Index Panel

SLC Control Program

INDEX

SLAC's Software Engineering Newsletter

March 29, 1990 | All that Fits is News to Print | Vol. 4, No. 13

New Printer Control Panel and Options

March 29, 1990

Author: *Ed Miller*
Panel Changes: *Few*
Subsystem: *SLC*
Documents: *None*
User Impact: *Modest*
Help File: *Yes*

The methods available for controlling printed output from the SCP are being modified and significantly enhanced. Heretofore, the only mechanism for redirecting the output from the PRINT TEXT and PRINT GRAPH buttons was to define VMS logical names which specified output to a particular print queue or indicated that the output file was to be saved but not printed. Now, much more control is available, primarily through a new panel: the PRINT CONTROL PANEL.

A brief summary of options available from the new panel:

- Two switches to select from a standard list of printers (SLC Imagen, MCC Imagen, Bldg. 15 Imagen) for TEXT and GRAPH output separately.
- Output to MCC Color Printer (as an option for GRAPH output only).
- Support for COLLECTION of output. In this mode, each button push of PRINT TEXT or PRINT GRAPH adds a file to a COLLECTION, rather than printing directly. Provision is made to print the COLLECTION of files in a single print job (with a single flag page).
- Additional options include: specification of print queues not on the standard list; suppression of all output (the WASTEBASKET); and KEEPing files after they have been printed rather than routinely deleting them.

The new panel [PRINT CNTRL PANEL] is available off of the Special Displays Panel. This gives you access to the BASIC version of this panel, which has the most commonly needed options. On the BASIC panel is a button [FULL PRINT PANEL] to access the FULL version of the panel, which has all options available.

Both versions of the panel are organized in three main sections: (1) a switch for redirecting TEXT output;

(2) a switch for redirecting GRAPH output; and (3) some controls common to both TEXT and GRAPH output– these are primarily for controlling the COLLECT mode of output. In addition, the standard PRINT TEXT and PRINT GRAPH buttons appear on this panel. Note that these buttons (here and on all SCP panels where they appear) now give an indication of your current output selection for TEXT and GRAPH output.

COLLECTING FILES BEFORE PRINTING

The COLLECT mode of output is a new capability, and so deserves some general description. When COLLECT output is enabled for your SCP, individual pushes of the PRINT TEXT and PRINT GRAPH buttons produce files which are added to a collection, but not immediately printed. A specific collection is identified by a collect-name (by default, your USERNAME), which identifies a file (collect-name.COLLECT) which is an index to all of the files in a collection.

A single collection need not be restricted to a single SCP session. You can add files to the same collection with different SCP's running at either the same or different times, provided they have specified the same collect-name (which can be entered from the panel).

There are buttons on the SCP panel for printing a collection of files. (See procedure PRINT_COLLECT below.) Files are printed as a single job on your currently selected print queue(s) for GRAPH and TEXT output, with a single flag page for the job. Note that the selection of a print queue for COLLECT files is meaningful ONLY at the time the collection is printed, not while it is being accumulated.

When a collection is printed, its index file is renamed to filetype "COLLECTED" so that a SCP cannot add to that same collection. If you continue to COLLECT files under the same collect-name, a new collection will be started.

HELP INFORMATION

For more details on the use of this panel, use HELP on the panel; in addition to the overall panel HELP, there is HELP on each button as well. (Note that this HELP info is available as well from DCL with the command $ HELP @DISPHELP PRNTCTL.) One particular subject covered only in this HELP file is a full description of the VMS logical names which can be used to define the state of (most) print control options at SCP startup.

PRINT CONTROL PROCEDURES

Two procedures are provided to support the new print control options: SETUP_PRINT for defining your default queue and collect mode, and PRINT_COLLECT for printing a collection of files.

1. **SETUP_PRINT:** This procedure can be used to specify which printer you want to use when you run a SCP, and whether or not you want to COLLECT output rather than printing it immediately. The calling sequence is:

   ```
   $ SETUP_PRINT     queue-name     [NO]COLLECT
   ```

   For example, you might include the following command in your LOGIN.COM if you wanted to routinely use the Bldg. 15 Imagen as your printer, and COLLECT output before printing it:

   ```
   $ SETUP_PRINT     B15$PRINT     COLLECT
   ```

   For more information, use the command with no parameters:

```
$ SETUP_PRINT
```

2. **PRINT_COLLECT:** This procedure can be used to print a collection of files using a DCL command, rather than using a button on the SCP Print Control Panel. PRINT_COLLECT does not give as much flexibility as does the Print Control Panel for printing a collection of files. The calling sequence is:

```
$ PRINT_COLLECT     collect-name     queue-name
```

