FEC startup configuration via the AB/CO Controls Configuration Database.

E. Bracke (AB/RF-cs) ***____***

Table of Contents.

Introduction.	3
Logging in to the FEC Configuration data base.	4
Creating a 'Program' (macro)	5
Setting up the FEC application startup sequence	8
Driver enable / disable information.	2

Table of Figures.

Figure 1 Login form with 'hardware' application select.	.4
Figure 2 Selecting the 'Program definition' form	.5
Figure 3 Database query for a 'Program' macro	.6
Figure 4 The 'Program' macro modification record.	.7
Figure 5 Selecting the '# Dsc Startup' form.	.8
Figure 6 Selecting the FEC.	10
Figure 7 Definition of the startup sequence in the 'Configuration data base'.	11
Figure 8 FEC startup IOCONFIGINSTALL macro.	12
Figure 9 Selecting the '# Dsc Crates' form	13
Figure 10 Selecting the FEC.	14
Figure 11 Crate 'modules' configuration (initial).	15
Figure 12 Crate 'modules' configuration (after 'NextBlock').	16
Figure 13 'Module Type Reference' expansion.	18

Introduction.

Here is given an overview of how to configure a Front End Computer (FEC) with application programmes and driver software which will be automatically started when the FEC is booted.

The overview is done by giving a series of screen captures in the order that was required for configuring the LEIR test machine dleitst3 for the Fesa device classes that are responsible for the remote control of the LEIR accelerator by the PS operation crew. Of course, creating the configuration for LEIR is only used as an example; the same procedure is valid for any FEC configuration.

FEC startup configuration is done with a startup reference file, called transfer.ref, which is generated from data that was entered into an Oracle database. The database is called the 'Controls configuration database' and is managed by the AB/CO-DM section.

The generation of this startup reference file from the 'Controls configuration database' is described for the LEIR control frontend computers in a separate note (see: 'genCCode.pdf' and the other references in there) and can also be considered as valid for any FEC configuration.

We start this description with the sequence of actions that define a 'Program' macro for collecting startup parameters for the LEIR FEC application(s) one wants to incorporate in the computer's startup sequence. After having defined the 'Program' macro, its use for the definition of the overall startup sequence table in the 'Controls configuration database' for FEC dleitst3 is shown.

This is followed with a sequence of screen captures that explain how to enable / disable loading at boot time of driver software for accessing the Bnldsp boards of a FEC. It is of interest when one wants to start the drivers manually (with a script) in e.g. their 'simulator' mode for tests of control (Fesa) software if no 'real' hardware is available or in case that a 'defined and known' hardware state is required.

This note is stored in the BNLDSP/DOCUMENTATION directory which can be found in the CERN CVS file repository, currently at: <u>http://isscvs.cern.ch/cgi-bin/viewcvs-all.cgi/?root=abrfcs</u> (and also available on Erik's home page at: <u>http://bracke.home.cern.ch/bracke/HTML/LEIR Development/LEIR Development.htm</u>).

Note to the reader:

Several times reference is made in here to other notes which have been stored (like the current document) in the central CERN CVS repository, module: abrfcs/BNLDSP in the directory DOCUMENTATION. The reader is invited to extract these notes if more info were sought. However, I can not assume absolute responsibility for the truthfulness in these notes; not all are written by me. I did my best, they are offered for what they are. In my personal case: they are the result after painfull gathering of info for making a FEC autoboot my application programmes. The info comes from many AB/CO specialists **and** it made it work for LEIR for me...

TIA FYU E. B.

Logging in to the FEC Configuration data base.

Logging on to the FEC Configuration database is done via the AB/CO Data Management section's home page at: <u>http://ab-div-co-dm.web.cern.ch/ab-div-co-dm/</u> and then selecting the hyper link: 'Controls Configuration Portal'.

From the page that follows, under Data entry tools, select: 'AB Controls Configuration Applications', which, after some time, brings up the Oracle 'Login Form' that you must fill out.

After submitting a first time, the form asks which application it should start. Select here: 'Hardware'. Submitting once more starts the Oracle 'Hardware' application.

