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SLC Control Program

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SLAC's Software Engineering Newsletter

August 12, 1993 **All that Fits is News to Print** Vol. 7, No. 5

One SCP, Two SCP, Red SCP, Blue SCP

July 30, 1993

Author: *T. Himel, R. Johnson* **Subsystem:** *X SCP interface* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *Yes*

Several improvements have been made to the X SCP to make it easier to start and use. By X SCP we mean the version that one normally starts with the command SCP X or SCP W which puts windows up on an X terminal or X terminal emulator (this includes workstations, MACs, and PCs).

More Shapes and Sizes of SCPs

Three new custom formats (size and placement of windows) have been added to give a total of 7. If in response to the "COWID:" prompt you enter a "?" or give an illegal response, the following choices will be displayed. The last 3 are the new ones.

X produces a SCP whose windows pretty much fill the screen without overlapping. The SCP gets your screen size and uses one of the following 5 formats which have been optimized for that size. You can explicitly request one of these sizes (rather than accepting the default) by entering the following for your COWID.

X1 is intended to fill a 1024×860 pixel screen. This is the screen size on most of the VAX workstations.

X2 is intended to fill a medium sized MAC screen of 640×440 pixels. These windows overlap.

X3 is intended to fill a 1280×1024 pixel screen. This is the screen size of the large X-terminal screens.

X4 is intended to fill a large sized MAC screen of 1024×808 pixels.

X5 is intended to fill a MAC portable screen size of 640×384 pixels. The windows overlap. They are the smallest windows the SCP can produce. A new small font was introduced into the SCP to allow things to fit into these small windows.

X6 or XT or XU put small windows on the **T**op (**U**pper) half of the screen. This is optimized for a large X-terminal screen where one might want to run 2 SCPs at once.

X7 or XB or XL or XD put small windows on the **B**ottom (**L**ower, **D**own) half of the screen. This is optimized for a large X-terminal screen where one might want to run 2 SCPs at once. It should be noted that multiple SCPs on a terminal are to be used only in the Control Room.

For all the above cases, if you enter "W" instead of "X", the SCP will have a white background instead of the traditional black.

As you may have noticed, the touch-panel is now placed on the right side of the screen instead of the left. This was done so that on a small screen (MAC or PC,) where the windows overlap, the left half of the graphics window will show (when the touchpanel is on top) rather than the right half. In many cases the interesting text is on the left half of the graphics window so the clicking to pop-up that window is saved. For consistency, the touch-panel has been placed on the right for all the formats.

The sizing of the error message window has been improved by specifying the font to use for displaying the error messages. Previously, the default font for a workstation/X-terminal was used. This font was different for each X-terminal and resulted in different appearances for the window. If you get an error message saying that a font is not found when you start a SCP, please ask Tom Himel, Dave Millsom, or Ed Miller for assistance in putting the proper fonts on your X-terminal.

Starting a SCP from the Applications Pull-Down Menu

In the past, to start a SCP, you first had to start a Decterm and then type the SCP command. If you were on a workstation, or an X-terminal connected to the wrong VAX mainframe, you also had to "`set host`." You can still start a SCP this way and probably will prefer to do so if you have a Decterm logged into the correct computer. If you don't have such a Decterm, there is now an easier way to start the SCP. This involves the use of the DECWindows Session Manager and hence will only work from VAX workstations and X-terminals connected to VAXes.

After a one-time setup which is described below, you can start a SCP and its associated Decterm window as follows.

1. Pull down the Applications menu of the DecWindows Session Manager. (The Session Manager is the small window you normally use to start a terminal).

2. Select one of the entries with "SCP" in the name. If the name is preceeded by "MCC" a Decterm will be started on MCC and a SCP of the indicated format (BIG, TOP, BOTTOM) will automatically be start from that Decterm. If the name is preceeded by SLC, the Decterm and SCP will run on SLC, the development VAX. If you select MCC TWO SCP, two Decterms and SCPs will be started, one on the top, and one on the bottom of the screen. In all cases the position(s) of the Decterm window(s) is(are) optimized to go with the selected SCP format(s). Typically the Decterm window will be almost completely covered by the SCP windows. The bottom line or two are left showing so you can see if error messages come out

there and to leave a place for you to click on the terminal window in case you want to see the whole thing.

You may have noticed that the command executed to start the SCP is of the form: `SCP X__FTA1234 TMH`. To satisfy the curious, the `_FTA1234` is appended to the COWID to allow the SCP to identify what terminal was used to start the SCP. This will be used to let the SCP automatically pop-up the correct terminal window when it spawns a process like an access procedure (to be announced in a future issue of the Index Panel). The username (TMH in the example) is that of the person who logged on to the workstation/X-terminal from which you are starting the SCP.

