London Underground Test Plan

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# Manage Stations

## Add Station

|  |  |
| --- | --- |
| Test Number | 1 |
| Test Title | Add station |
| Actor | Station Manager |
| Description | Add a new station using the controller |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** 3. Set **Station Name** to ‘a test station name’ 4. Select **Zone** from dropdown box 5. Click **Add** |
| Expected Result | 1. Message confirming that station with specified name was added to selected zone number 2. New station with the specified name and zone added to bottom of the list of stations |

## Request Station

### By Name

|  |  |
| --- | --- |
| Test Number | 2 |
| Test Title | Get Station details by Name |
| Actor | Station Manager, Traveller |
| Description | Request station details by name. |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Register Ticket Machine** 3. Select **Station** from dropdown list 4. Click **Apply Changes** 5. Click **Return to Main Menu** 6. Click **Start Sales Kiosk** |
| Expected Result | 1. Start set to configured station name and zone |

### By ID

|  |  |
| --- | --- |
| Test Number | 3 |
| Test Title | Get Station details by ID |
| Actor | Station Manager |
| Description | Retrieve a station’s details by its ID |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. At least one station previously added |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** 3. Click **Modify** next to one of the listed stations |
| Expected Result | 1. **Station Name** populated with details of selected station 2. **Zone** populated with zone number of selected station |

## Update Station

|  |  |
| --- | --- |
| Test Number | 4 |
| Test Title | Update station name and zone |
| Actor | Station Manager |
| Description | Update a station’s name and / or zone |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. At least one station previously added |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** 3. Click **Modify** next to one of the listed stations 4. Change **Station Name** 5. Select different **Zone** from dropdown 6. Click **Update** |
| Expected Result | 1. Message stating that a station has been updated 2. Selected station’s name changed to new name 3. Selected station’s zone changed to selected zone |

## Delete Station

|  |  |
| --- | --- |
| Test Number | 5 |
| Test Title | Remove a station from the system |
| Actor | Station Manager |
| Description | Delete station by ID |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. At least 1 station previously added |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** 3. Click **Delete** next to one of the listed stations |
| Expected Result | 1. Message stating that selected station was deleted 2. Station no longer appears in the list of stations |

## List All Stations

|  |  |
| --- | --- |
| Test Number | 6 |
| Test Title | List all stations in the system |
| Actor | Station Manager |
| Description | To be able to manage stations the Station Manager must be able to see which stations are in the system |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. System must be initialised |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** |
| Expected Result | 1. List of stations displayed |

|  |  |
| --- | --- |
| Test Number | 7 |
| Test Title | List all stations in the system |
| Actor | Traveller |
| Description | Traveller’s purchasing tickets must be able to see a list of the available destinations |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. System must be initialised |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Register Ticket Machine** 3. Select **Station** from dropdown list 4. Click **Apply Changes** 5. Click **Return to Main Menu** 6. Click **Start Sales Kiosk** |
| Expected Result | 1. Destination dropdown populated with list of stations and their zones |

## Delete All Stations

|  |  |
| --- | --- |
| Test Number | 8 |
| Test Title | Delete all stations |
| Actor | Developer |
| Description | During testing, system updates and system deployment it may be necessary to reinitialise the system by removing all configured entities and reloading them from a master source.  NOTE: The initialise function will also remove all changes to previously configured ticket machines and pricing details |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Use the **Manage Stations** menu to add stations 3. Navigate to <http://localhost/lunderground> 4. Click **Initialise** |
| Expected Result | 1. Station List restored to list from LondonStations.xml file |

## Initialise System

|  |  |
| --- | --- |
| Test Number | 9 |
| Test Title | Reinitialise the system to use master station list |
| Actor | Developer |
| Description | During testing, system updates and system deployment it may be necessary to reinitialise the system by removing all configured entities and reloading them from a master source.  NOTE: The initialise function will also remove all changes to previously configured ticket machines and pricing details |
| Preconditions | 1. Controller web app running 2. Controller web app available at http://localhost/lunderground |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Use the **Manage Stations** menu to add stations 3. Navigate to <http://localhost/lunderground> 4. Click **Initialise** |
| Expected Result | 1. Station List restored to list from LondonStations.xml file |

