

IVP Batch Builder User's Manual

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1.0 Overview

The IVP Batch Builder program is a tool to assist users in building batch files for the IVP Batch Program, run those batch files, and view the output generated from the run. This manual provides instructions on how to use the IVP Batch Builder.

1.1 Using This Manual

Section 8.0 provides instructions on how perform tasks using the IVP Batch Builder in order to construct batch files. Sections 9.0-13.0 provide information about the windows of the IVP Batch Builder. It is recommended that the user, first, read the Instructions section of the *IVP Batch Builder User's Manual for Verification* (Section 8.0), and then run the IVP Batch Builder in order to follow those instructions. Refer to Section 8.0, as needed, to perform particular tasks, and Sections 9.0-13.0 as needed to understand how to use a particular window (see the Table of Contents for page numbers).

This manual requires the use of the *Interactive Verification Program User's Manual*, since many of the GUI components herein are borrowed from that program.

2.0 Notation

The following notational conventions are used in this document:

- A GUI component, including a window, panel, menu, menu item, or button, is displayed in **bold**.
- A menu item within a menu is displayed as [**menu name**] >> [**menu item name**]. For example, **Actions** >> **Close** is the **Close** menu item within the **Actions** menu.
- Terms to remember and NOTES will be denoted in *italics*.
- <key> indicates a keyboard key. For example <shift> means the shift key.
- Text to be entered at a command line is displayed in *this font*.
- Batch commands or actions are displayed in *this font*.
- Directories and file names are in *this font*.
- A directory corresponding to an apps-defaults token is denoted \$(token).

3.0 Execution

To execute the IVP, enter:

```
cd $(get_apps_defaults vsys_dir)/scripts
ivpbatchb
```

Upon execution, the **Batch Builder** window will open up.

4.0 Apps-defaults Tokens

The following apps-defaults tokens are used by the IVP:

- adb_name : <depends upon RFC>

- `verify_dir` : `/rfc_arc/verify`
- `vsys_dir` : `$(verify_dir)`
- `vsys_input` : `$(vsys_dir)/input`
- `vsys_output` : `$(vsys_dir)/output`
- `vsys_files` : `$(vsys_dir)/files`
- `rax_pghost` : `ax` <optional; if not present, it uses the PGHOST environment variable, instead>
- `pguser` : `pguser` <optional; if not present, it uses the PGUSER environment variable, instead>
- `pgport` : `5432` <optional; if not present, it uses the PGPORT environment variable, instead>

Each of the above directories must exist for the IVP to run properly. It is also recommended that the following directory be created for each user:

```
$(vsys_input)/$LOGNAME
```

If this recommendation is followed, then the apps-defaults site file should override the setting of `vsys_input` as follows:

- `vsys_input` : `$(vsys_dir)/input/$(LOGNAME)`

All of these directories should be constructed prior to running IVP.

5.0 Files and Directory Structure

The following directory structure must be in place for the IVP Batch Builder to execute properly:

```
$(util_ribs)/rfc.ohd.jar
$(sys_java_dir)/lib/ChartDirector.jar
/usr/share/java/pg74.215.jdbc3.jar
$(vsys_dir)/scripts/ivpbatchb
$(vsys_dir)/scripts/ivpbatch
```

`$(vsys_dir)` refers to the value of the apps-defaults token `vsys_dir`, which points to the base directory, typically `/rfc_arc/verify`. `$(LOGNAME)` refers to the user name; each directory above with this in it should be created for each user who is to use the software.

6.0 File Types

The following types of files are used within the IVP (recommended file extensions are given in parentheses; for the output image files, the extensions are required)

- **Batch Input Files (.bat):** These files are input files to the IVP Batch Program, and can be loaded by the GUI in order to specify parameters of the data used and plots generated. These files are, by default, assumed to be in the `$(vsys_input)` directory.
- **Graph Template Files (.txt):** These files specify properties of the charts to create, including labels, fonts, colors, sizes, axis limits, and others. These files are, by default, assumed to be in the `$(vsys_files)/$LOGNAME/templates` directory.

- **Output Image Files (.png, .jpg, .jpeg):** These files are images of the charts generated by the IVP or IVP Batch Program. These files are, by default, assumed to be in the `$(vsys_output)/$LOGNAME` directory. Any such file **MUST** have one of the extensions listed.
- **Output Data Files (.dat):** These files are ASCII format files that provide the data plotted to a chart in a tabular format. These files are, by default, assumed to be in the `$(vsys_output)/$LOGNAME` directory.
- **System Settings File:** This file is an ASCII format file used to specify defaults for the appearance of the IVP and its charts. The file must be in the directory `$(vsys_dir)/app-defaults` and have the name `IVP_SYSTEM_FILE.txt`. See Appendix A for more details.

7.0 Batch File Format

Each line of the batch file corresponds to a command or a parameter setting. All lines must be of the format:

```
<token> = <value>
```

with the following restrictions:

1. The token is not case sensitive.
2. Any number of spaces or tabs may be placed before or after the token and before or after the value.
3. A space, new-line (carriage return), tab, or pound ('#') marks the end of a value or token.
4. Double quotes must be placed around the value if it is to contain tabs, spaces, or pounds, but the value may never contain a new-line. For example,

```
my_name = john doe
```

has a token of "my_name" and a value of "john", whereas

```
my_name = "john doe"
```

has a token of "my_name" and a value of "john doe". If a new-line is encountered, it is treated as the closing double-quote.

5. The character '#', unless it is within double quotes, is used to indicate a comment. All characters after a '#' are ignored.
6. The equal sign ('=') must not be used as part of a value.

If a line is found which does not follow this format or specifies an unrecognized token, an error message will be generated. Blank lines are ignored.

8.0 Instructions

The IVP Batch Builder is best used in conjunction with the IVP Batch Program. Follow the instructions for the IVP Batch Program (see Instructions in the *IVP Batch Program User's Manual for Pairing* and *IVP Batch Program User's Manual for Verification*). Every command or action in those instructions can be inserted, appended, or edited via the IVP Batch Builder.

Below are instructions for performing several key tasks within the IVP Batch Builder.

8.1 Opening a File

To open a file, do the following:

1. Click on **File >> Open** or press <ctrl-o>.
2. If the **Command List** has been modified since last being saved, then a dialog asking "File has not been saved. Do you wish to save?" will pop-up. Click **Yes** if you want to save or **No** if you do not.
3. An **Open** window will now pop-up. Navigate to the file you want and click on it.
4. Click **Open** if you wish to open that file or **Cancel** if you decide to not open a file.

Text is printed to stdout stating "Reading in file <filename>", listing any lines that it cannot interpret (i.e. lines that are not blank, comments, commands or actions), followed by "Done" upon completion.

8.2 Saving a File

To save a file, do the following:

1. If you wish to save the file with a different filename than that displayed in the label above the **Command List**, click on **File >> Save As**, otherwise click on **File >> Save** or press <ctrl-s>.
2. If **File >> Save As** is clicked or **File >> Save** is clicked but the **Command List** does not have a corresponding file name, then a **Save** window will pop-up. Specify the file you want to save it as by navigating to the file and clicking on it or typing in the filename in the **File Name** text field.
3. Click on **OK** if you wish to save the file or **Cancel** if you decide not to save the file.