For example, the first command below would print (and subsequently DELETE) the specified collection on the MCC Imagen. The second command means print the collection which has your USERNAME as a collect-name.

```
$ PRINT_COLLECT     RQK_COLLA     MCC$PRINT


$ PRINT_COLLECT     *
```

For more information, use the command with no parameters:

```
$ PRINT_COLLECT
```

CONVERSION FROM OLD TO NEW METHODS

1. **Controlling Output Printer:** Previously, two logical names specified the destination print queue for TEXT and GRAPH output respectively:

PRINT_DEV	specified a queue for PRINT TEXT output
IMAGEN_DEV	specified a queue for PRINT GRAPH output

If you previously defined both of these as any of the queues SLC$PRINT, MCC$PRINT, or B15$PRINT, then you should now use the following command (in your LOGIN.COM, for instance) to get the same effect.

```
$ SETUP_PRINT     queue-name
```

If you defined IMAGEN_DEV and PRINT_DEV differently, or to a queue OTHER than one of the three above, you should be able to achieve a similar effect by using the FULL Print Control Panel.

If you defined PRINT_DEV or IMAGEN_DEV as "FILE", then you may run in COLLECT mode by including the appropriate SETUP_PRINT command in your LOGIN file or by setting COLLECT mode after bringing up the SCP. Alternatively, from the SCP, go to the FULL Print Control Panel and select FILE output for TEXT files. (This option is not available on the GRAPH switch.) Then output will go to individual files which you can access directly later, rather than print, if you choose.

2. **Controlling Output Directory:** Previously, two logical names specified the destination disk directories for TEXT and GRAPH output respectively:

PRINT_FILE	specified the PRINT TEXT output directory
IMAGEN_FILE	specified the PRINT GRAPH output directory

These two logical names have now been replaced by

PRNTCTL_TEXT_DIR	to specify the PRINT TEXT o
PRNTCTL_GRAPH_DIR	to specify the PRINT GRAPH

New Klystron Management System

March 26, 1990

Author: *Bob Hall, Debbie Ohman* **Subsystem:** *Accelerator* **User Impact:** *Medium*
Panel Changes: *Few* **Documents:** *Yes* **Help File:** *Yes*

New klystron management software has been developed to assist Operations in maintaining a stable energy profile on both SLC and PEP beams. It is not intended for use with NPI running. This software will manage the replacement of linac klystrons and also allow klystrons to be added to or subtracted from service. Several displays are provided to summarize the current status of the klystrons and quickly identify problems or changes in the klystron population. Three new concepts are used by this software, **Maintained Beams**, Klystron **Regions**, and **Designated Spare** klystrons.

Maintained Beam: The beam codes used for SLC or PEP operation are identified in the database of the BEAM primary as officially **Maintained Beams**. Any action such as adding or removing a klystron is applied as appropriate to all Maintained PEP or SLC beams. This should facilitate smooth switching for PEP fills. Currently **Maintained Beams**, are beam codes 10 and 11 for SLC and beam codes 30, 31, 33, 40, and 41 for PEP.

Klystron Region: Because the energy profiles are quite different for the various SLC and PEP beams, the Linac has been divided into **Regions** according to the SLC and PEP forward/backward phase characteristics. When a klystron fails, it should be replaced with another klystron in the same **Region**, ie. a PEP backphased klystron is replaced by another backphased klystron, a klystron ahead of the positron target is replaced by another klystron ahead of the target. The regions are defined in the database primary GLBL, currently

LI00-1 to LI01-7	SLC & PEP Accelerate
LI02-1 to LI13-8	SLC & PEP Accelerate
LI14-1 to LI19-7	SLC & PEP Scav Accelerate, PEP Coast
LI19-8 to LI22-8	SLC Accelerate, PEP Coast
LI23-1 to LI29-8	SLC Accelerate, PEP BackPhase
LI30-1 to LI30-8	SLC & PEP Coast

Designated Spare: To maintain a relatively constant klystron profile and provide available replacements in each **Region**, a small number of klystrons distributed along the machine will be called **Designated Spares**. These will be indicated by a bit in the klystron database Hardware Descriptor, HDSC. These klystrons will normally not be activated on the SLC and PEP beams but will be used to temporarily replace failed klystrons. The intention is that the replacement klystron is near the failed klystron and hence causes as little change to the energy profile as possible. There will be at least one **Designated Spare** per **Region**. When a failed klystron is out-of-service for an extended period, a klystron other than the **Designated Spare** will be used as a replacement and the **Designated Spare** restored to the pool so that it may be available for replacing other failed klystrons in the same **Region**.