# Manage Ticket Machines

## Register Ticket Machine

|  |  |
| --- | --- |
| Test Number | 10 |
| Test Title | Register newly installed ticket machine |
| Actor | Station Manager |
| Description | Ticket machines have a hardware module with a unique ID. On start up the loaded value, in software, will be null. Registering will read the value from the hardware and then register the machine with the central controller using that uuid. |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. Ticket machine not previously registered |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Register Ticket Machine** |
| Expected Result | 1. The Configure Ticket Machine view should be displayed 2. The uuid field should contain a 32-character uuid 3. The uuid characters should only contain hexadecimal glyphs 4. The uuid should be formatted as: xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx 5. The station name should be listed as ‘Not Configured’ |

## Update Ticket Machine

|  |  |
| --- | --- |
| Test Number | 11 |
| Test Title | Update the ticket machine configuration to assign it to a station |
| Actor | Station Manager |
| Description | Newly register ticket machines need to be assigned to a station so that they can issue valid tickets. |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. Ticket machine not previously registered |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Register Ticket Machine** 3. Select **Station Name** from dropdown list 4. Click **Apply Changes** |
| Expected Result | 1. Page reloads 2. Dropdown box shows Station Name and Zone assigned to 3. **Return to Main Menu** button displayed |

## Request Ticket Machine Configuration

|  |  |
| --- | --- |
| Test Number | 12 |
| Test Title | Periodically request latest Ticket Machine Configuration |
| Actor | Time |
| Description | The ticket machine should periodically contact the controller for the latest ticket machine configuration details |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. Ticket machine registered |
| Steps | 1. Navigate to <http://localhost/ticket>/configure |
| Expected Result | 1. Ticket Machine ID should be set 2. Station Name and Zone should be set 3. Last update attempt timestamp should be no older than 40s 4. Last successful update timestamp should be no older than 40s 5. Server log should indicate that configuration request was successful |

|  |  |
| --- | --- |
| Test Number | 13 |
| Test Title | Periodically request latest Station List |
| Actor | Time |
| Description | The ticket machine should periodically contact the controller for the latest list of stations |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. Ticket machine registered |
| Steps | 1. Navigate to <http://localhost/lunderground> 2. Click **Manage Stations** 3. Add, delete or change stations / station details. (NOT the station the ticket machine is assigned to) 4. Navigate to <http://localhost/ticket/configure> 5. Wait 40s |
| Expected Result | 1. The station list should include the modifications made via the controller |

# Synchronise Prices

|  |  |
| --- | --- |
| Test Number | 14 |
| Test Title | Periodically request latest Pricing Details |
| Actor | Time |
| Description | The ticket machine should periodically contact the controller for the latest pricing details. This is done as a single request for the latest ticket machine configuration, which includes an up to date list of stations and the latest pricing details. |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Ticket Machine web app running 4. Ticket Machine web app available at <http://localhost/ticket> 5. Ticket machine registered |
| Steps | 1. Navigate to <http://localhost/ticket>/configure |
| Expected Result | 1. Last update attempt timestamp should be no older than 40s 2. Last successful update timestamp should be no older than 40s 3. Server log should indicate that configuration request was successful |

# Purchase Ticket

## Purchased Single Zone Ticket

|  |  |
| --- | --- |
| Test Number | 15 |
| Test Title | Purchase a ticket that is for a journey within a single zone |
| Actor | Traveller |
| Description | Traveller buys a ticket that allows travel within a single zone |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Start Sales Kiosk** 3. Select D**estination Station** that is in same zone as the S**tart Station** 4. Click **Buy Ticket** 5. Click **Buy - Using Valid Card** |
| Expected Result | 1. Traveller should be presented with a **Ticket** 2. **StartStation** should contain station ticket machine is assigned to 3. **DestStation** should contain selected destination station 4. **Valid From** should contain timestamp +/- 1 min of system time 5. **Valid To** should contain timestamp 2 hours later than **Valid From** 6. **RateBand** shows pricing rate for the **Valid From** timestamp 7. **Price**    1. £2.50 (1 \* £2.50) if price band is Off Peak    2. £5.00 (1 \* £5.00) if price band is Peak |