If you click **OK**, the **Command List** will now be saved to the specified filename and the file name given in the label above the **Command List** will change accordingly.

8.3 Running the Batch Input File

To run the batch input lines currently displayed in the Command List, do the following:

1. Click on **File >> Run Batch**, the **Run** button, or press <ctrl-r>.
2. If the **Command List** has been modified since last being saved, then a dialog asking "File has not been saved. Do you wish to save?" will pop-up. Click **Yes** if you want to save or **No** if you do not.
3. An **IVPBatchBuilder: Confirm Run** window will now pop-up providing the command line to be executed. Check to verify that the location of the IVP Batch Program script is correct and that the location of the batch file is correct. If you wish to execute the IVP Batch Program, click **OK**, otherwise click **Cancel**.

4. If you click **OK**, the command will now be executed. Any output normally generated by the IVP Batch Program will be sent to stdout (the terminal from which the IVP Batch Builder was executed). When the run is complete, the line "Run Complete" will be printed to stdout.

NOTE: If you do not see the line "Run Complete" printed to stdout, then the run did not complete normally. This may mean that the IVP Batch Program stopped abnormally or that some other error occurred. Verify the run by executing it manually (i.e. run the command from a prompt) and this should help to locate and fix the problem.

5. A **Batch Output Viewer** will now pop-up, listing all of the output files generated by the run. Select the files you wish to view.
6. Click on **View** when the selections are complete. The files will now be displayed within individual windows.
7. Click on **Close** when you are finished viewing the output.

NOTE: Output files that are very large may cause IVP Batch Builder to hang when View is clicked. Check the file size before clicking on View.

You have completed a run of the batch file input.

8.4 Inserting or Appending Commands and Actions

To insert or append a command or action into the **Command List**, do the following:

1. Select the **Command Panel** that contains the command or action you wish to insert or append by clicking on the tab that corresponds to it. See Section 10.0 for a list of the command panels and their contents.
2. Click on the check box that corresponds to the command or action.
3. Set the command value or action parameter by editing the **Subcommand Panel** as indicated by the GUI, noting the following:
 - a. Text fields that are supposed to contain a number must contain a number. You cannot leave them blank or have anything in them other than integer digits or white-space if you wish to insert or append successfully.
 - b. Selecting files consists of clicking on **Select File** and navigating to the file you wish to use. Click **Open** when you have found the file or **Cancel** to not select any file.
 - c. Change the words in a comma delimited list of strings command (e.g. PE, Fcst_TS, etc.) by clicking on **Edit List** and selecting all of the items that are to be contained in the list. The <shift> and <ctrl> keys can be used to select multiple items, as usual.
4. Click on **Commands >> Insert Commands** to insert the command into the **Command List** just before the currently selected batch input line or click on **Commands >> Append Commands** to append the command to the end of the **Command List**.

NOTE: Multiple commands and actions can be selected for inserting or appending simultaneously from a command panel. They are just inserted from top to bottom. However, IVP Batch Builder will only insert or append those commands covered by the currently selected command panel.

Upon clicking the menu item (or its equivalent button), if the format of the information in the **Subcommand Panel** is incorrect, an **Error** window will open. This can be closed by clicking **OK**.

NOTE: Once a command or action is inserted or appended, the value of the check box associated with the command or action will not change. Hence, you may want to uncheck the check box afterwards by clicking on it so you do not accidentally insert or append the command again.

8.5 Inserting Comments

To insert a comment, do the following:

1. Click on **Commands >> Insert Comment**.
2. An **Insert Comment** window will pop-up. Type in the contents of the comment into the text field without including the preceding '#'.
3. Click **OK** to insert the comment into the **Command List** just before the currently selected batch input line. It will append it to end of the **Command List** if no line is currently selected. Click **Cancel** if you decide to not insert a comment.

Upon clicking **OK**, the contents of the text field will be entered into the **Command List** with a '#' preceding it.

8.6 Editing a Command

To edit a command, action or comment, do the following:

1. Select one and only one batch input line to edit from the Command List.
2. An **Editing Command** window will pop-up. If the line to edit is a command or action, then it will be a wrapper dialog on the sub-command panel associated with the command or action selected. If the line to edit is a comment, then it will be a wrapper on the panel that appears when you click **Commands >> Insert Comment**.
3. Make changes to the command, action, or comment accordingly and click **OK** if you wish to go through with the changes or **Cancel** if you decide not to edit the line.

Upon clicking **OK**, the **Command List** will change reflecting the new value of the batch input line.

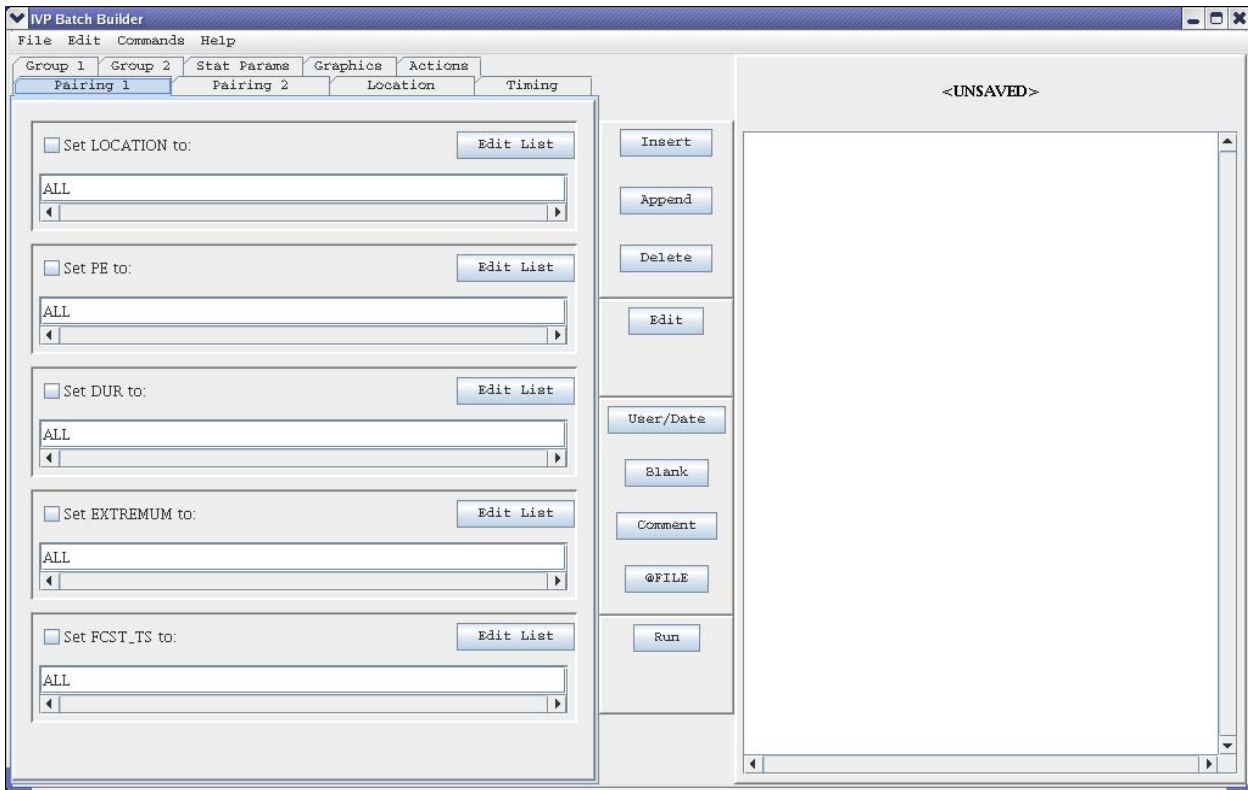
NOTE: The commands CLEAR_GROUPS and BUILD_PAIRS cannot be edited since its value is ignored (see the IVP Batch Program User's Manual for Verification and the IVP Batch Program User's Manual for Pairing for more detail.