The Klystron Management System panel can be accessed from the Klys Index panel. On the Klystron Management System panel there are buttons to REPLACE a failed klystron, RESTORE a recovered klystron, ADD a klystron to all appropriate beams, SUBTRACT a klystron from all appropriate beams, and RESTORE **Designated Spares** to the klystron POOL. The software knows which activated klystrons are not delivering power and can be considered failed, which klystrons are available as spares, and which klystron was last selected by the user from any normal klystron panel. For all functions, it supplies reasonable defaults for which klystron the user wants to REPLACE or ADD, etc. A button to the Klystron Reset Panel allows the user to easily select any klystron and attempt to reset it or check the PIOP status display before initiating a Klystron Management function. There are also buttons to display the current list of failed klystrons and available spares (DISPLAY POPULATION), to display any klystrons not correctly activated

on all beams (KLYS BEAM ACTIVE), and to display the log of all Klystron Management Transactions (TRANSACTION DISPLY). All of these buttons are described in more detail below.

KLYSTRON MANAGEMENT FUNCTIONS:

The REPLACE KLYS button is used to replace an active klystron which has failed or is causing problems. The replacement klystron would usually be the nearest available **Designated Spare** in the same **Region**. If there is no available designated spare in the same region or it is known at the time of the replacement that prolonged service needs to be performed on the failed klystron, another spare may be chosen as the replacement klystron. When the REPLACE KLYS button is pressed, two prompts appear. The first asks for the micro and unit of the failed klystron to be replaced. If a klystron is suspected to have failed, it will be shown as the default. The second prompt asks for the micro and unit of the replacement klystron. The suggested replacement klystron is shown as the default. A question mark may be entered to obtain a list of all available designated or other spares in the same region as the failed klystron. Any of these may be used as a replacement. The klystron to be replaced will be deactivated from all appropriate beams and the new klystron activated.

The RESTOR KLYS button is used to restore a klystron to use, replacing another klystron presently in use in the same **Region**. When the RESTOR KLYS button is pressed, two prompts appear. The first asks for the micro and unit of the klystron to be restored to use. If the last klystron selected on any klystron panel is currently available, it will be shown as the default. The second prompt asks for the micro and unit of the klystron to be replaced. If the last klystron selected is presently in use in the same **Region** as the klystron to be replaced, it will be shown as the default. Otherwise, if a **Designated Spare** in the same **Region** is in use, it will be the default. The klystron to be restored will be activated on all appropriate beams and the other klystron deactivated.

The ADD KLYS button is used to activate a klystron on all **Maintained Beams** applicable to its **Region**. The default for the operator prompt is the last selected klystron if it is not already active on all applicable beams in its **Region**. Otherwise the operator may enter the micro and unit for any klystron. The klystron will be activated on all appropriate beams and a warning written to the COW for any beam on which the klystron was already activated.

The SUBTRACT KLYS button has the opposite effect of the ADD KLYS button; it is used to deactivate a klystron from all **Maintained Beams** applicable to its **Region**. The default for the operator prompt is the last selected klystron if it is already active on any beam applicable to its **Region**. Otherwise the operator may enter the micro and unit for any klystron. The klystron will be deactivated on all appropriate beams and a warning written to the COW for any beam on which the klystron was already deactivated.

The RESTOR KLYS POOL button is used to recover a full complement of **Designated Spares** after one or more klystrons have been replaced and it is known that prolonged service needs to be performed on the klystron(s). It will replace any Designated Spares in use with other spare klystrons so the Designated Spares will once again be available. The software loops through each of the **Designated Spares** presently in use asking the operator whether it should be replaced. If so, the operator is prompted for the micro and unit of a spare replacement klystron. A question mark may be entered to obtain a list of all available spares in the same **Region**, any of which may be used as a replacement. The klystrons are activated and deactivated on all appropriate beams.