+ 🖉 https://cs-ccr-pas3.cern.ch/forms90/f90servlet?config=configlogin/	🗸 🔒 😽 🗙 Google	
🛛 🔽 🐨 🔽 🚱 🗸 😭 🗸 Bookmarks 🛛 🧕 9 blocked 🥙 Check 🗸 🐁 AutoLink 👻 🔚 AutoFill 🔒 Send to 🗸 🖉		Se
AB Controls Configuration Applications - WebUtil	∆ • ⊠ • ⊜ • 5	Page 🔹 🌀 Toc
		(
icome		
Controls Configuration Applications		
Login Form		
Please, choose the application that you would like to work with:		
Username: bracke		
Password: abdevices		
Application:		
Submit Reset Form Exit		
If you have any questions, requests or problems, please, contact the support: ab-dep-co-dm@cern.ch (AB/CO/DM section)		
If you would like to request an access to another application, please, check the names of		
the existing ones in the list below and contact the support.		
List of all available configuration applications:		
Print & And Constraint Print		
V A WVAVAAV		

Figure 1 Login form with 'hardware' application select.

Creating a 'Program' (macro).

The FEC, when starting an application, needs to be instructed how the application wants to be launched (start parameters and work directory, priority etc.). By reading an entry line in its transfer.ref file, the computer has all the information for that application available.

Gathering, in a most generic (symbolic, parameterized) way, this information in a 'per application' fashion, is the task of the 'Program' macro. It is the 'Program' macro in the 'Configuration data base' which, when expanded, yields a line of text according to a transfer.ref specific format, in that file, for that application.

See the note: 'Starting User Programs on LynxOS, Linux and HP-UX computers.pdf' for details of this format.

The 'Configuration data base' caters for a record that takes these application parameters. Many application programmes for many FECs are started in the same way. Therefore we sometimes can use an already existing 'Program' macro, but sometimes we must create one specifically for our application. Here we describe the way how to create a new 'Program' macro.

We start in this case from the Oracle 'hardware' application by selecting from its menu the 'Definitions' dropdown list and then '# Dsc Program definitions'.



Figure 2 Selecting the 'Program definition' form.

A database query form is opened in which the user can formulate a database query for an already existing macro from which he could 'clone' the info while creating a new macro of his own. The 'List' menu offers another query window for finding an existing 'Program' to be entered in the first query form. Remember that in Oracle-ish the '%' character designates a wild card for 'any suite of characters'.

	//cs-ccr-oas3.cern.ch/forms90/f90	Oservlet?config=configlogin/		🗙 🚆 🚧 🔀 Google	
ogle G-	🔽 Go 🚸 🍏 🚼 🔻	🟠 Bookmarks 🛪 📓 9 blocked 👋 Che	eck 👻 🐴 AutoLink 👻 🔚 AutoFill 🔒 Ser	nd to 👻 📓	🔘 Sett
AB Control	ls Configuration Applications - Web	bUti	R	🙆 • 📾 • 📾 • [🔂 Page 🔻 🍈 Tools
					ORAC
Access Bar			3 A X		
Please, choose the	e application that you would li	ike to work with User Nam	ne: bracke		
abdevices	hardware				
1	ROGDEFS				1
Action E	Edit Query Block Record (Eield Help			
Exit		Cancel Query Last Ci	riteria Count Hits	Execute Query List	
DS	SC PROGRAM STARTUP SE	QUENCE			
		List of Startup Sequences DODDDDD			8000000000 ×
Pr	rogram				
		Find BNLDSP%			
RT	Class	Progname	Dsc	Proadescrip	
	2000 B	BNLDSP_M	general	FESA Server and Real-time for class \$1	j i
Sou	rce dir	BNLDSP_M_DLEITST3	dleitst3	FESA Server and Real-time for class \$1	
Sour	ce file				
0					
UW	Giu	iuk.			
	Start narameters	-			
	otart paramotoro				
11					
			utatata tatata tatata tatata ta	NARANARANARANAR	
			End	QK Cancel	
		<u>.</u>			
	NOTE: in startlines, \$P st	tands for 'prio nn' (nn defined in DS)	CPROGRAMS);		
	\$D stands for the	e directory name (defined in table C	OMPUTERS);		

Figure 3 Database query for a 'Program' macro.

Once a 'Program' defined we can execute the database query and a new form will open with the selected macro and its current parameter definitions. This window gives various database editing facilities for changing and updating the 'Configuration data base' with the customized 'Program' macro record on screen.