9.0 Batch Builder

The **Batch Builder** window is the main window of the IVP Batch Builder. It has the following components:

- **Command Panel:** The left side of the window is the currently selected **Command Panel**.
- **Command List:** The right side displays the current list of batch commands and actions.
- **Menus:** The **File**, **Edit**, and **Commands** menus provide tools to edit the **Command List**, check for errors, run the batch file, and view the output.
- **Button Panel:** The middle button panel provides buttons that are equivalent some of the menu items.

Each of the components will be described below.



9.1 Command Panel

The currently selected **Command Panel** is displayed on the left side of the **Batch Builder** window. A **Command Panel** provides tools to insert/append some of the batch commands and actions associated with the IVP Batch Program. Each command or action will have a **Subcommand Panel** of one of the **Command Panels** associated with it. A **Command Panel** can be made active by clicking on the corresponding tab.

The **Command Panels** are as follows:

- **Pairing 1**
- **Pairing 2**
- **Location**
- **Timing**
- **Group 1**
- **Group 2**
- **Stat Params**
- **Graphics**
- **Action**

Each of the **Command Panels** will be described in Section 10.0.

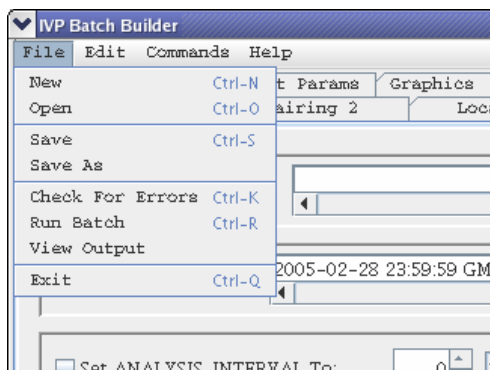
9.2 *Command List*

The current **Command List** is displayed on the right side of the **Batch Builder**. It consists of a file name (above the list) and a selectable list. Each line of a batch file will correspond to a line of the **Command List**, and includes a line number preceding it. Clicking on a line selects it and multiple lines can be selected by holding down the <shift> or <ctrl> keys while clicking on lines. A selected line is highlighted in blue.

9.3 *Undo and Redo Stacks*

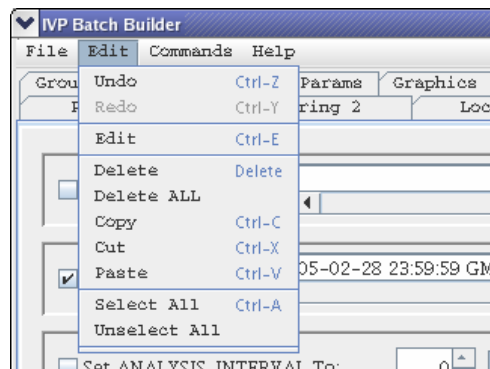
Each change to the **Command List** is stored in an "undo" stack of changes. When **Undo** is clicked, it takes the change that was most recently made, which is on top of the undo stack and undoes it. That change is then pushed on to a "redo" stack. When **Redo** is clicked, it takes the most recently undone change, which is on top of the redo stack and redoes that change. That change is then pushed on to the top of the "undo" stack. Both stacks are cleared whenever a file is saved or opened.

9.4 *Menu Items*

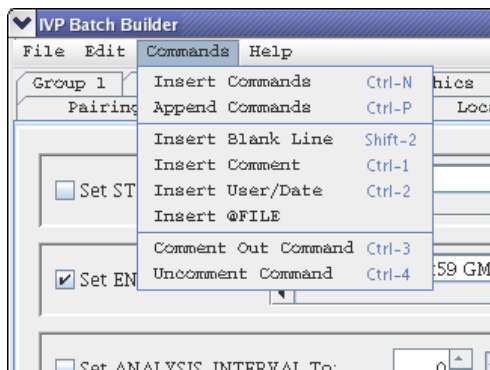


- **File >> New:** Create a new file. The **Command List** will be emptied and the file name will be set to "<UNSAVED>".
- **File >> Open:** Opens a file browser to allow the user to select an existing batch file to open. After opening, the **Command List** will display the contents of the batch file and the batch file name will be shown.

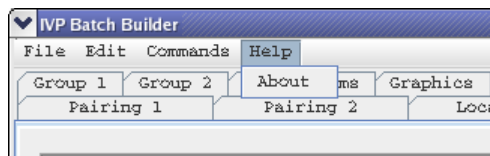
- **File >> Save:** Save the contents of the **Command List** to the name currently shown. If the file name is current “<UNSAVED>” this menu item acts the same as **File >> Save As**.
- **File >> Save As:** Opens up a file browser to allow the user to select a name for the batch file to create. Upon choosing a name, the batch file will be created with the contents specified in the **Command List** and the file name above the list will change to that specified.
- **File >> Check For Errors:** Checks the current **Command List** for errors and displays those errors in an **Error Window**. If no errors are found, a small window is popped up stating that.
- **File >> Run Batch:** Runs the batch file using the IVP Batch Program. A window is displayed which provides the command line that will be executed. If **OK** is clicked, the run will be made with terminal output being displayed in terminal from which the IVP Batch Builder was executed. Upon completion, the **Batch Output Viewer** window will be opened displaying the names of output files generated by the run.
- **File >> View Output:** Opens up the **Batch Output Viewer**, displaying the names of output files generated by the most recent run of the IVP Batch Program.
- **File >> Exit:** Shuts down the IVP Batch Builder.



