



**Toon Boom Harmony 14.0  
Scripting Guide**

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## **Legal Notices**

Toon Boom Animation Inc.  
4200 Saint-Laurent, Suite 1020  
Montreal, Quebec, Canada  
H2W 2R2

Tel: +1 514 278 8666

Fax: +1 514 278 2666

[toonboom.com](http://toonboom.com)

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# Chapter 1: About Scripting

The Harmony Scripting guide contains information which helps you to understand how to use Qt Script, the scripting language supported by Toon Boom Harmony.

## Detailed Scripting Method

For details about the scripting nodes, methods, and DbScript documentation, click the links below.

- [Harmony Script Interface Documentation](#)
- [Script Module Documentation](#)
- [DbScript Documentation](#)

You can also find the help files in the Script Editor view. From the Script Editor menu, select **Help > Scripting Interface Documentation**.

## Move from QSA to QT Script

As of Toon Boom Harmony 10.3, Toon Boom Animation has changed the scripting language. The scripting language has changed to Qt Script from QSA for a better and faster scripting environment than before. Script storage is now done as plain text, \*.js instead of \*.qsa format.

This change to the API improves the software and supports 64-bit platforms. As always, we have made every effort to enable backward compatibility between this version and earlier versions which used QSA script.

- Simple functions should port seamlessly.
- Class definitions must follow the new QT Script syntax, so existing scripts may be modified.

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### NOTE:

Detailed instructions on moving QSA script to Qt Script can be found in the "**Moving from QSA to Qt Script**" documentation at this link: [qt-project.org/doc/qt-4.8/porting-qsa.html](http://qt-project.org/doc/qt-4.8/porting-qsa.html)

For a general overview of the QT UI toolkit, refer to [qt-project.org/doc/qt-4.8/index.html](http://qt-project.org/doc/qt-4.8/index.html)

For a tutorial on coding in JavaScript, refer to <https://www.w3schools.com/js>

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## About Scripts

Qt Script provides access to many of the functions supported in the Harmony interface. With Qt Script, you can automate a number of Harmony functions to speed up the completion of various repetitive tasks.

Qt Script is an object-oriented scripting language based on the ECMAScript standard, like JavaScript and JScript. However, there are some differences that distinguish Qt Script from these other scripting languages, which are familiar to web programmers.

To use scripts prepared by other users, you must import those scripts. You can add buttons to the Scripting toolbar for quick and easy access.

# Creating Qt Scripts

Using the Script Editor, you can create Qt scripts for Harmony.

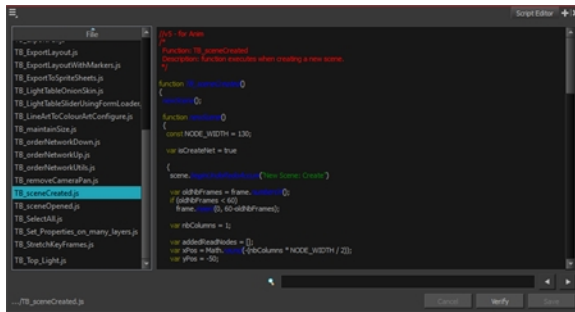
For details about the scripting nodes, methods, and DbScript documentation, click the links below.

- [Harmony Script Interface Documentation](#)
- [Script Module Documentation](#)
- [DbScript Documentation](#)

You can also find the help files in the Script Editor view. From the Script Editor menu, select **Help > Scripting Interface Documentation**.

When you create a new scene, the `TB_sceneCreated` script automatically sets the scene length to 60 frames and adds one of each of the following nodes: drawing element, composite, display and write.

You can find the script in the Script Editor window.