For the interpretation of the various fields in this record in the transfer.ref file, see the note: 'Starting User Programs on LynxOS, Linux and HP-UX computers.pdf'.

ogle G	🔽 Go (+ 🕼 🛃 + 🔛 Bookmarks + 🔊 blocked 🗇 Check + 🔨 AutoLink + 🐚 AutoFill 🎍 Send to + 🖉	B B D	🔘 Settin
AB C	iontrols Configuration Applications - WebUtil		Page ▼ (○) Tools
			ORAC
Access Bar	よ ア メ		
Please, choos	se the application that you would like to work with User Name: bracke		
abdevices	hardware		
1 (<u>1</u>	DSCPROGDEFS		erene 🗹
Acti	on Edit Query Block Record Field Help It PrevRinck << < > >> NextRinck NewRer: DunRer: DunFid DelRer	Commit BollBack Query List	
	DSC PROGRAM STARTUP SEQUENCE	Commune resident query Los	
	Program BNLDSP_M FECName general Description FESA Server and Real-time for class s	51	
	RT Class Qualifier Value		
	Source dir /dsc/local/bin Dest dir /dsc/local/data/BNLDSP/\$1		
	Source file \$1_M Dest file \$1_M		
	Owner root Group root Program type command Mask 555 Default priority	/ 25 In Clic y	
1	Start parameters # Start reatime and CMW server for FESA class \$1 in Dest, dir (after cp executable from Src. dir). \$P J\$1_M_1*/dev/null		
	NOTE: in startlines, \$P stands for 'prio nn' (nn defined in DSCPROGRAMS); \$D stands for the directory name (defined in table COMPUTERS); \$1.\$4 stand for substitution strings defined in form DSCPROGRAMS.		

Figure 4 The 'Program' macro modification record.

An important detail of a Program macro is the definition of the 'In Clic' field. When defining it here as 'Y'-es, later while using the macro, it will signal the transfer.ref interpreter that the programme in question must be launched as a server rather than being launched via a shell. This has the effect that in the FEC's process table only <u>one</u> slot will be used (the one for the programme itself) in stead of 2 slots: one for the shell and one for the programme launched by it (FEC resource preservation). Indeed, most of the at startup launched programmes will stay 'on stack' indefinitely; never ending. It will, however, always be possible to not incorporate the programme in 'clic suveillance' by defining its startup sequence line's 'C'-lic column field with 'N'-o. (See also the info at: Figure 7 Definition of the startup sequence in the 'Configuration data base'.)

After 'Commit'-ting the created (by renaming the from the database retrieved template macro e.g.) or modified an existing 'Program' macro, it will be stored in the 'Configuration data base' and ready for use for the definition of a FEC's startup sequence.

Setting up the FEC application startup sequence.

When starting up, the FEC reads, one by one, the lines in its transfer.ref file. If a 'simple' user, like e.g. the AB/RF group, receives a FEC, the AB/CO group already has configured its infra structure (CPU, timing hardware etc.), often with the required driver software inclusive. This is reflected in the first few lines of the transfer.ref file. Some aspects (inhibiting driver load during startup e.g.) are discussed at the end of this note. Of interest in the current discussion is notably the part where **application** programmes are started, usually the last few lines available from the file.

Definition of the order in which events happen during startup of a FEC, is the task of the 'DSC Programs' table. It is this table in the 'Configuration data base' which, when extracted, yields the lines of text according to the transfer.ref specific format, in that file, for **all** initialization (drivers etc.) as well as for the applications in a FEC that must be auto-booted.

See once more the note: 'Starting User Programs on LynxOS, Linux and HP-UX computers.pdf' for details of this format.

Now we shall be making use of the before hand created 'Program' macro. Here we describe the way how to define a FEC's 'DSC Programs' table in the 'Configuration data base'.

We start in this case from the Oracle 'hardware' application by selecting from its menu the 'Dsc Configuration' dropdown list and then '# Dsc Startup'.

B Controls Configuration Applications - WebUtil - Windows Internet Explorer provided by CERN		
🕞 🔹 😰 https://cs-ccr-aas3.cem.ch/forms90/f90servlet?config=configliogin/	Google	1
gle 🖸 🗸 🔮 🕼 🗸 🔯 Bookmarks 🛛 🥵 9 blocked 👘 Check 👻 🛝 Autolink 🛩 🚡 Autolink 🖉 Send to 🕶 🖉		🔘 Settin
AB Controls Configuration Applications - WebUki	🟠 • 📾 - 🖶 • [🍦 Page 👻 🌍 Tools
		ORAC
Nucles and - No.		
abdevices bardware		
	অক্ষর ⊻ স	
Elle <mark>Dec-Configuration</mark> Computers Definitions Cables Assets Info Windows Help		
# Disc Crates		
Copy Startup Seddence		
Next Inst 9 Next Next		
CIRACLE		
n https://cc.crs.par3.rem.ch/formc00/00cervlet/iseccionid=ar12ch11ech/00066532a114e44h5a1065r33da3d76.mD3Hm/bM/JYvrNal Ia		

Figure 5 Selecting the '# Dsc Startup' form.