- **Edit >> Undo:** Undoes the most recent change made to the **Command List**. Undo can be performed multiple times in a row to undo multiple recent changes.
- **Edit >> Redo:** Does the most recent undone change again.
- **Edit >> Edit:** Opens up an **Edit** window to allow for editing the selected line in the **Command List**. See Section 11.0.
- **Edit >> Delete:** Delete the selected lines from the **Command List**.
- **Edit >> Delete All:** Deletes all lines from the **Command List**.
- **Edit >> Copy:** Puts the selected lines in the **Command List** into memory, so that they can be later pasted.
- **Edit >> Cut:** Puts the selected lines into memory and deletes them from the **Command List**.
- **Edit >> Paste:** Pastes the lines currently in memory into the **Command List** at the selected line. The lines will be pasted in the same relative order as when they were copied (or cut) from the **Command List** originally.
- **Edit >> Select All:** Selects all lines in the **Command List**.
- **Edit >> Unselect All:** Clears the selection in the **Command List**.
- **Commands >> Insert Commands:** Insert the commands currently selected in the **Command Panel** into the **Command List** at the selected line. If no line is selected, the lines will be appended to the end of the **Command List**.
- **Commands >> Append Commands:** Append the commands currently selected in the **Command Panel** to the end of the **Command List**.
- **Commands >> Insert Blank Line:** Insert a blank line in the **Command List** at the currently selected line.



- **Commands >> Insert Comment:** Insert a comment in the **Command List** at the currently selected line. This will open up a window in which the comment can be typed.
- **Commands >> Insert User/Date:** Insert a user/date line in the **Command List** at the currently selected line. A user/date line specifies the user and the current date and time.
- **Commands >> Insert @FILE:** Insert an @FILE command in the **Command List** at the currently selected line. This will open up a file browser so that the user may specify the file to reference. See *IVP Batch Program User's Manual for Verification*, Section 11.0 for a description of the @FILE command.
- **Commands >> Comment Out Command:** Put a '#' in front of the selected lines in the **Command List**. This turns each line into a comment, making it so that the IVP Batch Program will ignore it.
- **Commands >> Uncomment Command:** Remove the '#' in front of the selected lines in the **Command List**.



- **Help >> About** menu item: Opens up a dialog summarizing version information.

9.5 Buttons

Each button performs exactly as one of the menu items in the previous section. The corresponding menu item is given below:

- **Insert** button: **Commands >> Insert Command**
- **Append** button: **Commands >> Append Command**
- **Delete** button: **Edit >> Delete**
- **Edit** button: **Edit >> Edit**
- **User/Date** button: **Commands >> Insert User/Date**
- **Blank** button: **Commands >> Insert Blank**
- **Comment** button: **Commands >> Insert Comment**
- **@FILE** button: **Commands >> Insert @FILE**
- **Run** button: **File >> Run Batch**

10.0 Command Panels

A **Command Panel** displays a collection of **Subcommand Panels**, each of which provides tools to edit a single command or action of the IVP Batch Program. Each **Command Panel** can be accessed by clicking on the tab corresponding to the panel. The **Command Panels** and their corresponding commands/actions are as follows:

- **Pairing 2:** LOCATION, PE, DUR, EXTREMUM, FCST_TS
- **Pairing 1:** START_TIME, END_TIME, PAIRING_WINDOW, OBS_TYPE, PERSISTENCE, BUILD_PAIRS
- **Location:** PE, DURATION, EXTREMUM, FCST_TS, OBS_TYPE, FCST_CAT, OBS_CAT, DEF_LOC
- **Timing:** START_TIME, END_TIME, ANALYSIS_INTERVAL, LEADTIME_START, LEADTIME_END, LEADTIME_STEP, ISSUANCE_START, ISSUANCE_END, ISSUANCE_STEP
- **Group 1:** PE, DURATION, EXTREMUM, FCST_TS, RIVER_RESPONSE, ACTIVE_STATUS
- **Group 2:** PAIRS_FILE, OUTPUT_FILE, BREAKDOWN_BY_LID, BREAKDOWN_BY_FCSTTS, CLEAR_GROUPS, DEF_GRP
- **Graphics:** PRIMARY_STATS, PRIMARY_PLOT_TYPE, SECONDARY_STATS, SECONDARY_PLOT_TYPE, XAXIS_VARIABLE, COMP_VARIABLE, OBS_CAT_USED, FCST_CAT_USED, GRAPH_TEMPLATE
- **Actions:** CALCSTATS, NATLSTATS, GEN_GRAPH

The batch commands and actions are described in Sections 8.0 and 9.0 of the *IVP Batch Program User's Manual for Verification*. The **Command Panels** and their corresponding **Subcommand Panels** are discussed below.

10.1 Pairing 1 Command Panel

- **LOCATION:** The comma delimited list of locations for which to pair can be edited manually or via a **Select LOCATION Values** window, similar to the **Select FCST_TS** window of the IVP GUI; see Section 11.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.
- **PE:** The comma delimited list of physical elements for which to pair can be edited manually or via a **Select PE Values** window. Click on **Edit List** to open the window.
- **DUR:** The comma delimited list of durations for which to pair can be



edited manually or via a **Select DUR Values** window. Click on **Edit List** to open the window.

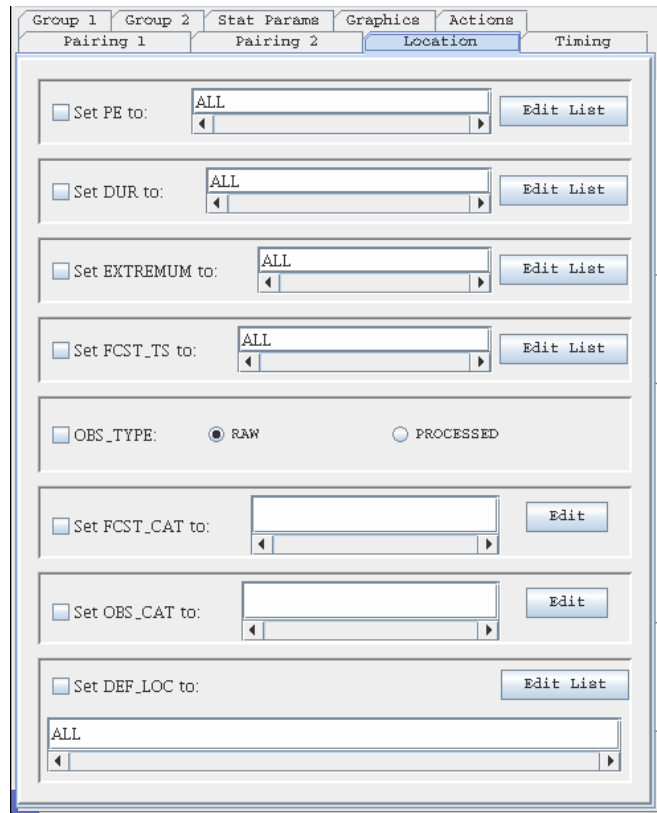
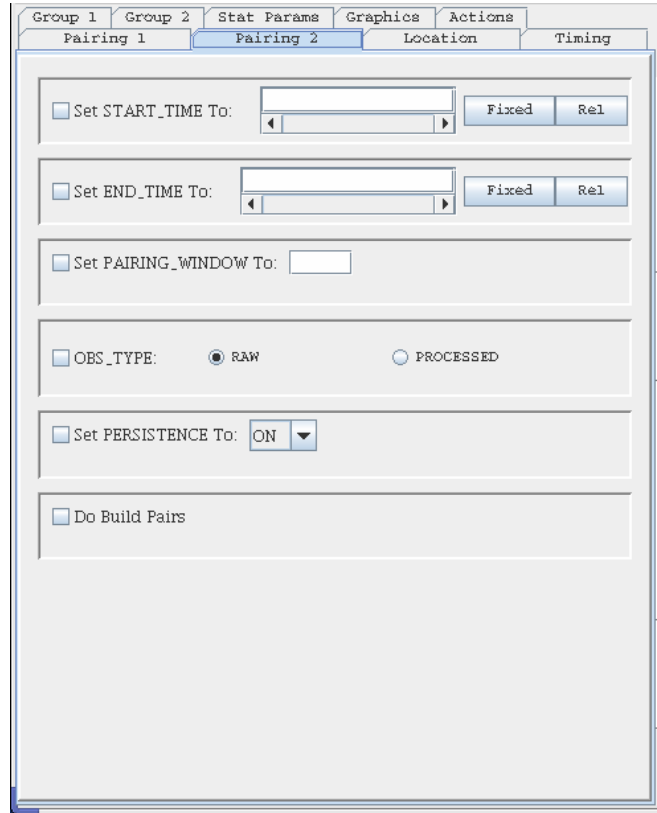
- EXTREMUM: The comma delimited list of extremums for which to pair can be edited manually or via a **Select EXTREMUM Values** window. Click on **Edit List** to open the window.
- FCST_TS: The comma delimited list of forecast type source for which to pair can be edited manually or via a **Select FCST_TS Values** window. Click on **Edit List** to open the window.