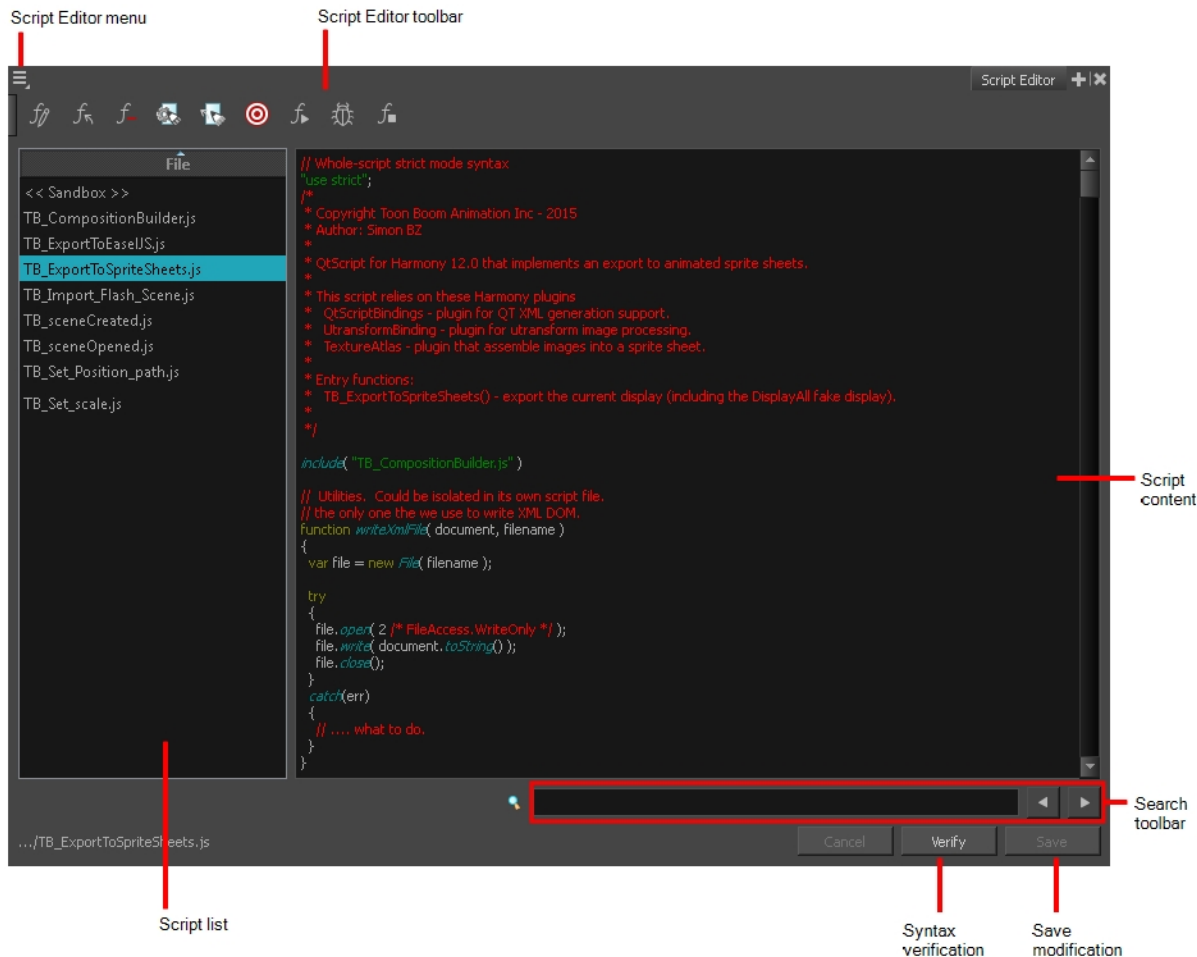


You can customize this script to fit your current project needs. This way, you can set the default scene length to any number of frames you want, or even decide which types of elements and nodes you want to be in your scene when you create it.


## How to create a script

1. From the top menu, select **Windows > Script Editor**.

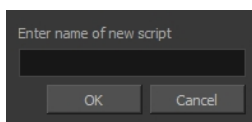
The Script Editor view opens listing all the available JavaScript files.



## 2. Do one of the following:

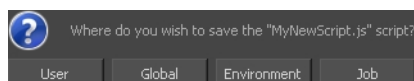
- From the Script Editor menu, select **File > New Script**
- In the Script Editor toolbar, click the New Script  button.
- From the top menu, select **Windows > Toolbars > Script Editor**.

The New Script dialog box appears.



## 3. Enter a name and click on OK.

- When working with Harmony Server, you must set the location where the script will be saved, either User level, Global level, Environment level, or Job level.



