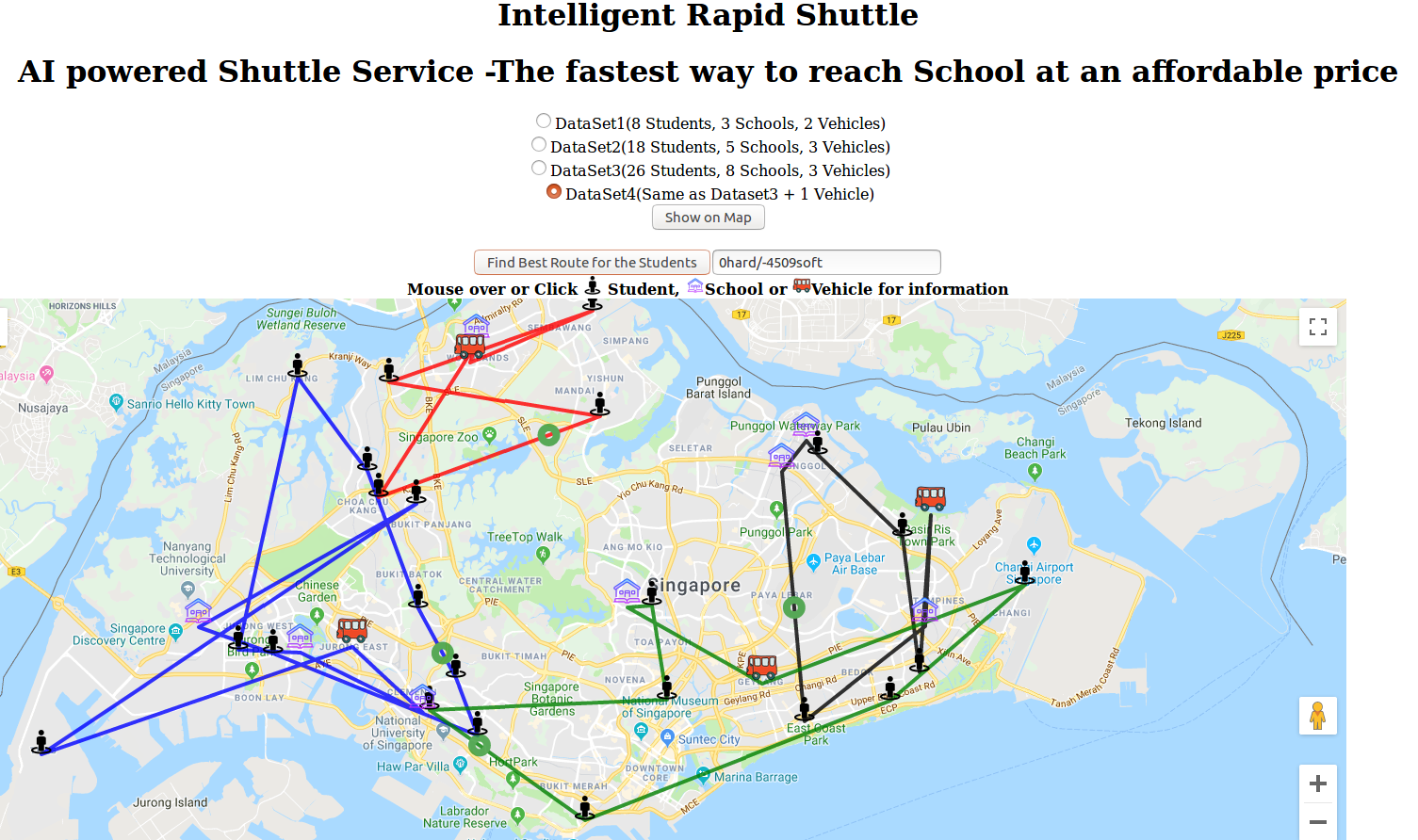
Intelligent Rapid Shuttle (IRS)

User Guide



**Follow below steps to setup and execute the standalone Intelligent Rapid Shuttle (IRS) solution.**

1. Download pre-built virtual machine from <http://bit.ly/iss-vm>
2. Start iss-vm
3. Open terminal in iss-vm
4. git clone <https://github.com/aivoyagers/IRS-RS-2019-03-09-IS1PT-GRP-aiVoyagers-irs-Intelligent-Rapid-Shuttle.git>
5. Unzip irs-Intelligent-Rapid-Shuttle.zip from SystemCodes folder and Import the project in to KIE
6. Build and Deploy to the execution server of KIE workbench
7. Copy the intelligentrapidshuttle-0.0.1-SNAPSHOT.war file to the JBOSS server by issuing the following command: (Note : change the destination folder specific to your installation of jboss server)