10.2 Pairing 2 Command Panel

- START_TIME: The start time is specified by using the same mechanism as that used in the IVP GUI; see Sections 8.1, 9.0, and 10.0 of the *Interactive Verification Program User's Manual*.
- END_TIME: The end time is specified by using the same mechanism as that used in the IVP GUI; see Sections 8.1, 9.0, and 10.0 of the *Interactive Verification Program User's Manual*.
- PAIRING_WINDOW: The pairing window is specified as a number of hours given in the text field.
- OBS_TYPE: Specifies if raw or processed observations should be used in pairing for a forecast. Raw observed values may come from tables persep and pedrsep. Processed values may come from pehpsep, pedpsep, and peqpsep.
- PERSISTENCE: The persistence indicator is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**.
- BUILD_PAIRS: Check the checkbox to insert a "BUILD_PAIRS = true" command.

10.3 Location Command Panel

- PE: The physical elements are specified manually or via a **Select PE Values**

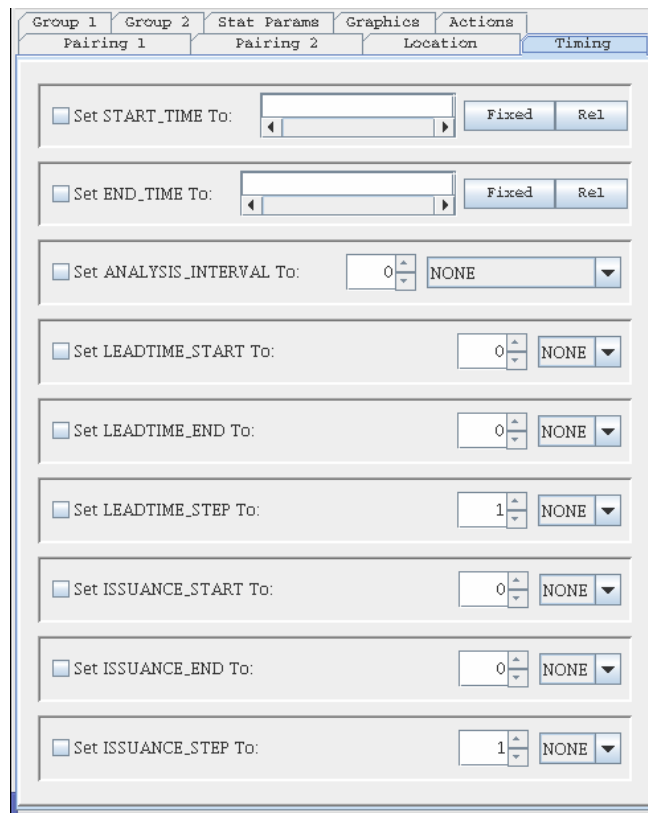


window similar to that in the IVP GUI; see section 11.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.

- DUR: The durations are specified manually or via a **Select DUR Values** window. Click on **Edit List** to open the window.
- EXTREMUM: The extremums are specified manually or via a **Select EXTREMUM Values** window. Click on **Edit List** to open the window.
- FCST_TS: The forecast type sources are specified manually or via a **Select FCST_TS Values** window. Click on **Edit List** to open the window.
- OBS_TYPE: Specifies if the pairs for the location(s) will be drawn from the vfympairs table (with a value of "RAW") or the vfyprocpairs table (with a value of "PROCESSED").
- FCST_CAT: The desired categories are specified either manually or by using a **Category Editor**, identical to that in the IVP GUI. See Section 13.0 of the *Interactive Verification Program User's Manual*. Click on **Edit** to open up the **Category Editor**.
- OBS_CAT: See FCST_CAT.
- DEF_LOC: The locations to define are specified via a **Select DEF_LOC Values** window. See LOCATION in Section 10.1 (**Pairing Command Panel**).

10.4 Timing Command Panel

- START_TIME: The start time is specified by using the same mechanism as that used in the IVP GUI; see Sections 9.1, 10.0, and 11.0 of the *Interactive Verification Program User's Manual*.
- END_TIME: The end time is specified by using the same mechanism as that used in the IVP GUI; see Sections 9.1, 10.0, and 11.0 of the *Interactive Verification Program User's Manual*.
- ANALYSIS_INTERVAL: The interval is specified the same way as in the IVP GUI: a number followed by a unit. See Section 9.2 of the *Interactive Verification Program User's Manual*.
- LEADTIME_START: The starting lead time is specified the same way as in the IVP GUI. See Section 9.3 of the *Interactive Verification Program User's Manual*.
- LEADTIME_END: The ending lead time is specified the same way as in the IVP GUI. See Section 9.3 of the *Interactive Verification Program User's Manual*.
- LEADTIME_STEP: The lead time step is specified the same way as in the IVP GUI. See Section 9.3 of the *Interactive Verification Program User's Manual*.
- ISSUANCE_START: The starting issuance time-of-day is specified the same way as in the IVP GUI. See Section 9.4 of the *Interactive Verification Program User's Manual*.
- ISSUANCE_END: The ending issuance time-of-day is specified the same way