Putting the SCP Commands into Your Applications Menu

The applications contained in the Applications menu of the Session manager (*e.g.* Decterm, Mail) are customized for each account. Following is the procedure that you have to do once from your account to make the SCP application available to you.

1. Go to the "Options" menu of the Session Manager and select "Menus." After a short time the Menus window will appear.

2. Click on "Applications" in the column labelled "Menu names." It should then be high-lighted.

3. In the right-hand column find the type(s) of SCP(s) you want to have on your Applications menu. There are four setups there for SLC and four for MCC. You may have to use the scroll bar to find the ones you want. For each one you want, click on it (it will be highlighted) and then click on the large arrow pointing from the third to the second column.

4. If there is an application that you no longer want on your Applications menu, click on its name in the second column and then click on the trash can icon between the second and third columns.

5. Once you have the list of applications in the center column the way you want it, click on the "Apply" button near the bottom left of the Menu window. You can then click on the "Cancel" button and the Menu window will disappear.

6. To make your changes permanent, pull down the "Options" menu from the Session Manager window and select "Save Session Manager."

7. If you want to have a SCP format different from the four provided, it is fairly easy to modify one of the item names provided to start any type of SCP (or other program for that matter). If you want to do this and can't figure out how, ask your favorite software engineer for help. (Hint: the command line given is of the form: `@SLCCOM:REMOTETERM` *<node on which to run the program> <DCL command line to execute>*).

8. If you have customized your LOGIN.COM file with the SETUP_PRINT command to change the default printer for the SCP, you will have to change your LOGIN.COM a bit. Use your favorite editor to move the SETUP_PRINT command up to the first line of LOGIN.COM and then put the following line in front of it:

   ```
   $ SETUP_PRINT :== @SLCCOM:SETUP_PRINT
   ```

   This is necessary because it is the `@SLCCOM:USERLOGIN` in your LOGIN.COM that actually runs the SCP.

Toroid Calibration SCP Software Enhancement

July 26, 1993

Author: *Mike Zelazny* **Subsystem:** *Linac* **User Impact:** *Small*

Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

The Toroid Calibration functions available from the BPM Diagnostics panel have been modified to allow more samples. The previous limit of seven has been increased to 256.

Since the SLC micros are only capable of handling seven samples at a time, the VAX SCP software may make several requests to the SLC micros depending on the number of samples requested by the user.

If more than seven samples are requested, no new TNRMs will be calculated; also the data received from the acquisition will be dumped to Correlation Plots for analysis. A new button has been added to the BPM Diagnostics panel to allow going directly to the appropriate Correlation Plots panel.

No changes have been made to the TNRM calculations or to the graphs available from the BPM Diagnostics panel. If users require that new TNRMs be calculated or wish to use the graphs available from the BPM Diagnostics panel, then they will still be required to choose between three and seven samples.

New Location for Correlation Plots Button Files

August 9,1993

Author: *Karey Krauter* **Subsystem:** *SLC* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *None* **Help File:** *Yes*

In the past when you saved and restored correlation plots buttons, the files were created in or accessed from the directory out of which you started the SCP (your default directory). The software has been modified so that now the default directory for these button files is SLC_CRR_BUTTON. Hence, if you specify a file name without explicitly mentioning a directory, the directory will default to SLC_CRR_BUTTON.

All correlation plots button files which were originally in the COWxx or the MCCSCP directories have been manually relocated to SLC_CRR_BUTTON so they may continue to be referenced without specifying the directory name. All button macros which access these public COWxx correlation plot button files have been modified to access the button files in their new location.

All correlation plot button files in private directories have been left untouched. Also, the button macros which access these private correlation plot button files have been left unmodified.

To help with looking at the correlation plot button files in the SLC_CRR_BUTTON (or any other) directory, a button has been created to list the file on the display.

The [BUTTON FILE DIR] button on the main CORRELATION PLOT panel off the Index Panel works just like the Multiknob Help directory button. It asks for filenames to be listed. You may use a wildcard for the filename and/or file extension. If you don't supply a directory name, it defaults to the new correlation plot Button File directory SLC_CRR_BUTTON. If a file extension is not entered, it defaults to ".BTN". If you just hit Carriage-Return without entering any text at all, you will get a list of all the files in the SLC_CRR_BUTTON directory. A "?" or "HELP" in response to the prompt will supply a brief summary of this description.

If you enter a filename (with or without wildcards and/or defaults) which resolves to exactly one correlation plot button file name, then that filename will be displayed followed by a listing of the contents of the file.

If the directory listing or the contents listing exceeds a single display page, the "Next Page" button would allow you to look at subsequent pages. Due to lack of space on the CORRELATION PLOT panel, no "Prev Page" button has been supplied, however selecting the "BUTTON FILE DIR" button again and entering the previous filename (you may use the "Up Arrow" to recall previous entries) will always display the directory starting at the first page.