*cp SystemCodes/intelligentrapidshuttle-0.0.1-SNAPSHOT.war /home/iss-user/iss-vm-program/is-intelligent-reasoning-systems/jboss/jbpm-server-7.12.0.Final-dist/standalone/deployments/*

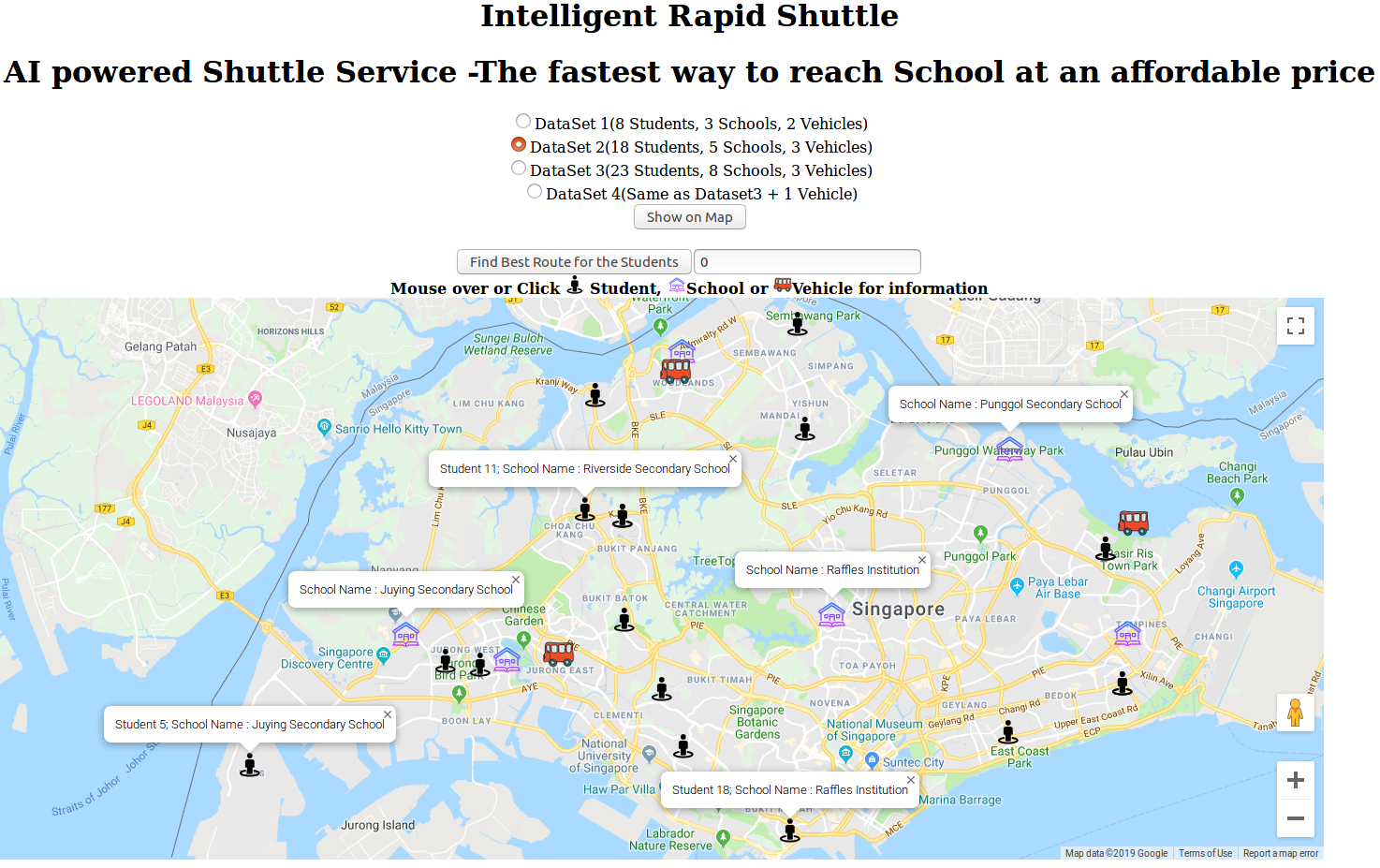
1. As it uses Google Map services for visualization of Optimization output, please ensure that you are connected to internet. Internet access is required.
2. This application invokes KIE server and the default userid ‘wbadmin’ and default password is used to signon to KIE. If your wbadmin default password is changed in KIE, please update the program with correct userid and password in the project IRSWeb-intelligentRapidShuttle project from the zip file available in SystemCodes folder. Build and Install on to JBOSS server as required.