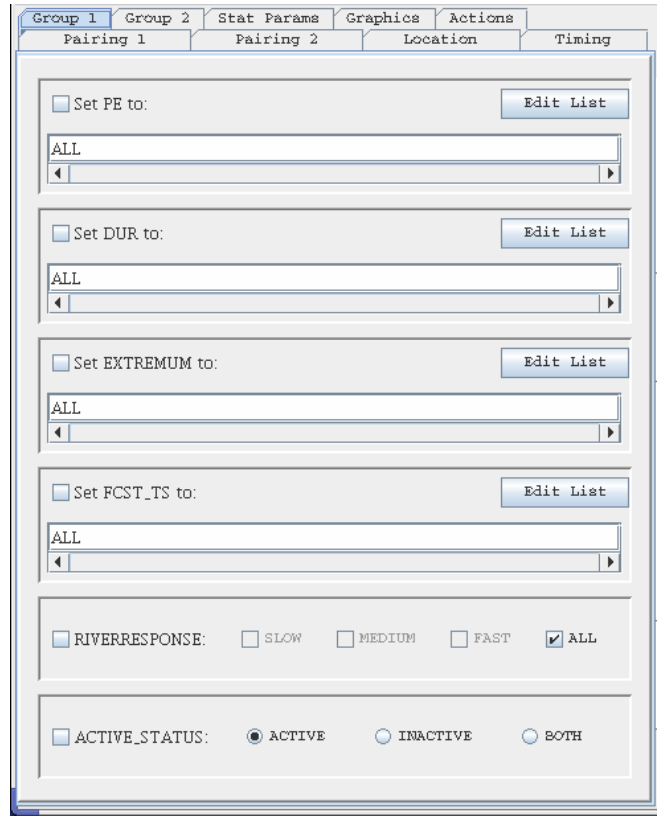


as in the IVP GUI. See Section 9.4 of the *Interactive Verification Program User's Manual*.

- ISSUANCE_STEP: The issuance time-of-day step is specified the same way as in the IVP GUI. See Section 9.4 of the *Interactive Verification Program User's Manual*.

10.5 Group 1 Command Panel

- PE: The physical elements are specified manually or via a **Select PE Values** window similar to that in the IVP GUI; see Section 12.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.
- DUR: The durations are specified manually or via a **Select DUR Values** window similar to that in the IVP GUI; see Section 12.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.
- EXTREMUM: The extremums are specified manually or via a **Select EXTREMUM Values** window similar to that in the IVP GUI; see Section 12.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.
- FCST_TS: The forecast type-sources are specified either manually or via a **Select FCST_TS Values** window similar to that in the IVP GUI; see Section 12.0 of the *Interactive Verification Program User's Manual*. Click on **Edit List** to open the window.
- RIVER_RESPONSE: The river response is chosen by using radio buttons, just as in the IVP GUI. See Section 9.6 of the *Interactive Verification Program User's Manual*.
- ACTIVE_STATUS: The active status is chosen by using radio buttons, just as in the IVP GUI. See Section 9.7 of the *Interactive Verification Program User's Manual*.



10.6 Group 2 Command Panel

- PAIRS_FILE: The name of the pairs file is specified by clicking on **Select File** and specifying the file name in the browser that opens up. The user must then choose either “create” or “append” from the pull-down list.
- OUTPUT_FILE: The name of the output file is specified by clicking on **Select File** and specifying the file name in the browser that opens up. The user must then choose either “create” or “append” from the pull-down list.
- BREAKDOWN_BY_LID: The breakdown-by-lid flag is specified via ON/OFF radio buttons.
- BREAKDOWN_BY_FCSTTS: The breakdown-by-forecast type source flag is specified via ON/OFF radio buttons.

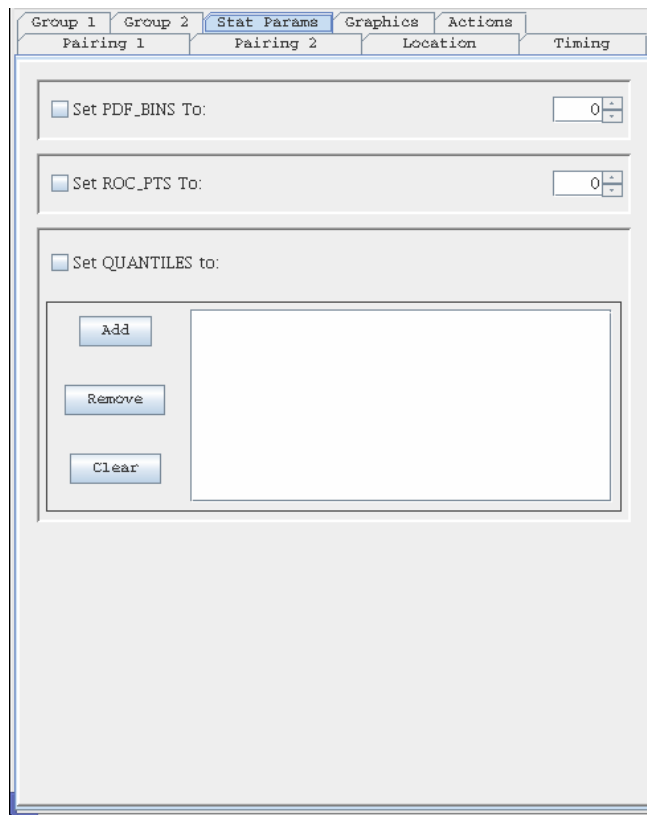
- CLEAR_GROUPS: To include this action, click on the check box.
- DEF_GRP: The locations to include in the group are specified via a **Select DEF_GRP Values** window. See LOCATION in Section 10.1 (**Pairing 1 Command Panel**).

10.7 Stat Params Command Panel

- PDF_BINS: The number of bins used to compute the estimate of the probability density function, as described in Appendix B.7.2 of the *Interactive Verification Program User's Manual*.
- ROC_PTS: The number of points used to approximate the ROC plot, as described in Appendix B.7.3 of the *Interactive Verification Program User's Manual*.
- QUANTILES: The probabilities for which quantiles are computed when the statistics to calculate in a CALCSTATS action are defined as QUANTILES. The probabilities are provided in a selectable list. Click on **Add** to add probabilities to the list (specify the probabilities in the window that pops up), **Remove** to remove selected probabilities, and **Clear** to clear all probabilities.