A new query form opens where the reader is invited to specify for which FEC (DSC called in the past, and even PCA before, nothing really changed, but that's another story...) he wants to define the startup sequence.

Note that we can only enter an already existing FEC from the 'Configuration data base'. A new FEC must first be entered into the database by AB/CO first before its startup sequence can be configured.

🕥 🔹 🙋 https://cs-ccr-oas3.cern.ch/forms90/f90servlet?config	g=configlogin/			~	Google	
le C - Go + 🔊 🥵 - 🏠 Bookn	narks 👻 🔊 9 blocked 🕺	🖇 Check 👻 🐴 Aut	oLink 👻 🐨 AutoFill 🔒 s	Send to 🕶 🔏		C Setti
AB Controls Configuration Applications - WebUtil					<u>≬</u> • □ - ♣• □	Page + 🔘 Tools
icass Bar			XEL			
lease, choose the application that you would like to work (with User	Name: bracke	Ĩ			
abdevices hardware						
COMPSTARTUP						
Action Edit Query Block Record Eleid Help						
SELECT COMPUTER NAME						
	Select DSC for Ed	liting the Progra	m Startun Seguence			
	Select DSC IOI Lu	nung ute i rogra	in Statup Sequence			
				Existing DSC names 1999		
D	SC Name:		List			
				Find d%		
	(dsc name may	be null for acce	ss to all programs)	-	an weather the	_
				dioirinu	L Compaescrip	
				diaitim	LEIR Ring pickups and	i G measurenie
		1		Uletuitt	LEIN UITIITU UETETATOT	
				diatraf	I EIR transformer	
	DSC Startup		Help	dleitraf dleitst1	LEIR transformer	
	DSC Startup		Help	dleitraf dleitst1 dleitst3	LEIR transformer LEIR AB/BDI tests 1 LEIR AB/RE tests	
	DSC Startup		Help	dleitraf dleitst1 dleitst3 dlinaos1	LEIR transformer LEIR AB/BDI tests 1 LEIR AB/RE tests LIN NAOS	
	DSC Startup		Help	dleitraf dleitst1 dlinaos1 dlinas2	LEIR transformer LEIR AB/BDI tests 1 LEIR AB/RF tests LIN NAOS Linac2 semgrid in Lina	ac 3
	DSC Startup	Evit	Help	dleitraf dleitst1 dlinaos1 dlinaos2 dlininst	LEIR transformer LEIR AB/BDI tests 1 LEIR AB/RF tests LIN NAOS Linac2 semgrid in Lina	ac 3
	DSC Startup	Exit	Help	dleitraf dleitst1 dlinaos1 k dlinins2 dlinins1 dlinins1 dlinpow1	LEIR transformer LEIR AB/BDI tests 1 LEIR AB/RF tests LIN NAOS Linac2 semgrid in Lina Linac 2 emittance Linac 2 Power supplie	ac 3 s 1
	DSC Startup	Exit	Help	dleitraf dleitst3 dlinaos1 dlinaos1 dlinins2 dlininst dlinpow1 dlinf	LEIR transformer LEIR AB/RF tests LIN NAOS LIN ACOS LINAC2 semgrid in Lina LINAC2 semtance LINAC2 Power supplie LINAC2 RF (step)	ac 3 s 1
	DSC Startup	Exit	Help	dieitraf dieitst1 dieitst3 diinis2 diinins2 diininst diinysv1 diinrf diinstim	LEIR transformer LEIR ABIRDI tests 1 LEIR ABIRF tests LIN NAOS Linac2 semgrid in Lina Linac 2 emittance Linac 2 Power supplie Linac 2 RF (step) Linac 2 source and tim	ac 3 s 1 ning + remote re
	DBC Startup	Exit	Help	dieitraf dieitst dinaost dinins2 dininst dinnost dinnf dinstim dintraf	LEIR transformer LEIR AB/RETests 1 LEIR AB/RETests LIN NAOS LINAC3 Semgrid in Lina Linac 2 semitance Linac 2 Power supplie Linac 2 Power supplie Linac 2 Source and tim Linac 2 Transfos	ac 3 s 1 ning + remote re
	DSC Startup	Exit	Help	dieitraf dieitst1 dieits13 dinaos1 dinins2 dinins1 dinpov1 diinf diinstm diinf diinstm diinfafm diinstm diinstm	LEIR transformer LEIR AB/RF tests LEIR AB/RF tests LIN NAOS Linac 2 semgrid in Lina Linac 2 comitance Linac 2 Power supplie Linac 2 RF (step) Linac 2 Source and tim Linac 2 Transfos Linac 2 Vacuum	ac 3 s 1 ning + remote re