***(Note : Skip Step 9, if your default password for ‘wbadmin’ is left unchanged in KIE)***

1. Go to web browser and key in the url:

<http://localhost:8080/intelligentrapidshuttle-0.0.1-SNAPSHOT/IRSIndex.jsp>

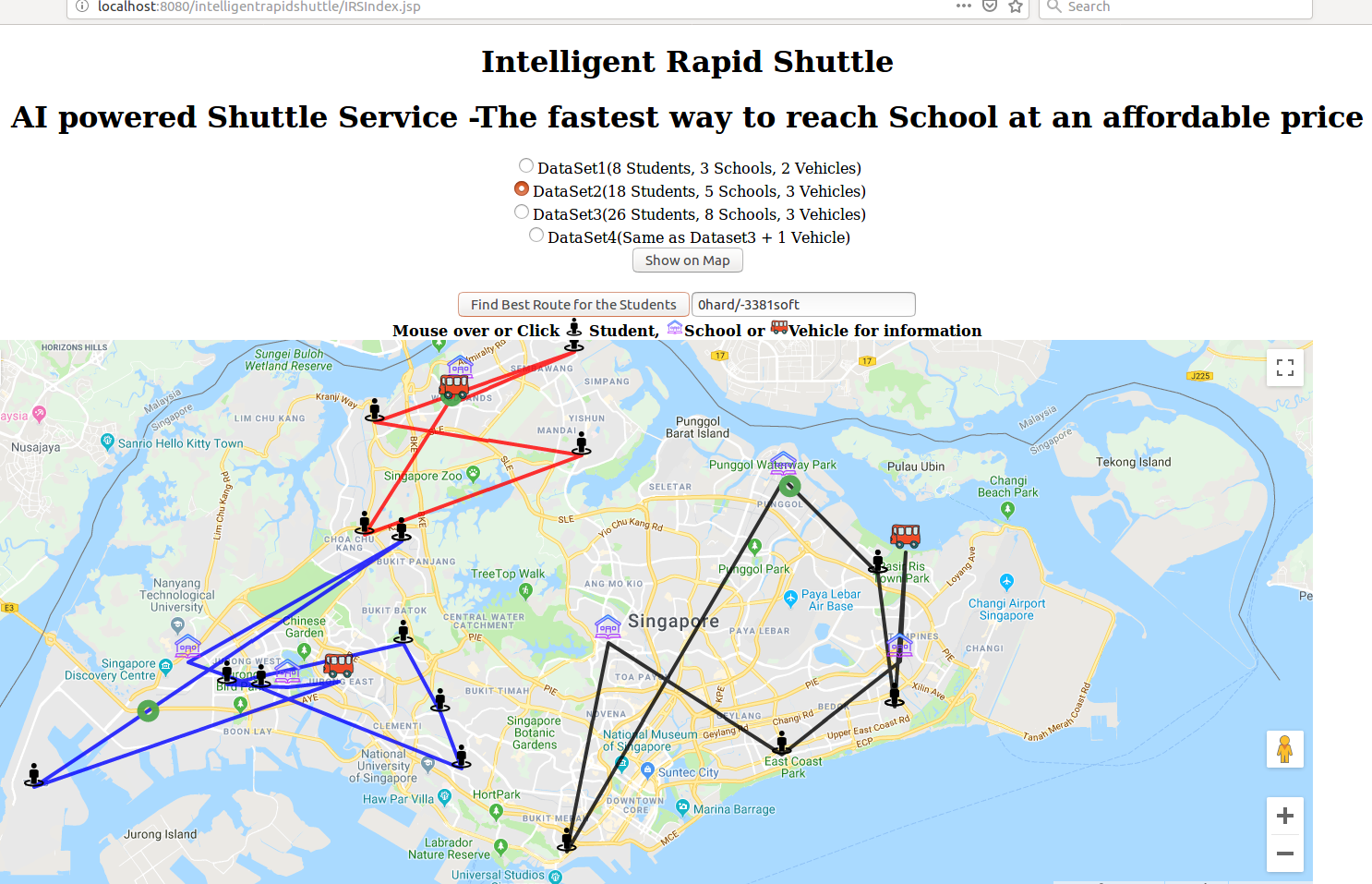
1. Choose one of the available Datasets (For example ‘Dataset2’) as the input and click ‘Show on Map’. Based on the selection, location of Students, Schools and Vehicles would be shown visually on Google Map.