When working with Harmony Stand Alone, your custom scripts and default scripts are stored in:

- **Windows:**

- **Toon Boom Harmony Premium:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Harmony\1400-scripts
- **Toon Boom Harmony Advanced:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Advanced\1400-scripts
- **Toon Boom Harmony Essentials:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Essentials\1400-scripts

- **Mac OS X:**

- **Toon Boom Harmony Premium:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Harmony/1400-scripts
- **Toon Boom Harmony Advanced:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Advanced/1400-scripts
- **Toon Boom Harmony Essentials:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Essentials/1400-scripts

On Mac OS X, the Library folder is a hidden folder. To display the display the folder, told down the Alt key.

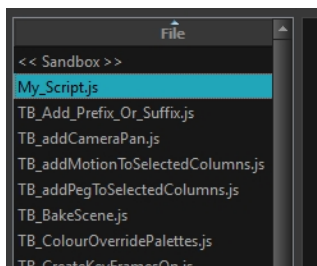
- **Linux:**

- /home/[user\_name]/Toon Boom Animation/Toon Boom Harmony/1400-scripts/
- /home/[user\_name]/Toon Boom Animation/Toon Boom StageAdvanced/1400-scripts/

When working with Harmony Server, your custom scripts are stored in:

- **Global:** [Server\_Name] > USA\_DB > scripts
- **Environment:** [Server\_Name] > USA\_DB > environments > [environment\_name]
- **Job:** [Server\_Name] > USA\_DB > jobs > [job name]
- **User:** [Server\_Name] > USA\_DB > users > [user\_name] > stage > 1400-scripts

The name of your script appears in the File column of the Script Editor view.



5. Click in the right side of the Script Editor and start writing your script. Try typing in the following script:



```
function add3dPathCol ()
{
column.add("ColumnName", "3DPATH");
}
```

**NOTE:**

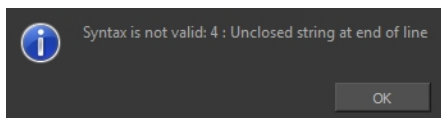
For a tutorial on coding in JavaScript, refer to <https://www.w3schools.com/js>

For a detailed Harmony script interface documentation, refer to [Harmony Script Interface Documentation](#)

You can also find the help files in the Script Editor view. In the Script Editor menu, select **Help > Scripting Interface Documentation**.


- To check your syntax, click **Verify**.

A window opens with syntax information.




- To test your script, select the script you want to run from the File column.

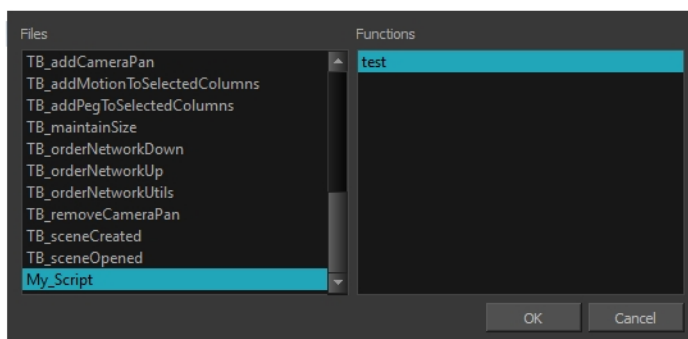
- Do one of the following:


- From the Script Editor toolbar, click the Run  button.
- From the Script Editor menu, select **Play/Debug > Run**.

A window opens to ask you for the target function to run. In the window, select the function you want to execute.

**NOTE:**

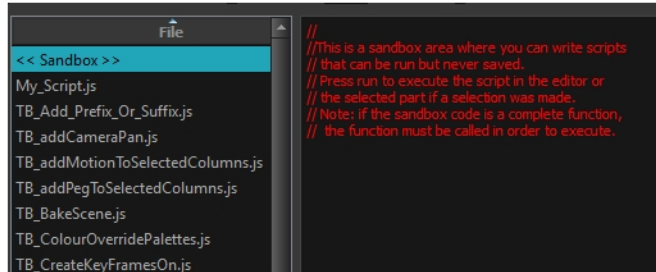
To avoid selecting the function every time you want to run your script, you can set a target function. In the Script Editor toolbar, click the Set Target  button or select **Play/Debug > Set Target** from the Script Editor menu. In the Function column, select the function to target and press **OK**.