## Purchased Multi Zone Ticket

|  |  |
| --- | --- |
| Test Number | 16 |
| Test Title | Purchase a ticket that is for a journey within multiple zones |
| Actor | Traveller |
| Description | Traveller buys a ticket that allows travel within a multiple zone |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Start Sales Kiosk** 3. Select D**estination Station** that is 1 zone greater than the S**tart Station** 4. Click **Buy Ticket** 5. Click **Buy - Using Valid Card** |
| Expected Result | 1. Traveller should be presented with a **Ticket** 2. **StartStation** should contain station ticket machine is assigned to 3. **DestStation** should contain selected destination station 4. **Valid From** should contain timestamp +/- 1 min of system time 5. **Valid To** should contain timestamp 2 hours later than **Valid From** 6. **RateBand** shows pricing rate for the **Valid From** timestamp 7. **Price**    1. **£5.00** (2 \* £2.50) if price band is Off Peak    2. **£10.00** (2 \* £5.00) if price band is Peak |

## Purchase Peak Time Ticket

|  |  |
| --- | --- |
| Test Number | 17 |
| Test Title | Purchase a ticket that is for a journey starting during peak time |
| Actor | Traveller, Time |
| Description | Traveller purchase a ticket that is for a journey starting during peak time |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station 9. Ticket Machine Time is set within peak price band |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Start Sales Kiosk** 3. Select D**estination Station** that is in same zone as the S**tart Station** 4. Click **Buy Ticket** 5. Click **Buy - Using Valid Card** |
| Expected Result | 1. Traveller should be presented with a **Ticket** 2. **StartStation** should contain station ticket machine is assigned to 3. **DestStation** should contain selected destination station 4. **Valid From** should contain timestamp +/- 1 min of system time 5. **Valid To** should contain timestamp 2 hours later than **Valid From** 6. **RateBand** shows **Peak** 7. **Price** shows **£5.00** |

## Purchase Off Peak Time Ticket

|  |  |
| --- | --- |
| Test Number | 18 |
| Test Title | Purchase a ticket that is for a journey starting during off peak time |
| Actor | Traveller, Time |
| Description | Traveller purchase a ticket that is for a journey starting during off peak time |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station 9. Ticket Machine Time is set within off peak price band |
| Steps | 1. Navigate to <http://localhost/ticket> 2. Click **Start Sales Kiosk** 3. Select D**estination Station** that is in same zone as the S**tart Station** 4. Click **Buy Ticket** 5. Click **Buy - Using Valid Card** |
| Expected Result | 1. Traveller should be presented with a **Ticket** 2. **StartStation** should contain station ticket machine is assigned to 3. **DestStation** should contain selected destination station 4. **Valid From** should contain timestamp +/- 1 min of system time 5. **Valid To** should contain timestamp 2 hours later than **Valid From** 6. **RateBand** shows **Off** **Peak** 7. **Price** shows **£2.50** |

# Validate Ticket

## Enter Station

|  |  |
| --- | --- |
| Test Number | 19 |
| Test Title | Allow access to a station with a valid ticket |
| Actor | Traveller, Time |
| Description | Traveller presents valid ticket to Station entry gate, which should open allowing the traveller access to the station |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket/sales> 2. Select **Destination Station** from drop down list 3. Click **Buy Ticket** 4. Click **Buy - Using Valid Card** 5. Copy **Ticket XML** to clipboard 6. Navigate to <http://localhost/ticket/gate> 7. Paste Ticket XML from clipboard 8. Select **Station** that is within the zones to travel 9. Set **Hour** and **Minute** to values between **Valid From** and **Valid To** times 10. Click **Validate - Entry Gate** button |
| Expected Result | 1. **Gate Open** displayed |

