**FRAC-6 Resource Tree**

**Feature Spec and Test Procedures**

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# Explore

*This section is current as of 01/10/2013*

## Known Bugs

|  |  |  |
| --- | --- | --- |
| **JIRA ID** | **Description** | **Rec.** |
| [GMT-2236](http://li64-187.members.linode.com:8080/browse/GMT-2236) | Resource Tree - text messed up for objects in folders on MAC | P3 |
| [GMT-3352](http://li64-187.members.linode.com:8080/browse/GMT-3352) | User can create and save certain objects in Resource Tree but can’t load those objects | P2 |
| [GMT-760](http://li64-187.members.linode.com:8080/browse/GMT-760) | Resource tree navigation - new feature/change feature | P3 |
| [GMT-2424](http://li64-187.members.linode.com:8080/browse/GMT-2424) | User cannot clone, rename or delete User-defined bodies (ie. a new moon or comet) | P2 |

## Failing Tests

The Resource tree has no script tests.

## Other Findings

None right now.

|  |  |  |
| --- | --- | --- |
| **JIRA ID** | **Description** | **Rec.** |
|  |  |  |

# Requirements

These are working requirements. They are included here for review and convenience purposes. After review, requirements are maintained in the formal SRS located at SourceForge in /trunk/doc/SystemDocs/Requirements. Send final requirements to CCB lead (SPH).

|  |  |
| --- | --- |
| FRAC-6.1.0 | The GUI shall employ a tree structure (referred to as the Resource Tree) that allows users to create and configure the following resource objects: |
| FRAC-6.1.1 | 1) Spacecraft |
| FRAC-6.1.2 | 2) Tank |
| FRAC-6.1.3 | 3) Thruster |
| FRAC-6.1.4 | 4) Transmitter |
| FRAC-6.1.5 | 5) Transponder |
| FRAC-6.1.6 | 6) Receiver |
| FRAC-6.1.7 | 7) Antenna |
| FRAC-6.1.8 | 8) Ground station |
| FRAC-6.1.9 | 9) Formation |
| FRAC-6.1.10 | 10) Impulsive Burn |
| FRAC-6.1.11 | 11) Finite Burn |
| FRAC-6.1.12 | 12) Barycenter |
| FRAC-6.1.13 | 13) Libration Point |
| FRAC-6.1.14 | 14) Asteroid |
| FRAC-6.1.15 | 15) Comet |
| FRAC-6.1.16 | 16) Moon |
| FRAC-6.1.17 | 17) Propagator |
| FRAC-6.1.18 | 18) Differential Corrector |
| FRAC-6.1.19 | 19) fmiconOptimizer (if library is available) |
| FRAC-6.1.20 | 20) vf13adOptimizer (if library is available) |
| FRAC-6.1.21 | 21) BatchEstimator |
| FRAC-6.1.22 | 22) Extended Kalman Filter |
| FRAC-6.1.23 | 23) Measurement Simulator |
| FRAC-6.1.24 | 24) XYPlot |
| FRAC-6.1.25 | 25) OpenGL Plot |
| FRAC-6.1.26 | 26) ReportFile |
| FRAC-6.1.27 | 27) EphemerisFile |
| FRAC-6.1.28 | 28) User-defined variable |
| FRAC-6.1.29 | 29) User-defined array |
| FRAC-6.1.30 | 30) User-defined string |
| FRAC-6.1.31 | 31) Coordinate system |
| FRAC-6.1.32 | 32) Matlab function |
| FRAC-6.1.33 | 33) GMAT function |
| FRAC-6.2.0 | The Resource Tree shall allow the user to open the following interfaces: |
| FRAC-6.2.1 | 1) GMAT->MATLAB |
| FRAC-6.3.0 | The Resource Tree shall allow the user to perform the following operations on any object in FRAC-4.5: |
| FRAC-6.3.1 | 1) Clone |
| FRAC-6.3.2 | 2) Rename |
| FRAC-6.3.3 | 3) Delete (if the object is not used by another object or command) |

# Interface/Functional Spec

## Overview

The GUI script editor

## Description

The Resources tree displays GMAT resources and organizes them into logical groups and represents any objects that might be used or called in the Mission tree. This tree allows a user to add, edit, rename, or delete most available resources. The Resource tree can be edited either in the GMAT GUI or by loading or syncing a script file. All objects created in a GMAT script using a Create command are found in the Resources tree in the GMAT desktop. The default Resource tree is displayed below (figure 1).



