# 1 Visualizing Output

Currently, ICE features two plugins for visualizing and plotting simulation output data:

**VisIt Tools** - An interactive 3D visualization tool for rendering meshes, scalar plots, contour plots, and more.

**CSV Plotting Tools** - A customizable, 2D data plotting utility for data from .csv files.

## 1.1 Installation and Configuration

The CSV Plotting Tools require no additional software or preparation before use. The VisIt Tools need both an instance of VisIt and a connection between ICE and the VisIt session.

### 1.1.1 VisIt Installation

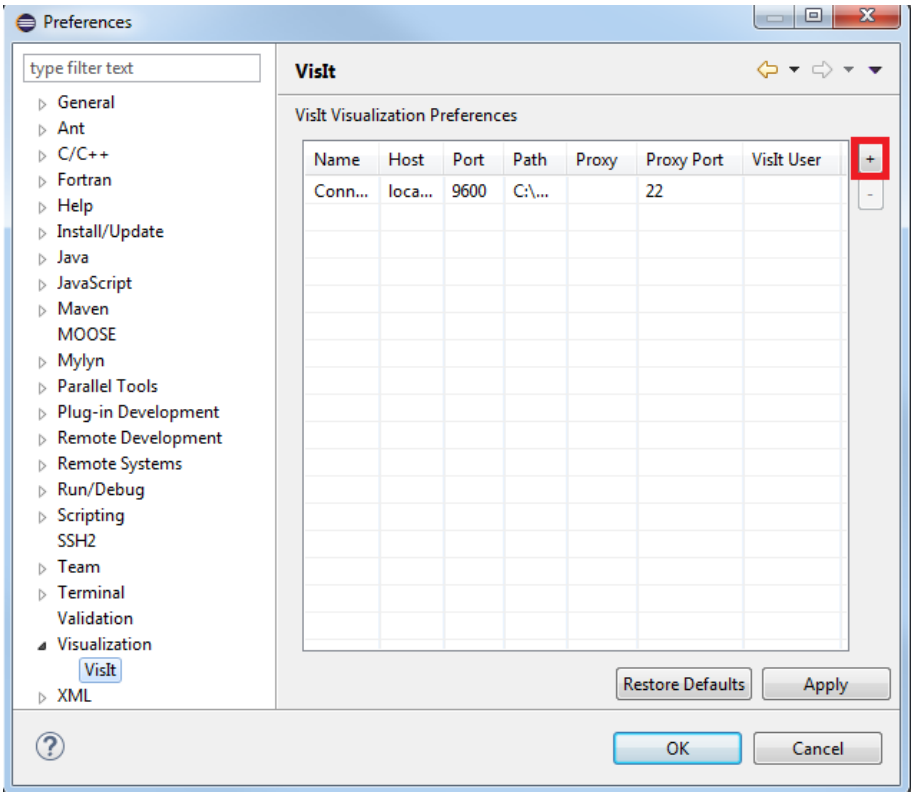
Before preparing ICE, VisIt, developed by Lawrence Livermore National Laboratory, must be downloaded. This must be version 2.8.2, and does not need to be on the same machine that ICE is installed on, as ICE is capable of launching a VisIt session on a remote machine. Make note of the folder where you installed VisIt for use in the next step.

### 1.1.2 Configuring the VisIt Connection

Once VisIt is installed, ICE must connect to a VisIt session in order to provide data visualization. There are two different parts of ICE which connect with VisIt, both providing slightly different functionalities. These are the Plot Editor, which is slightly more user friendly, and the Visualization Perspective, which allows for arbtrary Python commands to be sent to the VisIt client.

**Connecting for the Plot Editor** This process will set up a default connection to VisIt in the ICE Preferences page, and so only needs to be performed once. After creating the connection, ICE will launch and connect with VisIt each time it is started.

To set the connection, select Window → Preferences in ICE's toolbar. Then select Visualization → VisIt in the tree of the Preferences page.




Press the new row button, the button with a "+" symbol in the upper right, highlighted in the image above. You can then click on each of the cells of the new row to edit them. The default values automatically supplied by ICE should be fine for most users. However, two fields may need to be changed:

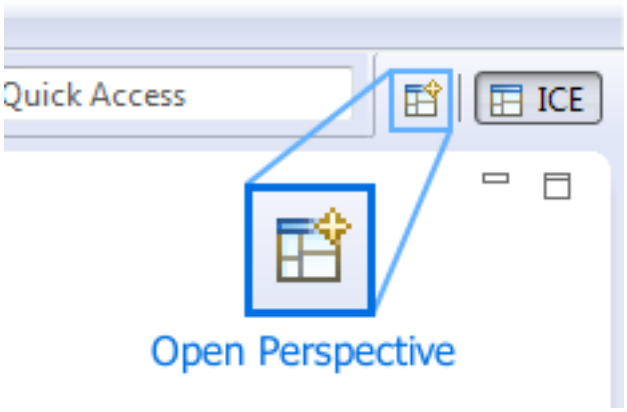
**Host:** The default value of "localhost" is for connections to local installations of VisIt on your computer. If you want to launch a remote VisIt connection, you must change this to the hostname of the machine to connect to.

**Path:** You need to put the full path to the VisIt folder here. The path should end with the folder containing the VisIt executable. For example, if VisIt.exe is in a folder called VisIt 2.9.1, the the path should end in \VisIt 2.9.1\, not \VisIt 2.9.1\VisIt.exe.

