. This will send a request to the server to perform an Area Arm activity on the Area specified by the area_id variable. If the arm request was successful, you should see that the "Result" text in the response body is "Success", indicating that the activity was successfully received by the API and will be executed on the Inception system. You can verify that the area's state has changed by logging into the web interface via browser and checking the Control Areas page. You can also inspect the request body contents in the Body tab to see the JSON text that makes up the activity configuration, to get an idea of how specific requests are constructed.



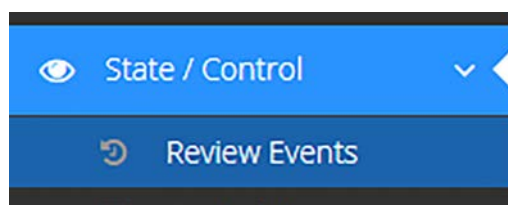
Diagnosing API request failures in Inception

If you are unable to send the test requests successfully, there may be a problem with the network or the Inception API configuration. Turning on Detailed Events in Inception will help to diagnose any issues, by temporarily logging additional info to the review event log.

In the Inception web interface, go to the System -> Service page while logged in with installer credentials and click the Enable Detailed Events button in the toolbar. Choose the length of time that you want to enable detailed event logging for.



Go to the State / Control -> Review Events page to view incoming HTTP requests, their request types, their destination URLs, and their response/failure codes.



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Diagnosing API request failures in Inception (cont.)

You should now be able to see new API requests show up in the event log as they get received by the API server. If Detailed Events are enabled and your requests are not showing up in the event log, there may be a problem with the connection between your PC and the Inception controller.

When ▾	Message	Who	What
09/10/2018 11:55:43	REST API Request Completed	API User	GET api/v1/control/output (Status 200)
09/10/2018 11:55:43	REST API Request Received	API User	GET api/v1/control/output
09/10/2018 11:55:38	REST API Request Completed	Unknown	POST api/v1/authentication/login (Status 200)
09/10/2018 11:55:38	Web Login was Successful by User	API User	
09/10/2018 11:55:38	REST API Request Received	Unknown	POST api/v1/authentication/login
09/10/2018 11:55:32	REST API Request Failed because User not Authorized	Unknown	GET api/v1/control/output
09/10/2018 11:55:32	REST API Request Received	Unknown	GET api/v1/control/output

Potential reasons for request failure:

- **Not Found (404)** – The resource's URL you are trying to access does not exist on the server. The URL may be misspelt or the item may no longer exist.
- **User not Authorized (401)** – You are trying to access a resource without a valid session ID, run the Login request in order to receive a new session ID.
- **Forbidden (403)** – The API User does not have permission to perform this action. Make sure that you have assigned the necessary permission(s) to the user if you are attempting to control an Area, for example.
- **Internal Server Error (500)** – The server encountered an unexpected error while handling your request. If this problem persists, contact Inner Range support with a description of how to reproduce the error.



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