**Figure 1. Default Resource tree view.**

## Resource Tree Display

The Resource tree displays created resources organized into folders by object category. The SolarSystem and Solvers folders contain more specific folders which can be found by clicking the expand (+) icon. Conversely, folders can be collapsed by clicking the minimize (-) icon.

## Resource Tree Behavior

### Folder Menus

Resource objects can be added by right clicking the folder of the object and clicking the object from the available menu. Most folders have only one available object, for example if the Spacecraft folder is right-clicked, the user can only click “Add Spacecraft” (figure 2). Other folders have multiple objects that can be added and the user must first select the “Add” menu before selecting the object; for example to add a Fuel Tank, right click the “Hardware” folder, select “Add”, then the list of available objects is displayed and the user can click “Fuel Tank” (figure 3).



**figure 2.** Adding an object **figure 3.** Adding an object from a list

### Object Menus

Objects can be edited by right clicking on the object and selecting one of the options from the menu (figure 4).



**figure 4.** Object menu

#### Open/Close

To open an object, the user can either right click the object and select “Open” or the user can double click the object. Conversely, the object can be closed either by options in the object window or selecting “Close” from the object menu. When an object is opened and the name is right-clicked in the Resource tree, the only options in the object menu are “Open” and “Close”.

#### Rename

Once an object has been created, the user can rename it to any valid name. Valid names must begin with a letter and may be followed by any combination of letters digits and underscores. Invalid names include:

* Folder names (eg, Spacecraft)
* Command names (eg, propagate)
* Names already in use (eg, naming two variables “var”)
* Keywords (eg, “GMAT” or “function”)
* Names with spaces

#### Delete

Objects can be deleted by right clicking the object and selecting “Delete”. Objects cannot be deleted if they are used by another resource or command and an error with be thrown. For example, a spacecraft object cannot be deleted if one of its properites (eg. DefaultSC.A1ModJulian) is being used by the Report command. Some default objects cannot be deleted through the GUI. In such cases, the Delete menu item will not be shown. They include:

* Default coordinate systems
	+ EarthMJ2000Eq
	+ EarthMJ2000Ec
	+ EarthFixed
	+ EarthICRF
* Default planetary bodies
	+ Sun
	+ Mercury
	+ Venus
	+ Earth
	+ Luna
	+ Mars
	+ Jupiter
	+ Saturn
	+ Uranus
	+ Neptune
	+ Pluto

These objects can be deleted in the script by deleting or commenting out the text in the script.

#### Clone

Objects can be cloned by selecting the “Clone” option in the menu. A cloned object will be an exact copy of the original object with a different name. Some objects cannot be cloned. In such cases, the Clone menu item will not be shown. The only objects that cannot be cloned are:

* Default coordinate systems (listed above)
* Default planetary bodies (listed above)
* Propagator resources

#### Add Object

User-defined solar system objects are added by right clicking either the Sun or a default planetary body. By right-clicking the sun the user can add a planet, comet, or asteroid to the solar system. By right-clicking a planet the user can add a moon to that planet.

# Test Procedures

## Assumptions

If you are making assumptions about how tests will be performed or that other test areas will cover some of this functionality describe that here.

## Existing Tests

Describe existing test types using a row for each class of test.

|  |  |  |
| --- | --- | --- |
| Priority | Status | Summary |
|  |  |  |
|  |  |  |
|  |  |  |

## Recommended Additional Tests

Nominal Tests

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| --- | --- | --- |
| Priority | Status | Summary |
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Edge/Corner/Stres

|  |  |  |
| --- | --- | --- |
| Priority | Status | Summary |
|  |  |  |
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|  |  |  |

Unique Validation

|  |  |  |
| --- | --- | --- |
| Priority | Status | Summary |
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|  |  |  |
|  |  |  |

Unique Mode Tests

|  |  |  |
| --- | --- | --- |
| Priority | Status | Summary |
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Unique GUI Tests

These are tests that are unique to the GUI interface for this feature that are not covered by the standard GUI test template and procedures.

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| --- | --- | --- |
| Priority | Status | Summary |
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