10.8 Graphics Command Panel

- PRIMARY_STATS: The statistics to use for the primary y-axis are specified manually or via an **IVP Statistic Chooser Manager** window which is part of the IVP GUI; see Section 17.0 of the *Interactive Verification Program User's Manual*.
- PRIMARY_PLOT_TYPE: The plot type is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**.
- SECONDARY_STATS: The statistics to use for the secondary y-axis are specified manually or via an **IVP Statistic Chooser Manager** window which is part of the IVP GUI; see

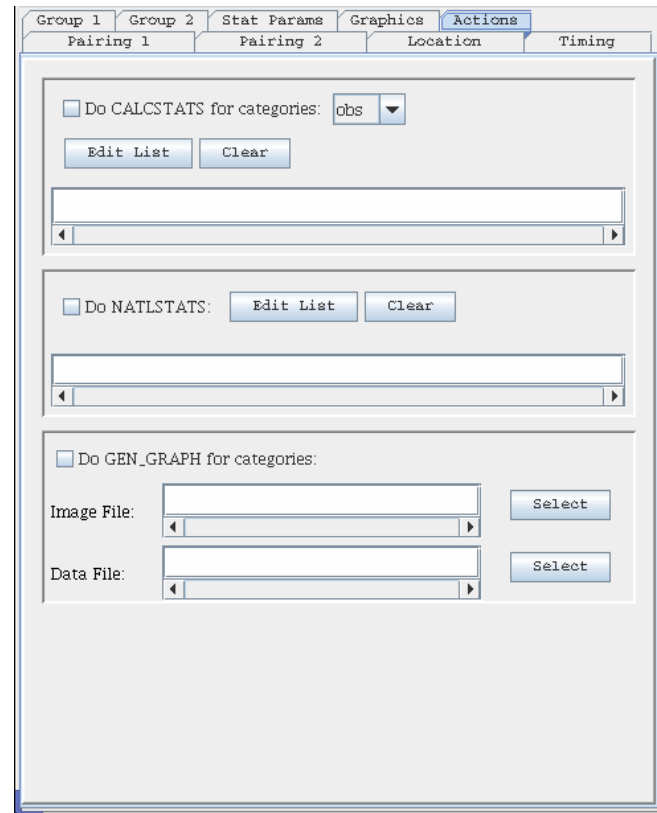
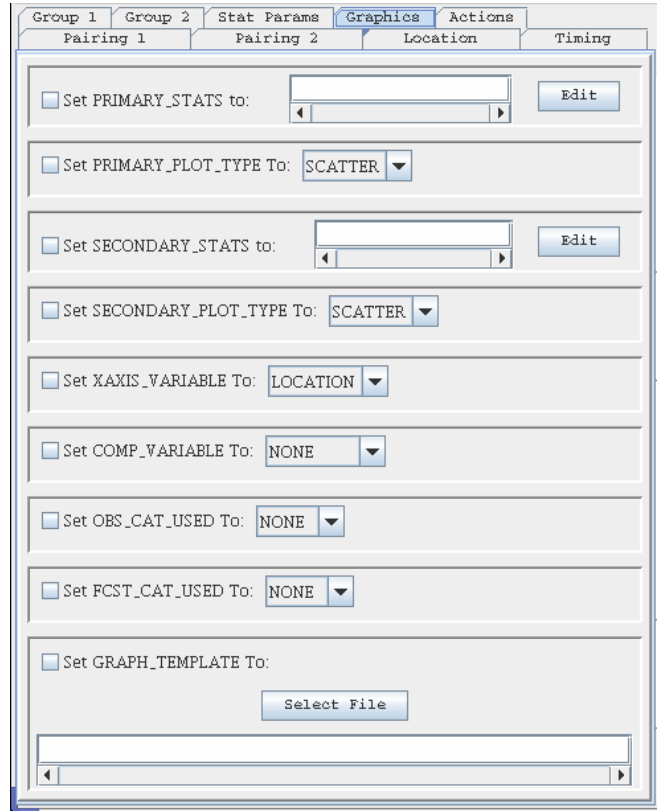


Section 17.0 of the *Interactive Verification Program User's Manual*.

- **SECONDARY_PLOT_TYPE**: The plot type is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**.
- **XAXIS_VARIABLE**: The variable to display along the x-axis is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**.
- **COMP_VARIABLE**: The variable over which the statistics are compared is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**.
- **OBS_CAT_USED**: The category to use to restrict the observed value is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**. Note that the some of the categories available in the **Subcommand Panel** may be invalid due to the number of categories available. Check Section 9.0 of the *IVP Batch Program User's Manual for Verification*.
- **FCST_CAT_USED**: The category to use to restrict the forecast value is selected by choosing one value from the pull-down list provided in the **Subcommand Panel**. Note that some of the categories available in the **Subcommand Panel** may be invalid due to the number of categories available. Check Section 9.0 of the *IVP Batch Program User's Manual for Verification*.
- **GRAPH_TEMPLATE**: The name of the pairs file is specified by clicking on **Select File** and specifying the file name in the browser that opens up.

10.9 Action Command Panel

- **CALCSTATS**: The value of this action is specified by first choosing which categories are used from the pull-down list, and then specifying a list of statistic groups to compute via a **Select Statistic** window, similar to the **Select FCST_TS**



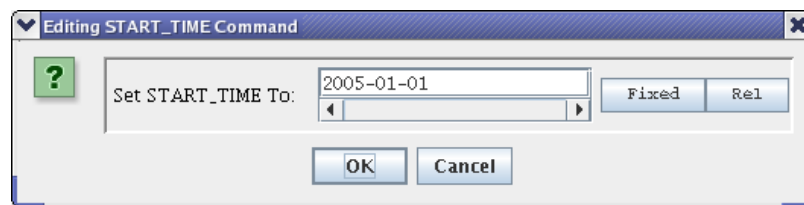
- window of the IVP GUI; see section 11.0 of the *Interactive Verification Program User's Manual*.
- NATLSTATS: The locations for which to calculate national verification program statistics are specified either manually for via a **Select Location** window, similar to the **Select FCST_TS** window of the IVP GUI; see section 11.0 of the *Interactive Verification Program User's Manual*. Additionally, a **Clear** button is available to clear the list.
 - GEN_GRAPH: The two files needed for this action, the image file and data file (optional), are chosen by clicking on the corresponding **Select** button and specifying the file name in the file browser that opens up.

11.0 Editing Command Window

An **Editing Command** window is opened whenever the **Edit** button clicked or **Edit >> Edit** menu item is selected. It appears exactly as the **Subcommand Panel** corresponding to the command or action, but without a check box. When a change is made, the user clicks **OK** to accept the change or **Cancel** to reject the change and close the **Editing Command** window. The current value of the command or action being edited will be displayed in the **Editing Command** window.

11.1 Buttons

- **OK**: Accept the change and close the window.
- **Cancel**: Reject the change and close the window.



12.0 Batch Output Viewer

The **Batch Output Viewer** is opened at the end of a run of the IVP Batch Program. Based on the screen output from the run, a list of output files generated by the IVP Batch Program is derived and displayed as a list in the **Batch Output Viewer**. To view an output file, either image or text, click on the corresponding line in the list and click **View**.