- ▶ To stop the execution of your script, click the Stop Execution  button.
- ▶ You may receive this message: Only functions that have been saved or are explicitly called will be executed.

This usually occurs if you did not select the function you wanted to run from the File column before running the script. When this happens, click **Save** and run your script again.

- ▶ You may also see this message on the right side of the Script Editor:




This is because the software jumped to the <<Sandbox>> item in the Function column. The <<Sandbox>> is provided to test scripts without saving them. Simply click on your newly created script and run it again.

## Deleting Qt Scripts

Use the Script Editor to delete scripts.


### How to delete a script

1. In the Script Editor, in the File column, select the script to delete.
2. Do one of the following:
  - From the Script Editor toolbar, click the Delete Script  button.
  - From the Script Editor view menu, select **File > Delete Script**.

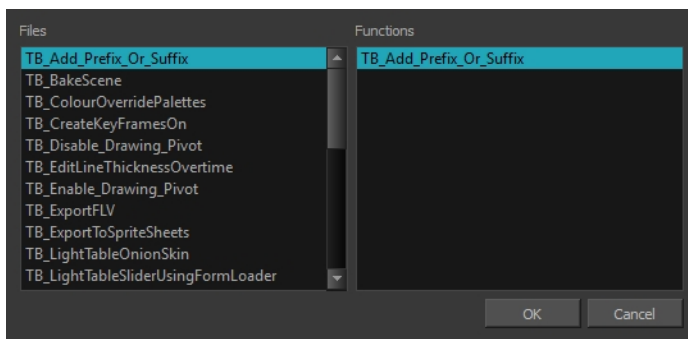
# Troubleshooting Script Errors

Use the Debug command in the Script Editor to find all the errors in a script.

## How to troubleshoot errors in your script

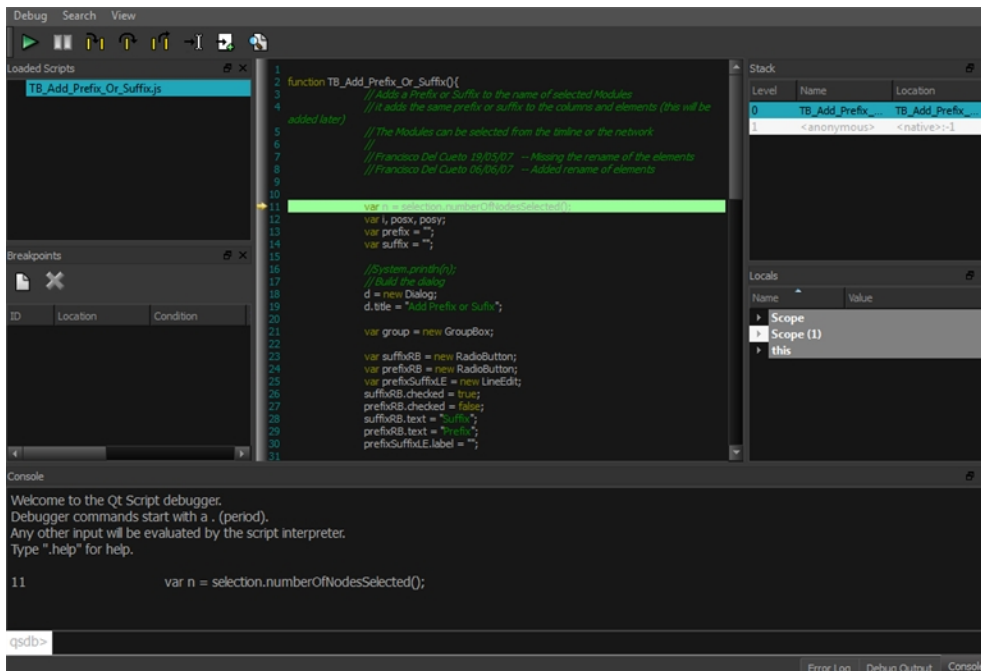
1. In the File list, select the script containing the function to debug.
2. Do one of the following:
  - From the Script Editor toolbar, click the Debug  button.
  - From the Script Editor menu, select **Play/Debug > Debug**.

A window opens listing the scripts and functions available.



3. In the Functions column, select the function to debug and click **OK**.

The Qt Script Debugger opens.