	DSC Startup	Exit	Help	dieitraf dieitst1 dieitst3 dinaos1 dinins2 dinins2 dinins1 dinyow1 dinrf diinstim diintaf diintraf diintraf	LEIR transformer LEIR AB/RF tests LEIR AB/RF tests LIN NAOS Linac 2 semgrid in Lina Linac 2 Power supplie Linac 2 Power supplie Linac 2 RF (step) Linac 2 Source and tim Linac 2 Yansfos Linac 2 Vacuum Lina 2 Vacuum	ac 3 s 1 ning + remote re:
	DSC Startup	Exit	Help	dieitaf dieitaf dinast dinast dinins2 dinins2 dinins4 dinf dinf dintf dintaf dintaf dintastim dintastim dintastim dintastim dintastim dintastim dintastim dintastim dintastim	LEIR transformer LEIR AB/DI tests 1 LEIR AB/DI tests 1 LIN NAOS LINA2 Semgrid in Lina LINA2 2 emittance LINA2 2 envire supplie LINA2 2 Power supplie LINA2 2 Power supplie LINA2 2 rource and tim LINA2 2 transfos LINA2 2 transfos LINA2 4 acuum LN3 NAOS LINA3 ECR Ion source	ac 3 s 1 ling + remote re
	DSC Startup	Exit	Help	dieitraf dieitst1 dinaos1 dinnis2 dinnis2 dinnis4 dinpwv1 dinr dinstim dinstim dintaf dinvacu din3aos1 din3eer din3es1	LEIR transformer LEIR ABIRF tests LIIR ABIRF tests LIIN NAOS LINACS LINAC 2 emittance LINAC 2 emittance LINAC 2 Power supplie LINAC 2 Power supplie LINAC 2 RF (step) LINAC 2 RF (step) LINAC 2 RF (step) LINAC 2 Vacuum LINAC 2 Vacuum LINAC 3 LOR Ion Source LINACS 1 Instruments 1	ac 3 s 1 hing + remote re
	DSC Startup	Edt	Help	dieitraf dieitst1 dieitst3 dinass1 & dinins2 dinins2 dinins1 dinr4 dinr4 dinr4 dinr5 dinr4 dins2 din3aos1 din3eer din3et din3et	LEIR transformer LEIR AB/RF tests UN NAOS Linac 2 semgrid in Lina Linac 2 comitance Linac 2 Prover supplie Linac 2 Prover supplie Linac 2 RF (step) Linac 2 Transfos Linac 2 Transfos Linac 2 Tauum LN3 NAOS Linac 3 EOR Ion source Linac 3 EOR Ion source	ac 3 s 1 Ning + remote ref
	DSC Startup	Exit	Help	dietraf dinas dinas dinas dinins2 dinins2 dinins1 dind dinf dinf dinf dinf dinf dinf dins1 dinf dins2 dinast dins3 dinf dins2 dins3 dins1 dins2 dins3 dins1 dins2 dins3 dins1 dins2 dins3 dins1 dins2 dins3 dins1 dins2 dins3 dins1 dins2 dins3 dins3 dins1 dins1 dins2 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3 dins3	LEIR transformer LEIR AB/DI tests 1 LEIR AB/DI tests 1 LIN NAOS LINA2 Semgrid In Lina LINA2 2 environment LINA2 2 Prover supplie LINA2 2	ac 3 s 1 aing + remote res
	DSC Startup	Exit	Help	dieitraf ditist1 dita3 dinaos1 dinins2 dinins2 dinins4 dinpow1 dintf dinstim dintaf dinvacu din3aos1 din3aos1 din3ans1	LEIR transformer LEIR ABROItests 1 LEIR ABROItests 1 LIN NAOS LINA2 Semgrid in Linz Lina2 Prover supplie Lina2 Prover supplie Lina2 2 RF (step) Lina2 Zisurce and tim Lina2 Transfos Lina2 Vacuum LN3 NAOS Lina3 ECR Ion sourc. Lina3 Stort Ion sourc. Lina3 Stort Ion sourc.	ac 3 s 1 ling + remote re g
	DSC Startup	Exit	Help	dieitraf dieitraf dinias dinins2 dinins2 dinins1 diny diny diny diny diny diny diny a diny a din dinasim diny a din dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinasim dinaset dinaset dinaset dinaset dinaset dinaset	LEIR transformer LEIR ABURF tests LEIR ABURF tests LIN NAOS LINACS LINACS LINAC Semprid In LINA LINAC 2 semprid In LINA LINAC 2 RF (step) LINAC 2 RF (step) LINAC 2 RF (step) LINAC 2 Transfos LINAC 2 Transfos LINAC 2 Vacuum LIN3 NAOS LINACS ECR Ion source LINAC 3 Instruments 1	ac 3 s t ing + remote rem e Qancel