KLYSTRON MANAGEMENT DISPLAYS:

The POPULATION CONTROL DISPLAY provides a summary of the status of linac klystrons. It is automatically selected when entering the Klystron Management System panel or after processing any of the

management functions. It may also be selected with the DISPLAY POPULATION button. The display first shows a list of suspected failed klystrons, if any. Opposite the name of each suspected failed klystron is the name of its suggested replacement. The suggested replacement will be the nearest available **Designated Spare** (if one exists) in the same **Region** as the failed klystron. If there is no available **Designated Spare,** the suggested replacement klystron will be the nearest available spare in the same **Region.** The second part of the display is a list of the names of all **Designated Spares.** Opposite the name of each spare is its status. If it is active on a maintained beam, the beam codes on which it is active are shown. It may also be described as available, suspected to be bad, or in maintenance. The third and last part of the population control display lists all other available spares.

The ACTIVE BEAM DISPLAY shows the different Klystron **Regions** and for each **Region** any klystrons that are not correctly activated or deactivated on all beam codes appropriate to that **Region.** This display is selected with the KLYS BEAM ACTIVE button. The display has column headings for the SLC and PEP **Maintained Beam** codes, plus columns for a SLC and a PEP reference beam. The SLC and PEP reference beams reflect the configuration of the klystrons saved at some time in the past on a SLC and PEP beam code. The display is divided into **Regions.** For each **Region,** the names of the starting and ending klystrons are shown along with an indication underneath each applicable beam column of whether the klystrons should be forward/backward phased on that beam. This is followed by a list of all klystrons in that **Region** that are active on only some of the appropriate beams, or which do not match the reference beam. Klystrons correctly activated or deactivated on all beams are not shown. For each klystron displayed, a *, +, −, or 0 symbol underneath each applicable beam column indicates the status of the klystron on that beam. The symbols are color-coded Red for errors, Yellow if different from the reference beam, and Green if correct. For klystrons shown in Red, corrective action should be taken using the ADD or SUBTRACT KLYS functions.

The TRANSACTIONS DISPLAY shows a log of all actions taken by the klystron management functions. It is selected with the TRANSACTION DISPLY button. Each entry in the log shows the date and time of a transaction along with a short description. The log is displayed in reverse chronological order and may be paged with the Next Page, etc. buttons.

New Access Procedures and Panels

March 26, 1990

Author: *Daniel Van Olst* **Subsystem:** *Access* **User Impact:** *Medium*
Panel Changes: *Many* **Documents:** *No* **Help File:** *Yes*

The access procedures for CID, Damping Rings and DRIP, E+ Vault, and FF have been reviewed and updated, as have the associated panels.

CID, Damping Rings and DRIP, E+ Vault, and FF now all have "ACCESS" panels as well as "RECOVERY" panels off the MPS/PPS/ACCESS panel. The "ACCESS" panels are used to prepare for access, and the "RECOVERY" panels are used to return from access. This was done to clarify each process and provide a little more room on the panels. (At this time, the BSY and Arcs still have "ACCESS" and "RECOVERY" functions on the same panel.)

All the new panels have been laid out in the same format. Functions, panels, and notes run from left to right in the middle third of the panel in the order of use. If required, the procedure is continued on the bottom third of the panel, again running from left to right. "HELP" is provided for each panel; the intent was not to provide a detailed explanation of going to and returning from access, but to just provide support for what the "OFF", "ON" and "STDZ" batch jobs do , and what some of the pitfalls are for each of them. "HELP" is also provided for each of the batch jobs.

The batch jobs have had downtime additions/changes included, and have been reviewed by the area physicists/managers.

An overview of the changes in each of the areas:

1. CID: No changes to the CID "OFF" procedure. The CID "ON" procedure cannot be written until some details are worked out for the CID area. However, "HELP" has been provided showing some of the considerations for turning on CID.

2. RINGS AND DRIP: Changes include new septa supplies, new kicker unit numbers, four new hazards (LGPSs) in DR11, and the division of the "ON" procedures into "ON" and "STDZ" procedures. See "HELP" for more details.

3. E+ VAULT: There are two new hazards (steering coils) and, as in the rings/drip, the "ON" procedure was divided into "ON" and "STDZ" procedures.

4. FF: No changes, except 3 new procedures were created: STDZ batch jobs that include B4-B6. These may be used instead of the usual FF STDZ batch jobs under certain circumstances. See "HELP" on the FF RECOVERY panel for more details and consult an expert before using.

Please CATER any problems with the "OFF", ""N" or ""TDZ" batch jobs. If there is anything wrong with order of items in "HELP" or on the "ACCESS" or "RECOVERY" panels, please CATER this also.

"ACCESS" and "RECOVERY" panels and batch jobs for the Sector 0 and Sector 18/19/Scavenger Tunnel areas is in progress and should be ready in about 3 weeks.