## Using External Script Editors


If you are more comfortable editing your scripts using another editor, Harmony allows you to set an external script editor and use that one instead.

### NOTE:

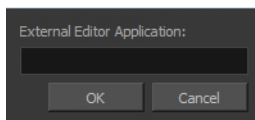
If you do not set an external editor, on Windows and Mac OS X, when selecting the External Editor option, it will launch the registered editor for JavaScript program (e.g. Visual Studio, XCode or Brackets).

Multiple files can be opened in the same editor instead of starting a different copy of the editor each time a \*.js script is selected.

### How to set an external editor

1. Do one of the following:
  - From the Script Editor menu, select **Editor > Set External Editor**.
  - In the Script Editor toolbar, click the Set External Editor  button.

The Set External Editor window opens.




2. In the external editor, type or paste the complete path to the application, including its name and extension.
 

For example, if you want to set Adobe Dreamweaver as your external editor, a Windows path would look like this:

```
C:\Program Files (x86)\Adobe\Adobe Dreamweaver CS5\Dreamweaver.exe
```

On Mac OS X, simply specify the application name. If the application supports the Applescript Open Document protocol, it will open.
3. Click **OK**.

### How to edit a script in an external editor

1. In the File list, select the script to edit.
2. Do one of the following:
  - From the Script Editor menu, select **Editor > External Editor**.
  - In the Script Editor toolbar, click the External Editor  button.
3. In the external editor that opens, edit the script and save the file.

4. In Harmony, refresh the Script Editor view by selecting another script and then selecting your edited script again to see the modifications.

## Importing Scripts

To use scripts prepared by other users, transfer the \*.js files from the computer where the scripts were created to the one that you intend to use. Then use the Script Editor to import the \*.js files from where they are saved on your computer.

When working with Harmony Stand Alone, scripts that you created while working on a scene or imported are available for all other projects created on the same computer; there's no need for any kind of transfer or import. You can find your custom, default and imported scripts in:

- **Windows:**
  - **Toon Boom Harmony Premium:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Harmony\1400-scripts
  - **Toon Boom Harmony Advanced:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Advanced\1400-scripts
  - **Toon Boom Harmony Essentials:** C:\Users\[user\_name]\AppData\Roaming\Toon Boom Animation\Toon Boom Essentials\1400-scripts
- **Mac OS X:**
  - **Toon Boom Harmony Premium:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Harmony/1400-scripts
  - **Toon Boom Harmony Advanced:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Advanced/1400-scripts
  - **Toon Boom Harmony Essentials:** /Users/[user\_name]/Library/Preferences/Toon Boom Animation/Toon Boom Essentials/1400-scripts

On Mac OS X, the Library folder is a hidden folder. To display the folder, hold down the Alt key.

- **Linux:**
  - /home/[user\_name]/Toon Boom Animation/Toon Boom Harmony/1400-scripts/
  - /home/[user\_name]/Toon Boom Animation/Toon Boom StageAdvanced/1400-scripts/


With Harmony Server, scripts that you have been working on and imported are available at the level you saved them:

- **Global:** [Server\_Name] > USA\_DB > scripts
- **Environment:** [Server\_Name] > USA\_DB > environments > [environment\_name]
- **Job:** [Server\_Name] > USA\_DB > jobs > [job name]
- **User:** [Server\_Name] > USA\_DB > users > [user\_name] > stage > 1400-scripts

If you deleted default scripts and would like to reload them, you can find them in:

- **Windows:** Program Files (x86) > Toon Boom Animation > Harmony 14 [edition] > resources > scripts
- **Mac OS X:** Applications > Harmony 14 [edition] > tba > resources > scripts
- **Linux:** /usr/local/ToonBoomAnimation/harmony\_14/resources/scripts

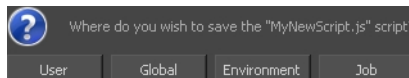
### How to import scripts

1. Copy the \*.js files that you want to transfer onto a USB key, or use the transfer method of your choice.
2. Transfer and save the \*.js files onto the computer that you intend to use. Be sure to save them in a logical location. You can save them directly in the default locations indicated above, in which case they will automatically appear in the Script Editor. If you prefer not to mix them up with the default scripts, save them to a different location and continue with the following steps.
  - To save time, you can copy all the files and icons located in the user preferences and paste them back in your own preferences to avoid having to import all scripts one by one.
3. In Harmony, open a new or existing scene.
4. Do one of the following:
  - In the Script Editor view, click the Import Scripts  button.
  - From the Script Editor menu, select **File > Import Script**.