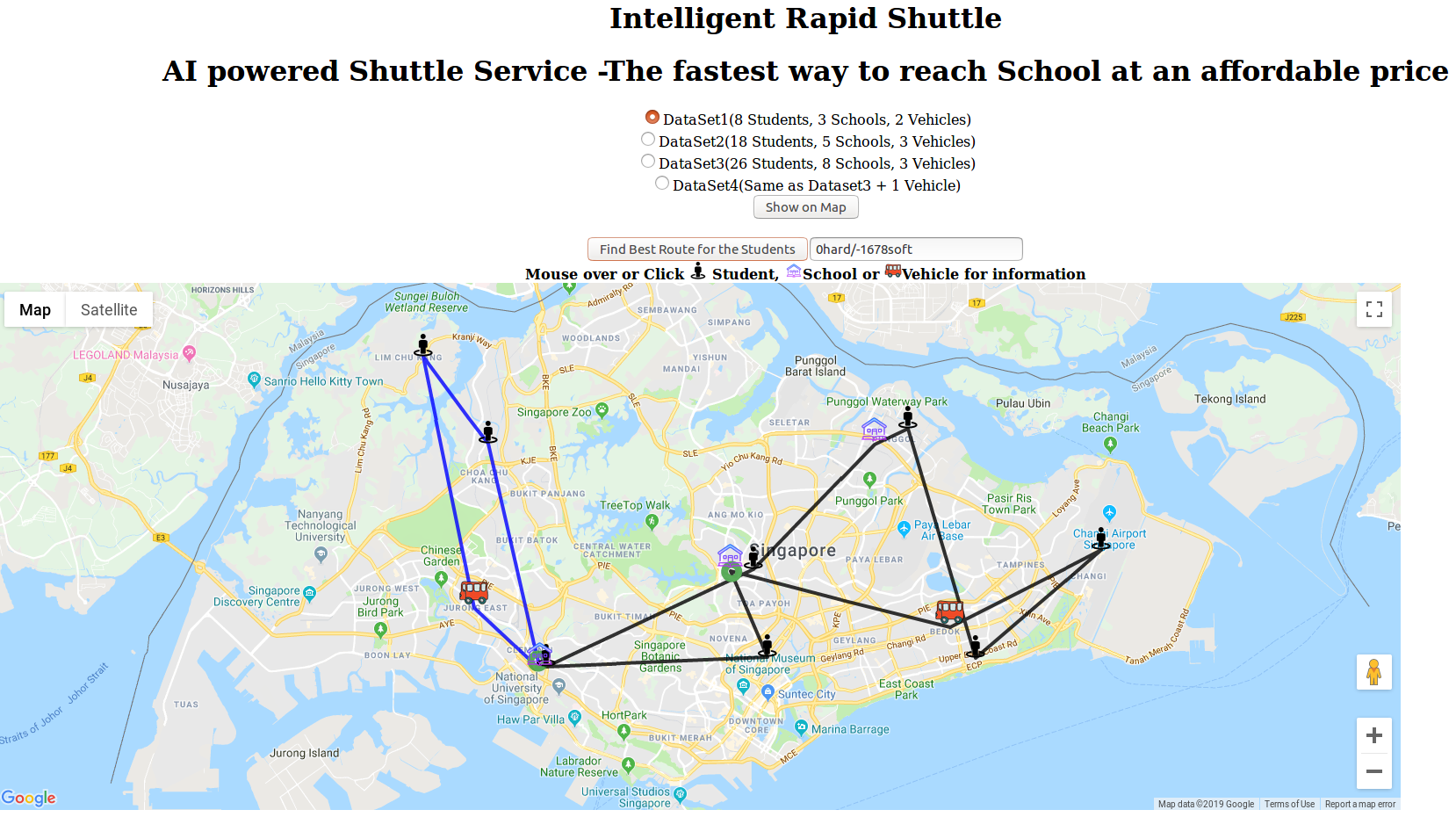
1. Click on button ‘Find Best Route for the Students’. This would determine the optimum route for the students to reach school and distribute them to the available vehicles based on the input Dataset chosen. Score determined as an outcome of the optimization is also shown for reference. Visual animation indicates the travel direction along the route recommended for the vehicle.

* Mouse over on the icon - * for student,  for school and  for vehicle.*
* *Click on the for more information -* icon - * for student,  for school and  for vehicle.*

(Refer below for the screen image for above input.)



