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SLC Control Program

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Non-X Terminals No Longer Supported

March 18, 1996

Author: *Ron Chestnut* **Subsystem:** *SCP* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *None*

The laboratory has been phasing out non-X terminals over the past few years, culminating recently with a trade of old Ann Arbor terminals for Mac computers from the SSC.

The SCP has evolved over the past few years from a character input driven system with the X-system pasted on, to an application with the X-system at its core. At this point the support of character input terminals (Ann Arbor, Modgraph, Amiga and VT200) is "pasted on" and requires careful work with each SCP modification.

We are therefore no longer supporting the following SCP modes:

- G for a VT200 compatible or AnnArbor terminal with graphics capability (including Amigas)
- A for an Amiga terminal
- M for a Modgraph terminal
- T for a VT200 compatible or AnnArbor terminal without graphics

Please feel free to contact Spencer Clark or Ron Chestnut if you have questions.

HW Information in SW Caters

February 5, 1996

Author: *Ron Chestnut* **Subsystem:** *Cater* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *No*

Two new Cater-related programs now allow you to find hardware information in caters which have been moved from the Hardware to Software catagory. The hardware information (Micro, Unit, Primary) is still in the database, but does not appear on Software cater reports.

1. RUN CTR$IMAGE:SOFT_HW.EXE

will list the hardware information in all open software caters.

2. RUN CTR$IMAGE:CTR_HW_DATA.EXE

will prompt for a cater number and list the hardware information for that cater.

Fast Feedback Loops Regrouped

February 12, 1996

Author: *Phyllis Grossberg* **Subsystem:** *Fast Feedback* **User Impact:** *Small*
Panel Changes: *One* **Documents:** *No* **Help File:** *Yes*

Because of overcrowding on the Fast Feedback Setpoint display, the LINAC loops have been split into two groups. All loops upstream of LI03 are now members of a newly created group, DAMP RING, which appears on the main Fast Feedback panel between the INJECT and LINAC groups.

There are no changes to the way the panel functions. Selection of the DAMP RING group will produce the names of all loops moved to that group on the loop-selection buttons, and selection of the LINAC group will produce the names of all loops remaining in the LINAC group. The Summary and Setpoint displays continue to show those loops of the currently selected group.

Micro Image File Management

March 20, 1996

Author: *Greg White* **Subsystem:** *Micros* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *Yes* **Help File:** *Yes*

This article describes the management of SLCNET micro "image" files. An image file is the executable binary file run by a micro to perform its control system tasks. Some procedures and scp buttons, have been introduced to help do such things as reverting back to the previous versions of all the micro images (OLDSOFT_MICRO) and for testing a development image (TESTMICRO).

Context

There are 6 kinds of micro image files. One of these 6 is in each micro:

STD4MBL.I38	- replaces MICR3.I38
STD8MBL.I38	- replaces MICM3.I38
PT01MBL.I38	- replaces PT01.I38
FB88MBL.I38	- replaces FB88.I38
MPGMBL.I38	- replaces MPG3.I38
BASICMBL.I38	- replaces BASIC3.I38

Most SLCNET micros use STD4MBL. The "4" stands for "4 megabyte memory model". Most of the rest are special images for one micro. BASICMBL is not used in production.

Each micro image also corresponds to a logical name on each of the VAXs, in our GROUP logical name table, whose name is the image's name, and whose value is a "search-list". This is exactly analogous to the logical name search list for shareables on the VAX.

For instance, on MCC, logical name STD4MBL has the following value:

```
SLC> sho log std4mbl

"STD4MBL" =''SLCMICRO:NEW_STD4MB'' (LNM$GROUP_000044)

= ''SLCMICRO:STD4MBL''
```

The use of logical names allows us to easily change the version of a micro image a micro should load when next IPLed. We do this by changing the value of this logical name. For instance, if we didn't first redefine the logical name STD4MBL on MCC, then if we IPLed a micro that used STD4MBL, the micro would try to boot from a file called SLCMICRO:NEW_STD4MBL.I38, but if that didn't exist, it would boot from SLCMICRO:STD4MBL.I38. The software group will try really hard to make sure there's always a SLCMICRO:STD4MBL.I38; this is the "production" version.

So, for example, to revert back to the most recent production release of STD4MBL, you would change the logical name value of STD4MBL, removing any translations before the "SLCMICRO:STD4MBL". You'd still have to IPL a micro for that micro to get the production image.