Figure 6 Selecting the FEC.

Select the required computer and click 'OK' to enter it in the 'DSC name' field. Button 'DSC Startup' then retrieves the startup table from the 'Configuration data base' in a new form.

•

We now can add / modify this 'Computer startup' form to our liking and eventually put it back into the database.

This is a short description of the columns:

- Dsc: The FEC for which it is concerned. Pre determined field, never changed.
 - Seq: Ultimite order of the lines in the transfer.ref file
- Startup-name: Here we enter our 'Program' macro which we defined beforehand.
 - C: 'Y' means that the programme will be suveilled by AB/CO's 'clic' tool.
 - I: 'I' means that this line will be 'commented out' in transfer.ref; effectively inhibiting its startup execution.
- \$1, 2, 3, 4: Freely useable substitution parameters for use in the 'Program' macro.

https://cs-ccr-oas3.cem.c	h/torms90/f90s	servlet?config=configlogin/				× 1	** X	Google
Go 🤄	- 🚳 🖏 -	😭 Bookmarks 🔻 📓 9 blocked	ABC Check 👻	K Aut	alunk 👻 🗑 AutoFill 🍺 Send to 👻 🖉			
B Controls Configuration App	lications - Webl	Util					6	🔹 🔝 👘 👘 🔹 Page
		- Constanting of the second se						
								c
į.					$\leq \pi \times$			
oose the application that	you would lik	ke to work with Use	er Name: 🖪	racke				
s hardware								
Action Edit Query Block	Record F	ield Help		10101010103			HEREIGHEREIGHEREIG	
Exit GETDSCNAM	E PrevBloc	sk «< < > >> Nex	Block		NewRec DupRec DupFl	1 DelRec Commit	RollBack	Query Liet
DSC PROGRAMS						1 in		
Dsc	Seq	Startup-name	Prio	CI	\$1	\$2	\$3	\$4
dleitst3	10	WAIT_TGM			LEI		1	
dleitst3	12	FESASHARED_S	25	Y	dleitst3			
dleitst3	14	SLEEP	-5		5			
dleitst3	16	FESA_R	50	Y.	LTIM		Ú.	
dleitst3	18	SLEEP	-6		5		1) (j	
dieitst3	20	BNLDSP_M_DLEITST3		Y.	BhidspBiQUAD			
dleitst3	21	BNLDSP_M_DLEITST3		Y	BnidspDDC			
dleitst3	22	BNLDSP_M_DLEITST3		Y	BnldspGFAS			
dleitst3	23	BNLDSP_M_DLEITST3		Y	BnidspMEDQ			
dleitst3	24	BNLDSP_M_DLEITST3		Y	BnidspRFRE		10	
dleitst3	25	BNLDSP_M_DLEITST3		Y	BnidspSDDS			
dleitst3	26	BNLDSP_M_DLEITST3		Y	BnidspTIM			
dleitst3	30	SLEEP	-10	1	10			
dleitst3	31	BNLDSP_M_DLEITST3		YI	BnldspCTL			
PROGRAM STAL	RTUP				C			
Program: BNLD	SP_M_DLEIT	513			Source dir: /dsc/local/bin			
FEC Name: dieitst	3				Source file: \$1_M			
Default Priority: 25					Dest dir: /dsc/local/data/BNLDSP/\$	1		
Description: FESA	Server and Ri	eal-time for class \$1		2	Dest Hie: \$1_M			
DT Closed		^			-			R
RI Class:		Uwner:	000	-	# Start real-time and CMV	server for FESA class \$	1 in Dest. dir	r (atter cp executable
Qualmer:		Group:	100	-	Startup Seguence: \$P /\$1_M . 1>/dev/null			
		Program type: o	ummand					
value:				1				

Figure 7 Definition of the startup sequence in the 'Configuration data base'.