With Harmony Server, a window opens in which you can browse to the location on the server where the \*.js files are saved. You can choose the User, Global, Environment, or Job folder.

5. Select the \*.js file and click **Open**.

When working with Harmony Server, you must set the location where the script will be saved: User level, Global level, Environment level, or Job level.



The script is imported and appears in the Files list of the Script Editor.



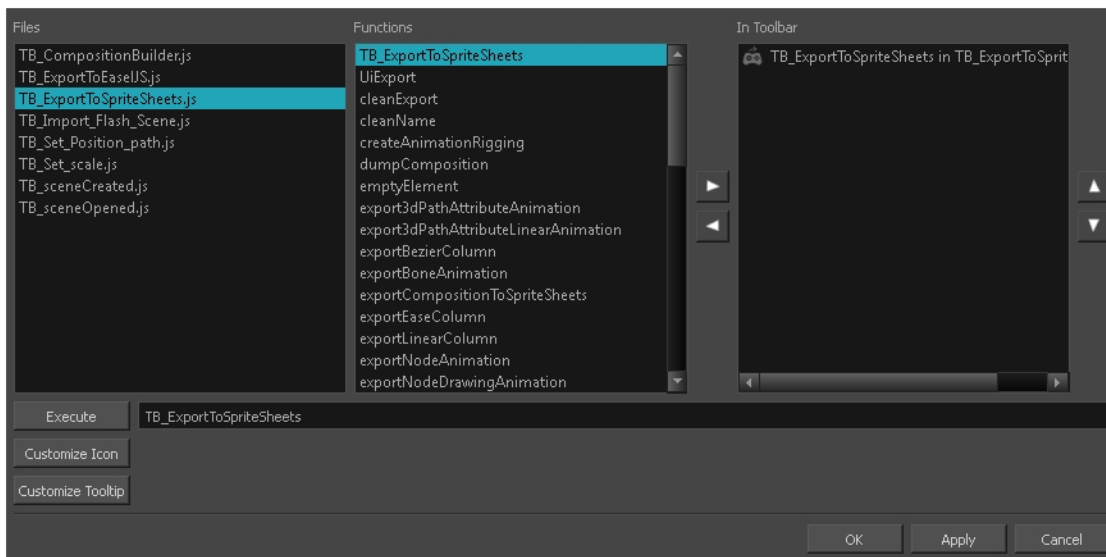
## Linking Scripts to Buttons

You can add buttons to the Scripting toolbar so you can access them easily. They will appear to the right of the default Scripting toolbar buttons.


### How to link a script to a toolbar button

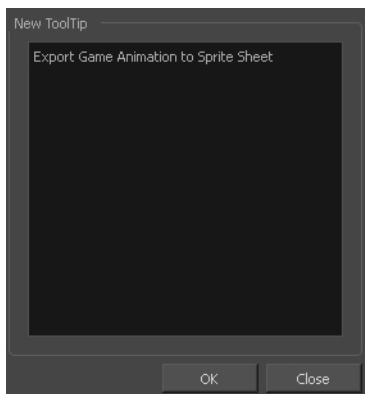
1. In the Scripting toolbar, click the Manage Scripts  button.

The Scripts Manager dialog box opens and displays the available scripts.



You can select a script from this dialog box and run it immediately by clicking **Execute**.

2. In the Files list, select the JavaScript file containing the function you want to add to the toolbar.
3. In the Functions list, select the function to add to the toolbar.
4. Click the Right Arrow  button to add the function to the In Toolbar list.
5. To load a custom icon, click **Customize Icon** and browser for a \*.png, \*.jpg or \*.xpm file.
6. To customize the tooltip appearing in the Scripting toolbar, click **Customize Tooltip** and type in the new tooltip in the Function Tooltip window.



7. Click **OK**.

#### How to execute a script

1. Once the script is added to the Scripting toolbar, you can press on the corresponding script button to execute the action—see [How to link a script to a toolbar button on page 17](#).
2. You can press the Esc key to interrupt the execution of a script.