Commands for changing micro image logicals.

There are commands to help you change the values of the logical names of the micro images that can be executed from a DCL prompt. Also a new SCP panel for doing micro image management is available off the "Micro Diagnostics Panel" via $\boxed{\text{DEV MICRO PANEL}}$. It is labeled "Development SLCNET Micro Image Panel". The new buttons on this panel just spawn the DCL commands, so all results are displayed on the terminal window. The commands are:

1. SHOWMICRO - displays the values of the logical names of all the micro images. The values define which images *would be* booted by IPLs of micros from that SCP; it does not necessarily give the versions of images currently in micros. The button $\boxed{\text{SHOW MICRO LOGNAM}}$ executes SHOWMICRO from a SCP.

2. TESTMICRO - changes the logical name value of a single micro image, and so only affects IPLs on any micro that boots that image. This is most useful for software developers who want to test out a particular version of an image. To see more on this command type

TESTMICRO with no arguments at the DCL prompt. The button $\boxed{\text{TEST MICRO}}$ executes TESTMICRO from a SCP.

3. DEVSOFT_MICRO - changes the logical name value of all micro images, and so affects IPLs on all micros. It sets the values of the logical names to those currently at the "devmicro" level of release, which is the default on SLC but not normally used on MCC. DEVSOFT_MICRO executed on MCC, followed by an IPL of any production micro from the same job (like the same scp), would cause that micro to boot the development image for that micro if such an image existed; if it didn't the regular production image would be booted.

   The button $\boxed{\text{NEWSFT MICRO}}$ executes DEVSOFT_MICRO from the SCP.

4. NEWSOFT_MICRO - changes the logical name value of all micro images, and so affects IPLs on all micros. It sets the values of the logical names to those currently at the "newmicro" level of release, which is the default on MCC, that is, this is the normal production running condition. NEWSOFT_MICRO executed on MCC, followed by an IPL of any production micro from the same job (like the same scp), would cause that micro to boot the most recently released image for that micro if such an image existed; if it didn't the regular production image would be booted

   The button $\boxed{\text{NEWSFT MICRO}}$ executes NEWSOFT_MICRO from the SCP.

5. OLDSOFT_MICRO - changes the logical name value of all micro images, and so affects IPLs on all micros. It sets the values of the logical names to those currently at the "production" level of release. OLDSOFT_MICRO executed on MCC, followed by an IPL of any production micro from the same job (like the same scp), would cause that micro to boot the production image, ignoring any recent releases.

   The button $\boxed{\text{OLDSFT MICRO}}$ executes OLDSOFT_MICRO from the SCP.

   This button is most useful if you suspect that a bug has been introduced into a micro image by a recent release of an image.

Note that all of these commands only affect IPLs made from the same VAX "job". So, If you hit $\boxed{\text{DEVSFT MICRO}}$ from one scp, and someone on another scp IPLs a micro, they will not get the redefined logical name. The version of the micro image they boot will depend on their values of the micro image logicals. As before, only one version of an image is actually running in a micro at any one time.

A new PNLBAR flag, written on the index button, indicates whether that scp has a non-production value for any micro image file logical.

To see a list of changes implemented in a new micro release, type "NEWSOFT_MICRO" on a terminal window logged to MCC. This information is also displayed on each new MCC login.

Optimization Packages for SLC

March 01,1996

Author: *Phyllis Grossberg* **Subsystem:** *SLC* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

A new functionality has been added to the SCP to provide canned database-driven packages for some optimization procedures routinely used during SLC runs. These packages should simplify tuning procedures as well as provide history tracking of data from Correlation Plot scans.

Three optimization packages are available now; additional ones will be released in the near future. (See NOTE 1 below.) Those packages available now are:

LI11FBCK Linac emittance using S11 feedback, optimizing on the emittance in S28, on a single S28 wire or on the lummon signal.

LI06FBCK Linac emittance using S6 feedback, optimizing on the emittance in S11 or on a single S11 wire.

LI01FBCK Linac emittance using S1 feedback, optimizing on the emittance in S1.

These three packages use fast feedback states as step variables. Step range values are relative to the current setpoints so that all scans are centered on the setpoints. The 'Accept Best Value' and 'Enter New Value' buttons cause the feedback setpoints to be changed.

