**Master Test Plan (MTP) for CTC**

**Overview**

Tests for the CTC will be organized by user type. The three user categories for tests are: Dispatcher, MBO, and Track Controller. Testing will be performed periodically during development.

**Dispatcher Tests**

These tests cover the major functions associated with the Dispatcher user.

* Dispatching a train
  + Input: Train, Time, Destination
  + Expected Output: A change in authority at a branch will occur and the CTC will give a message.
* Setting block switches
  + Input: Block id, Switch value, Switch location is closed for maintenance
  + Expected Output: A change in authority at a branch will occur
* Setting blocks maintenance status
  + Input: Block id, Maintenance value
  + Expected Output: Wayside station will register block as under maintenance

**MBO Tests**

These tests cover the major functions associated with the MBO.

* Loading a schedule
  + Input: filename of schedule file
  + Expected Output: string containing list of schedule lines

**Track Controller Tests**

These tests cover the major functions associated with the Track Controllers.

* Getting the Authority for a branch
  + Input: None
  + Expected Output: Authority values are given to the relevant wayside stations
* Getting the Suggested Speed for a branch
  + Input: None
  + Expected Output: Speed values are given to the relevant wayside stations
* Viewing train location on map
  + Input: Train exists on track
  + Expected Output: The branch corresponding to the location of the train will light up green.
* Viewing Block Data
  + Input: Block ID to view
  + Expected Output: Relevant block data should be displayed on the UI.
* Viewing Switch Data
  + Input: A switch is selected to view on the UI
  + Expected Output: The relevant switch will have its status displayed accordingly

**Template for Tests**

* Templates for each test will contain the outcome of the test (Pass or Fail),a specific outcome in the case of a failure, when the test was performed and which user requested it. This data will be given as a text output in several lines of text after a test.

| **Test Case** | **Inputs** | **Expected Output** | **Pass/Fail** | **Failure Description** | **Tester** | **Data Tested** |
| --- | --- | --- | --- | --- | --- | --- |
| **Dispatcher Tests** | | | | | | |
| Setting Block Switches | UI button for switches | Switch should change direction | Pass |  | Jarrod | 12/14 |
| Manual Dispatching | Select a train, station destination and time and press the “Dispatch Train” button | The relevant train will either be created or dispatched to the new location and a message will appear correspondingly. | Pass |  | Jarrod | 12/14 |
| Setting block maintenance status | Select Block ID to set maintenance status and press “open/close maintenance” button | Maintenance status of the block should change | Pass |  | Jarrod | 12/14 |
| **Track Controller Tests** | | | | | | |
| Accessing block data | Start system and search for a block from the UI | The block data should be displayed on screen | Pass |  | Jarrod | 12/14 |
| Accessing Authority | Start system and dispatch a single new route | Authority values in Waystructs should change to match the route |  |  |  |  |
| Getting Suggested Speed | Start system and dispatch a single new route | Suggested Speed values in WayStructs should change to match the route |  |  |  |  |
| View trains on map | Start system and place trains on track | The branches that contain trains should appear on the map. | Pass |  | Jarrod | 12/13 |
| Accessing Switch Data | Start system and choose a switch from the drop-down | The switch data should match the data held in the waysides. | Pass |  | Jarrod | 12/14 |
| **MBO Tests** | | | | | | |
| Loading schedule | Select file to load schedule | Schedule should load and appear on screen | Pass |  | Jarrod | 12/14 |