## Exit Station

|  |  |
| --- | --- |
| Test Number | 20 |
| Test Title | Allow exit from a station using a valid ticket |
| Actor | Traveller, Time |
| Description | Traveller presents valid ticket to Station exit gate, which should open allowing the traveller to leave the station |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket/sales> 2. Select **Destination Station** from drop down list 3. Click **Buy Ticket** 4. Click **Buy - Using Valid Card** 5. Copy **Ticket XML** to clipboard 6. Navigate to <http://localhost/ticket/gate> 7. Paste Ticket XML from clipboard 8. Select **Station** that is within the zones to travel 9. Set **Hour** and **Minute** to values between **Valid From** and **Valid To** times 10. Click **Validate - Exit Gate** button |
| Expected Result | 1. **Gate Open** displayed |

## Ticket Zone Invalid

|  |  |
| --- | --- |
| Test Number | 21 |
| Test Title | Don’t open gate when ticket is not valid for the gate’s selected zone |
| Actor | Traveller, Time |
| Description | Traveller presents valid ticket to exit gate whos’ station is not in the allowed zones. |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket/sales> 2. Select **Destination Station** from drop down list 3. Click **Buy Ticket** 4. Click **Buy - Using Valid Card** 5. Copy **Ticket XML** to clipboard 6. Navigate to <http://localhost/ticket/gate> 7. Paste Ticket XML from clipboard 8. Select **Station** that is outside the zones to travel 9. Set **Hour** and **Minute** to values between **Valid From** and **Valid To** times 10. Click **Validate - Exit Gate** button |
| Expected Result | 1. **Gate Closed** displayed |

## Ticket Time Invalid

|  |  |
| --- | --- |
| Test Number | 22 |
| Test Title | Don’t open gate when ticket is not valid for the gate’s configured time |
| Actor | Traveller, Time |
| Description | Traveller presents valid ticket to exit gate outside of the travel time |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket/sales> 2. Select **Destination Station** from drop down list 3. Click **Buy Ticket** 4. Click **Buy - Using Valid Card** 5. Copy **Ticket XML** to clipboard 6. Navigate to <http://localhost/ticket/gate> 7. Paste Ticket XML from clipboard 8. Select **Station** that is within the zones to travel 9. Set **Hour** and **Minute** to values outside **Valid From** and **Valid To** times 10. Click **Validate - Exit Gate** button |
| Expected Result | 1. **Gate Closed** displayed |

## Ticket Invalid

|  |  |
| --- | --- |
| Test Number | 23 |
| Test Title | Don’t open gate when ticket is not valid for the gate’s configured time |
| Actor | Traveller, Time |
| Description | Traveller presents invalid ticket to exit gate |
| Preconditions | 1. Controller web app running 2. Controller web app available at <http://localhost/lunderground> 3. Pricing details has off peak rate set to £2.50 4. Pricing details has peak rate set to £5.00 5. Ticket Machine web app running 6. Ticket Machine web app available at <http://localhost/ticket> 7. Ticket machine registered 8. Ticket Machine assigned to Station |
| Steps | 1. Navigate to <http://localhost/ticket/sales> 2. Select **Destination Station** from drop down list 3. Click **Buy Ticket** 4. Click **Buy - Using Valid Card** 5. Copy **Ticket XML** to clipboard 6. Navigate to <http://localhost/ticket/gate> 7. Paste **Ticket XML** from clipboard 8. Change field within the pasted XML 9. Select **Station** that is within the zones to travel 10. Set **Hour** and **Minute** to values between **Valid From** and **Valid To** times 11. Click **Validate - Exit Gate** button |
| Expected Result | 1. **Gate Closed** displayed |