## IRS Solution – Sample Screen for the Data Input provided below.



## IRS Solution – Sample Input

Input data consists of List of Vehicles, List of Schools and List of Students with their starting location and destination (school) details. Sample input is provided below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Vehicle Name** | **Starting Location-Latitude** | **Starting Location-Longitude** | **Vehicle Capacity** |
| Vehicle 1 from Bedok Mall | 1.324944 | 103.929392 | 10 |
| Vehicle 2 from Jurong JEM Mall | 1.332787 | 103.743121 | 4 |

|  |  |  |
| --- | --- | --- |
| **Name of the School** | **School Location - Latitude** | **School Location - Longitude** |
| Raffles Institution | 1.346979 | 103.843417 |
| Nan Hua High School | 1.308489 | 103.768901 |
| Compassvale Secondary School | 1.396588 | 103.899726 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Student Name** | **Location Name** | **Location - Latitude** | **Location Longitude** | **Dropoff School Name** |
| Student of Bishan Loft | Bishan Loft Block 31 | 1.347593 | 103.852434 | Raffles Institution |
| Student of Yew Tee | Block 632 Yew Tee | 1.396750 | 103.748564 | Nan Hua High School |
| Student of Changi Airport | Changi Airport | 1.355246 | 103.988475 | Raffles Institution |
| Student of Neo Tiew Rd | 161 Newo Tiew Rd | 1.430672 | 103.723253 | Nan Hua High School |
| Student of Oassis Terraces | Oasis Terraces | 1.402721 | 103.912795 | Compassvale Secondary School |
| Student of Bayshore | 34 Bayshore Road | 1.313012 | 103.939276 | Raffles Institution |
| Student of Clementi Ave 1 | 425 Clementi Ave 1 | 1.309749 | 103.771281 | Raffles Institution |
| Student of Karissdale | Kerrisdale | 1.313492 | 103.857975 | Raffles Institution |

## IRS Solution – Sample Output

Output from Optimization solution engine provided below for the sample input shared in the previous section. Outcome has distributed the students among the 2 available vehicles specified and route path to pick up students and drop them off in their schools. After dropping all the students to their destination, vehicle goes back to the starting location.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Optimized Route** | **Pickup / Dropoff** | **Student Name** | **Location - Latitude** | **Location Longitude** | **Dropoff Detail** |
| **1** |  | **Vehicle 1 from Bedok Mall** | **1.324944** | **103.929392** | **Capacity 10** |
| **2** | Pickup Student | Student of Bayshore | 1.313012 | 103.939276 | Raffles Institution |
| **3** | Pickup Student | Student of Changi Airport | 1.355246 | 103.988475 | Raffles Institution |
| **4** | Pickup Student | Student of Oassis Terraces | 1.402721 | 103.912795 | Compassvale Secondary School |
| **5** | Dropoff at School | Compassvale Secondary School | 1.396588 | 103.899726 | **Student of Oassis Terraces** |
| **6** | Pickup Student | Student of Bishan Loft | 1.347593 | 103.852434 | Raffles Institution |
| **7** | Pickup Student | Student of Clementi Ave 1 | 1.309749 | 103.771281 | Raffles Institution |
| **8** | Pickup Student | Student of Karissdale | 1.313492 | 103.857975 | Raffles Institution |
| **9** | Dropoff at School | Raffles Institution | 1.346979 | 103.843417 | **Student of Changi Airport, Student of Bishan Loft, Student of Clementi Ave 1, Student of Karissdale** |
| **10** |  | **Vehicle 1 from Bedok Mall** | 1.324944 | 103.929392 |  |
|  |  |  |  |  |  |
| **1** |  | **Vehicle 2 from Jurong JEM Mal** | **1.332787** | **103.743121** | **Capacity 4** |
| **2** | Pickup Student | Student of Neo Tiew Rd | 1.430672 | 103.723253 | Nan Hua High School |
| **3** | Pickup Student | Student of Yew Tee | 1.396750 | 103.748564 | Nan Hua High School |
| **4** | Dropoff at School | Nan Hua High School | 1.308489 | 103.768901 | **Student of Bishan Loft, Student of Karissdale** |
| **5** |  | **Vehicle 2 from Jurong JEM Mal** | 1.332787 | 103.743121 |  |

**Note**: Postman Collection Sample files containing API sample data is available in folder ‘Miscellaneous’

* *irs10-D1-Intelligent-Rapid-Shuttle.postman\_collection-DataSet2.json*
* *irs10-D2-Intelligent-Rapid-Shuttle.postman\_collection-DataSet2.json*
* *irs10-D3-Intelligent-Rapid-Shuttle.postman\_collection-DataSet2.json*
* *irs10-D4-Intelligent-Rapid-Shuttle.postman\_collection-DataSet2.json*