12.1 Image Files

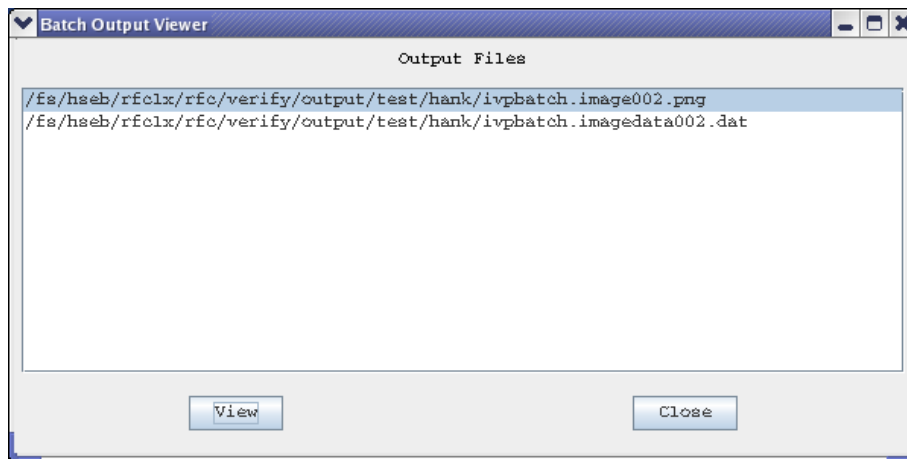
Image files, include JPEGs and PNGs, are displayed in an **Image** window. To close the window, click on the **x** in the upper right corner.

12.2 Text Files

Text files are displayed in a **Text** window, with an **Okay** button. To close the window, click on **Okay**.

12.3 Buttons

- **View** button: Open up windows displaying the selected output.
- **Close** button: Closes the **Batch Output Viewer** window.

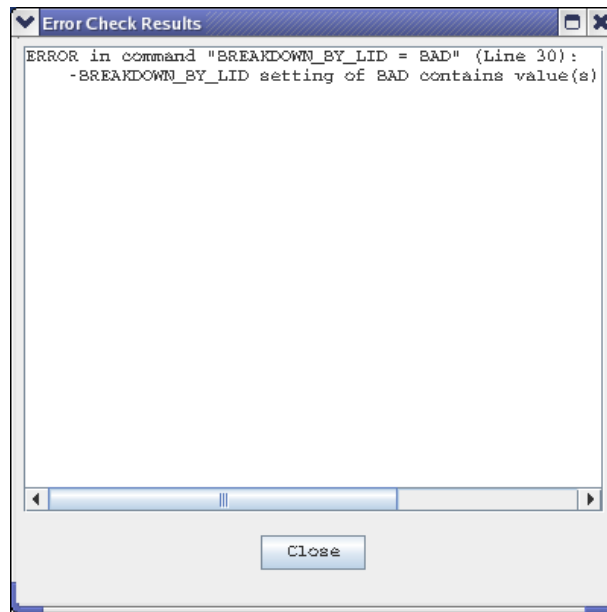


13.0 Error Window

The **Error Check Results** window (or **Error** window) displays errors found in the **Command List** after clicking on **File >> Check For Errors**. The errors will be listed one at a time, with the command and line number provided, as well as a brief message describing the problem. If no errors are present, a small window stating that “No errors or warnings were found” will pop-up. Click on **OK** to close this window.

13.1 Buttons

- **Okay** button: Closes the window.



Appendix A: System Settings File

A.1 Overview

The IVP windows appear different on different operating systems. Therefore, it is necessary to allow for user to adjust the default display to accommodate multiple operating systems. The system settings file allows the user to change the appearance of the windows. This appendix describes that file.

A.2 Location

The following apps-defaults token must be set in order for the system settings file to be found:

```
vsys_dir
```

The file is assumed to exist in the directory `$(vsys_dir)/app-defaults` with the name "IVP_SYSTEM_FILE.txt".

A.3 System Settings File

The system settings file uses the same file format as an IVP Batch Program batch file. However, rather than being read in sequentially, it is processed and stored at run-time so that each GUI component can extract the settings that pertain to it. If a command is given more than once within the system settings file, the last instance will over-ride the earlier instances.

A.3.1 Commands

Commands, indicated in **bold**, set parameter values that control the appearance of various IVP windows. The <value> on the line of the system settings file that contains the command is usually restricted, depending on that command. Acceptable Values are listed for each command. The default value shown is the value assumed if the system settings command is not found.

The following are IVP system settings commands:

ButtonFont =

Description: Controls the font used for all buttons in IVP Batch Builder.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

CommandListFont =

Description: Controls the font used within the **Command List**.

Acceptable Values: Any font string (see Section A.4)

Default Value: "TimesRoman;bold;11"

CommandListLabelFont =

Description: Controls the font used for the title label above the **Command List**.

Acceptable Values: Any font string (see Section A.4)

Default Value: "TimesRoman;bold;12"

CommandListWidth = <number>

Description: Controls the pixel width of the **Command List** panel shown on the left of the main window.

Acceptable Values: positive integer value.

Default Value: 500

**CommandPanelLabelFont = **

Description: Controls the font used on labels within the command panels.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

**CommandPanelListFont = **

Description: Controls the font used in lists and text fields in the command panels.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

CommandPanelWidth = <number>

Description: Controls the pixel width of the command panels shown on the left of the main window.

Acceptable Values: positive integer value.

Default Value: 400

MainWindowHeight = <number>

Description: Controls the pixel height of the main window.

Acceptable Values: positive integer value.

Default Value: 600

*NOTE: The **CommandPanelWidth** and **CommandListWidth** are used to control the total width of the main window. They are summed for the total width, and then the command panels and **Command List** are sized.*

**MenuFont = **

Description: Controls the font used for all menus in IVP Batch Builder.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

OutputViewerHeight = <number>

Description: Controls the pixel height of the **Batch Output Viewer**.

Acceptable Values: positive integer value.

Default Value: 500

OutputViewerImageHeight = <number>

Description: Controls the pixel height of the window displaying gif IVP Batch Program output files.

Acceptable Values: positive integer value.

Default Value: 525

OutputViewerImageWidth = <number>

Description: Controls the pixel width of the window displaying gif IVP Batch Program output files.

Acceptable Values: positive integer value.

Default Value: 800

**OutputViewerLabelFont = **

Description: Controls the font used on the label in the **Batch Output Viewer**.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

**OutputViewerListFont = **

Description: Controls the font used for the list in the **Batch Output Viewer** as well as the font used to display text files.

Acceptable Values: Any font string (see Section A.4)

Default Value: "TimesRoman;plain;12"

OutputViewerWidth = <number>

Description: Controls the pixel width of the **Batch Output Viewer**.

Acceptable Values: positive integer value.

Default Value: 500

**PanelLabelFont = **

Description: Controls the font used to display the command panel labels in their tab.

Acceptable Values: Any font string (see Section A.4)

Default Value: "Courier;plain;12"

TextAreaImageHeight = <number>

Description: Controls the pixel height of the window displaying ASCII IVP Batch Program output files.

Acceptable Values: positive integer value.

Default Value: 400

TextAreaImageWidth = <number>

Description: Controls the pixel width of the window displaying ASCII IVP Batch Program output files.

Acceptable Values: positive integer value.

Default Value: 400

A.4 Generic Font Format

All font settings for the IVP must be entered in the system settings file with the following value format:

```
<font name>;<font style>;<font size>
```

where each component can have the following values:

```
<font name>: "Serif", "SanSerif", "TimesRoman" or "Courier"
```

```
<font style>: "plain", "bold", "italics" or "bold-italics"
```

```
<font size>: any integer representing a valid size for that font
```

If an invalid size is specified, the system will use the default value, which varies based on the font.