Important note:

For 'Clic' surveillance it it mandatory that the Program macro used for this startup sequence entry has its 'In CLIC' field <u>also</u> set to 'Y'-es, otherwise no Clic surveillance will be performed during operation. (Thanks Frode and Alastair for these important details. See also the info at: Figure 4 The 'Program' macro modification record.)

Finally, click 'Commit' to upload the changes into the 'Configuration data base'

Creating a new transfer.ref file is explained, for the LEIR control system, in note: 'genCCode.pdf' and the ones that are referenced in there.

Driver enable / disable information.

Consider the FEC startup sequence screen capture below. Of interest is here the program macro IOCONFIGINSTALL which defines, amongst other things as well, the driver configuration for this FEC and will be translated in a few lines in the transfer.ref file when the latter is generated from the database.

Inspection and modification of the data, used by this macro, allows us to control which drivers will be included in the (system) ioconfig load file that will be read when the entries (several lines) in transfer.ref represented by IOCONFIGINSTALL are parsed during boot time of the FEC.

Generally, for us, 'simple users' of the Configuration Database, only the possibility of enabling / disabling of our specific drivers during boot time is the only interest. (E.g. if we want to install / uninstall manually a driver or, when we want to start a driver in 'simulation' mode.) We would do a thing like this if we were testing Fesa application software but we do not have 'real' hardware available. Indeed, all LEIR Fesa classes, but in particular BnldspTIM, BnldspCTL, BnldspMEDBUG, BnldspMEDQ and BnldspSCOPE, for which this feature is very useful, can be started with a commandline option that pre-loads a driver in simulation mode with 'dummy' acquisition data during class startup and that can subsequently be accessed as if 'real' hardware were accessed. Manually loading / unloading a driver can be accomplished with a set of batch scripts to be found in the central CERN CVS repository, module: abrfcs/BNLDSP, in the root directory.

This chapter shows the procedure how to do the manipulation of enabling / disabling the autoboot driver load for the LEIR Bnldsp board driver.