Settle-time for Both Step Variables in Correlation Plots

August 6, 1993

Author: *Sadia Najmi* **Subsystem:** *SLC* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *None*

The functionality of the settle-time button on the Correlation Plots panel has been enhanced. Previously, users could input only one value for the settle-time, which was fine if only one step variable was being used. However, this could have led to inaccurate data acquisitions using two step variables when both pointed to devices that required different settle-times. Now the user has the option of entering a separate settle-time for each step variable.

Users will be warned if they choose inefficient combination of step variables and settle-times, *i.e.* if the step variable that requires a longer settle-time is chosen as the secondary (faster) step variable.

MV01 Magnet Mover Control for FFTB

August 4, 1993

Author: *Greg Sherwin* **Subsystem:** *FFTB* **User Impact:** *Large*
Panel Changes: *Few* **Documents:** *No* **Help File:** *No*

SCP-based FFTB magnet mover control has existed for a couple of months now, however this is the first official notice of its release and general description of its features. In the development phase, the magnet movers were adjusted by using standalone programs that were specific for each mover. Now the control of these movers has been integrated within the SCP, and the usual SCP-supported functions such as magnet history plots and correlation plots are available for use with the movers. Further use of the original standalone control programs is now generally discouraged as they reset the format with which the readback data is read from the hardware, and they may also lead to database inconsistencies.

Each magnet mover is positioned by three separate elliptical cams, each driven by a motor. These motors are under the direct control of the CB00, CB01, or CB02 micros. The coordinate transformation between the positions of these cams and real x, y, and roll positions is performed by an intermediate, VAX-based micro, MV01. The MV01 process performs these transformations, along with all necessary magnet mover functions, making any operator interaction with the CBxx micros unnecessary for the purpose of manipulating the magnet movers (in addition to making things much less confusing). Also, instead of using potentiometers, MV01 makes use of LVDTs to determine the current positions of the movers. All control of the movers should be performed through MV01.

The magnet movers can be accessed through the "MV01 Mover Panel" off of the "FFTB Index" panel. From this panel all necessary magnet mover functions can be performed. Each mover is controlled with three separate buttons: XMOV for the x position, YMOV for the y position, and one more XMOV for the roll of the magnet mover. The values displayed for these units are in microns for the case of x and y position and in microradians for the case of roll.

Updated position data can be requested, and desired setpoints can be set using the familiar buttons on this panel similar to those used for other magnets and magnet-like devices on the SCP. Once all three coordinates are set to the desired values for a magnet mover, a single push of the "TRIM" button is sufficient to move it to the new position. As long as a button for either the x, y, or roll coordinate of a given magnet mover is currently selected, the "TRIM" button will ensure that all three coordinates are simultaneously trimmed to their current VDES settings.

A calibration function has also been provided for the movers and is available through the "CALIBRATE" button. This button allows the user to calibrate magnet movers (either individual movers or all of them at once) by moving them to their midplane positions and then reading their positions from the LVDTs. This position information is then used to update the offsets of their LVDT linearization polynomials, effectively minimizing any effects that LVDT drift might have on the readback values. Some significant diurnal drift in the LVDTs has been noted, which the users should be aware of. This can be corrected (albeit only temporarily) through a calibration.

Customised Message Sending

August 10, 1993

Author: *Steve Levitt* **Subsystem:** *Software* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

A panel has been added to the SCP to make it possible to build a customized message and send it to a specified micro. This facility is mainly intended for use by the FFTB developers to trigger their PC software from a SCP. However, it may also be used to test software on other micros or VAX processes. The panel is accessible through either the network index or FFTB index panels.

Data values may be added to the message buffer to send in multiple formats:

- Plain Text: data typed goes directly into message buffer with no translation
- 4 or 2 Byte Hex Integer: interpret data typed as hex integers
- 4 or 2 Byte Decimal Integer: interpret data typed as decimal integers
- 4 Byte Real: interpret data typed as floating point values
- 4 or 2 Byte Hollerith: interpret data typed as fixed length character blocks

- 4 or 2 Byte Octal Integer: interpret data typed as octal integers
- 4 or 2 Byte Logical: interpret data typed as TRUE or FALSE

When data has been appended to the message, it is displayed in the five most popular formats: plain text, 4 & 2 bytes hex, 4 & 2 bytes decimal and 4 byte floating point.

The destination micro, function code and timeout values may be specified. These values are "sticky" and remain the same between message transmissions. This may be useful in a button macro, for example to send the same message to several micros.

After a message is sent, the status code of the software routine that was used to send, and the status code from the micro (if it replied) are displayed on the panel. The least significant bit of these status codes signifies the success (set) or failure (clear) of the message send.

As this panel was created primarily for the FFTB personnel to construct macros to control their PCs, the status codes were put on the panel so that they may be conveniently picked up by a button macro. For the macro programming afficionados, there is a sample program called CMSGTEST to demonstrate how this panel may be used from a button macro.