Access to the optimization packages is currently provided from the OPERATOR MAINTENANCE Panel by pressing the LINAC OPTIMZ PANEL button. The Optimization panel should look familiar to any user who has had experience with packages for tuning beams at the IP or with Correlation Plots in general. There are buttons for selecting a step variable, entering range data, entering BPM definition, setting up for a scan, doing a scan, accepting best value, etc. Buttons new to this panel include those for selecting the package and for selecting the optimizing option. Note that there are no buttons for selecting sample variables; these are database-driven, dependent on the optimizing option.

Buttons for getting to associated panels are available at the top and bottom of the screen. These will take you to the BPM panel, WIRE panels and CORRELATION PLOT (CRR) panels, in case you need to do additional setup not possible on the OPTImization panel. The OPTImization DIAGnostic panel allows you to perform some of the more obscure optimization functions; and the

OPTImization HISTory panels allow you to view history-buffered data from the scans of different types of optimization packages. (See NOTE 2 below.)

Detailed instructions for use of the Optimization panels are in the HELP files. Briefly, the procedure for using the main panel is as follows:

1. Toggle the SELECT OPTIM PACKGE button until you come to the package you are interested in.

2. Check the BPM DEFinition value and change it, if necessary – either by pressing the ENTER BPMDef button or by going to the BPM panel if you need more help in doing this.

3. Toggle the SELECT OPTVAR button (and the OPTVAR2 button which will also be active only if there are two optimizing choices to be made for the selected package) to select the optimizing option (which will determine the variables to be sampled).

4. If your optimizing choice requires an additional selection, the single button underneath the SELECT OPTVAR will become active and you should toggle it also. If you choose to optimize on a single wire, for example, then you also need to select the desired wire.

5. The four SELECT buttons which determine BEAM, PLANE, PHASE, KNOBS, etc, are package dependent. Toggle all that are active to define the step variable.

6. Verify the range for the step variable. Change it, if necessary, by pressing the RANGE button. Note that this action will change the range values only in local memory; the default values will remain in the database. However, two buttons on the OPTI DIAGnostic panel allow you to overwrite the database values with your new values, or to restore your changed values with the default database values.

7. Set up for the CRR plots and do the scan. Note that while many variables may be database-defined for sampling, only one is defined for fit and display; others may be viewed as fit and display through the CRR panels. Also note that, for this application, fit type is database-defined for each sample variable; changing fit type for variables (on the CRR panels) will cause use of the 'Accept Best Value' button (on the Optimization panel) to be prohibited.

8. Other function buttons (Refit and Display, Accept Best Value, Enter New Value, Display Last Scan) operate as they do on the Correlation Plots panel.

NOTE 1: Two packages planned for the near future are

- RTL Optimization on Sector 2 Wires

- Septum Bump Optimization on RTL Wires

NOTE 2: History panels may not be available as you are reading this, but will be soon.

PC Knobs

February 5, 1996

Author: *R. Johnson, B. Sass* **Subsystem:** *Knobs* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *No*

New SCP software permits the conversion of the SLCNET- based knobs used by COWS to PC-based knobs. COW01 is currently using these PC-based knobs. Other COWs will be converted as more new knob boxes and a second PC become available. Operationally the knob boxes look, and should feel, the same, since they are physically the same knobs.

The COW database entry defines which COW is connected to which knobs. Apart from some construction work as the knob boxes are removed and refitted with new internal electronics, there should be no noticable difference in knob behaviour. This work has been undertaken to free up the SLC Micros serving as engines for the COWs. The displays, keyboards and mice have long since moved off the micros, and the knob function is the last provided by the micros. The COW micros will be resurrected as PEP-II ring SLC Micros.

When fully installed, there will be two PCs connected via a SLIP connection to the MCC VAX (Ethernet via RS-232) and to the new knob electronics via a daisy-chained RS-485 (twisted pair) connection. The knob boxes will be connected such that adjacent boxes are served by different PC's. A third PC is available as a replacement, should that prove necessary. Another fall-back position is to use all knobs on one PC.

The PC is located behind the operation's console in rack B005-200. It is SLCP9 and should have a spinning character display in the upper left hand corner of the monitor. Should it need resetting, push the RESET button on the PC. It will take about 50 seconds to restart itself and set up its network connection. No other intervention should be required, and this RESET itself should be very rare.