Once finished, press Apply, then OK. ICE will then open VisIt and connect to it.

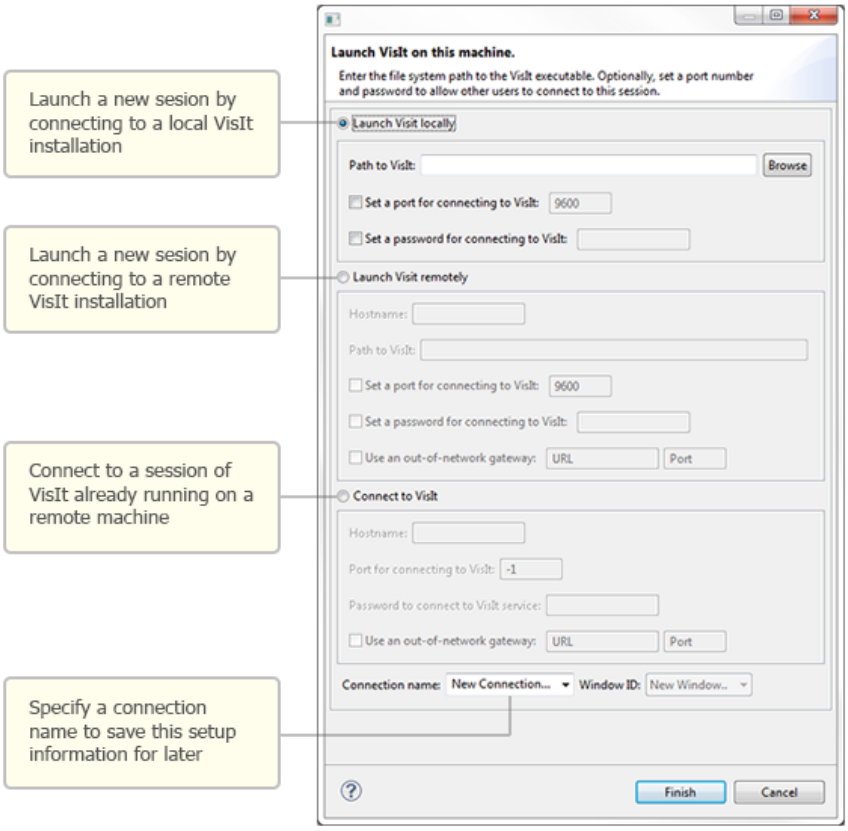
**Connecting for the Visualization Perspective** First, open the Visualization perspective. On the main menu bar at the top of the window, click Window

→ Open Perspective → Other. . . , select Visualization in the fialog that pops up and click OK. Alternatively, you can also access the same pop-up dialog by clicking the Open Perspective button in the main toolbar in the upper right-hand corver of the ICE workbench.




Now click the Launch VisIt button in the menu bar.


This will open a dialog offering you three options for connecting to VisIt.




1) Launch VisIt locally - If you installed VisIt on your local machine, use the Browse button to direct ICE to your local installation directory. Using this method of connecting will launch a new VisIt session. Optionally, you can also set a port number (default 9600) and–if you want to share your VisIt session with another user–a password.

2) Launch VisIt remotely - If you installed VisIt on a remote machine, specify the hostname and full path to the VisIt installation directory. Using this method of connecting will launch a new VisIt session. Optionally, you can specify a port number (default 9600) and–if you want to share your VisIt session with another user–a password. If you need or want to use an external gateway or proxy to access the remote VisIt installation, you may specify its URL and port number as well.

3) Connect to VisIt - If you would like to connect to session of VisIt already running somewhere else, specify the hostname, port number, and password set on the VisIt session; you will need to obtain this information from the person

who initially launched the VisIt session. If you need or want to use an external gateway or proxy to access the remote VisIt installation, you may specify its URL and port number as well.

If you've forgotton where VisIt is installed on Windows, find a shortcut to VisIt eithero n your desktop or in the start menu. Right-click the shortcut and open its Properties. The path to the VisIt executable's directoy will be shown next to Target.

Regardless of which method you choose to connect to VisIt, enter a Connection name at the bottom of the pop-up dialog.

If you are connecting to an existing session, specify a Window ID between 1 and 16. Which Window ID you use depends on how you would like to connect to VisIt. If multiple users connect using the same Window ID, they will all see and be able to interact with the same VisIt view. However, if you would like multiple users to each have their own unique session each with its own controls, assign a unique Window ID to each user. The VisIt installation can support up to 16 unique window IDs at a time.

Once you are done, click the Finish button at the bottom, and ICE should begin connecting to VisIt.

### 1.1.3 Using VisIt

**Plot Editor** To open a plot editor, first the file must be placed in the Project Explorer. This view lists files imported into ICE. To access the Project Explorer, use the the main menu bar at the top of the window and navigate to Window /*rightarrow* Show View /*rightarrow* Project Explorer.

By default, the Project Explorer should automatically import the ICEFiles/default and ICEFiles/itemDB folders. If it does not, or it you want to import a different folder into ICE, right click in the Project Explorer and select Import... from the context menu. Then select General -¿ File System from the tree and press the Next button. You can then select directories and/or files to import into the Project Explorer.