Controls Configuration Applications - Webling User Name: Introls Participation - Webling User Name: User Name: </th <th>gle G-</th> <th>🛩 Go 🚸</th> <th>🚳 🌄 🔻 😭 Bookmarks 🛪 🔊</th> <th>14 blocked</th> <th>Cł</th> <th>heck</th> <th>👻 🐴 AutoLink 👻 📔 AutoFill 🍙 Send</th> <th>ito• 🖉</th> <th></th> <th></th> <th> Set </th>	gle G-	🛩 Go 🚸	🚳 🌄 🔻 😭 Bookmarks 🛪 🔊	14 blocked	Cł	heck	👻 🐴 AutoLink 👻 📔 AutoFill 🍙 Send	ito• 🖉			 Set
Control Contro Control Control	🖗 AB Controls	Configuration Appli	cations - WebUtil						6 ·	<u> </u>	age 🝷 💮 Tool
Process	Access Bar						aP_H	ARDWARE 200220	0000000000000	000000000000000000000000000000000000000	0000000000
anderware Constrained Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>	Please, choose the a	application that y	you would like to work with	User	Nam	ne:	bracke Eile D	sc-Configuration	outers Definitions	<u>C</u> ables <u>A</u> ssets	info <u>W</u> indow
Convertie Pictor Pict	abdevices h	ardware					#	Dsc Crates			
Constrained Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>							#	Dsc Startup Software Family Startur	R		_
And Call Decrement Conversion Conversion <th< th=""><th>COMPSTARTOP lion Edit Quent Bl</th><th>lock Record Fi</th><th>ield Heln</th><th></th><th></th><th></th><th><u>q</u></th><th>opy Startup Sequence</th><th></th><th></th><th></th></th<>	COMPSTARTOP lion Edit Quent Bl	lock Record Fi	ield Heln				<u>q</u>	opy Startup Sequence			
DSC PEOGPANS Corp Crate Configuration Dec Seq Sartup name Prio C I Si Size Size <th< th=""><th>kit GETDSCN</th><th>AME PrevBloc</th><th>k << < > >> Nextf</th><th>Block</th><th></th><th></th><th>NewRec DupRec Du</th><th>opy and Overwrite Start</th><th>up Sequence</th><th>uerv List</th><th></th></th<>	kit GETDSCN	AME PrevBloc	k << < > >> Nextf	Block			NewRec DupRec Du	opy and Overwrite Start	up Sequence	uerv List	
bc Sq Support Pio C I I S2 S3 S4 diet33 -0 ECOAFGONTALL - V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V </th <th>DSC PROGRAM</th> <th>5</th> <th></th> <th></th> <th></th> <th></th> <th>G</th> <th>opy Crate Configuration</th> <th></th> <th></th> <th></th>	DSC PROGRAM	5					G	opy Crate Configuration			
delts13 -20 ERRLOCAL V V Image: Constraint of the second of the	Dsc	Seq	Startup-name	Prio	С	L	\$1	\$2	\$3	\$4	
1 IOCONFIGINSTALL I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I	dleitst3	-20	ERRLOCAL		Y			T	Ť		
alielts3 2 TMLOAD V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V <	dleitst3	1	IOCONFIGINSTALL		Ħ				1	-	
dielts3 5 GET_TOM_TIM 100 Y I International State Inter	dleitst3	2	TIMLOAD		††			1			
delet33 10 WAT_TOM I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I	dleitst3	5	GET_TGM_TIM	100	Y			Î			
delet33 12 FESASHARED_S 25 Y I image: Signame in the signame in t	dleitst3	10	WAIT_TGM		Ħ		LEI	Î			
dielist3 13 FE6A_S 25 Y I LTIM Yder/con 2>&1 Image: Status in the status in	dleitst3	12	FESASHARED_S	25	Y			>/dev/con 2>&1			
deits13 14 SLEEP 5 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <t< td=""><td>dleitst3</td><td>13</td><td>FESA_S</td><td>25</td><td>Y</td><td></td><td>LTIM</td><td>>/dev/con 2>&1</td><td></td><td></td><td></td></t<>	dleitst3	13	FESA_S	25	Y		LTIM	>/dev/con 2>&1			
diets3 16 FE6A_R 50 Y 0 Thi Image: Constraint of the second of	dleitst3	14	SLEEP	-5			5				
delet3 18 SLEEP 5 Image: Superside Status in the superside	dleitst3	16	FESA_R	50	Y		LTIM				
deite13 20 RNLDSP_S_DLEITST3 Y 0 poldspBi0UAD 0 0 0 deite13 21 BNLDSP_S_DLEITST3 Y 0 BnidspDCC 0 0 0 0 deite13 23 BNLDSP_S_DLEITST3 Y 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0<	dleitst3	18	SLEEP	-5	Ш		5				
delets3 21 NLDSP_S_DLETTST3 Y PoldSpDDC Image DDC Image DDC delets3 22 NLDSP_S_DLETTST3 Y Image DDC Image DDC Image DDC Image DDC delets3 23 NLDSP_S_DLETTST3 Y Image DDC Image DDC Image DDC Image DDC Image DDC Program: IDCONFIGINSTALL Image DDC Image DDC </td <td>dleitst3</td> <td>20</td> <td>BNLDSP_S_DLEITST3</td> <td></td> <td>Y</td> <td></td> <td>BnidspBIQUAD</td> <td></td> <td>_</td> <td></td> <td></td>	dleitst3	20	BNLDSP_S_DLEITST3		Y		BnidspBIQUAD		_		
dielisi3 22 NLDSP_S_DLEITST3 Y PidispGFAS ImidspGFAS dielisi3 23 NLDSP_S_DLEITST3 Y PidispMEDO ImidspGFAS Program: IOCONFIGINSTALL Source dir /usrlocal/bin Dest file: ioconfigInstall Source file: ioconfigInstall /usrlocal/bin Source file: ioconfigInstall Source file: ioconfigInstall Source file: ioconfigInstall /usrlocal/bin Source file: ioconfigInstall </td <td>dleitst3</td> <td>21</td> <td>BNLDSP_S_DLEITST3</td> <td></td> <td>Y</td> <td></td> <td>BnldspDDC</td> <td></td> <td></td> <td></td> <td></td>	dleitst3	21	BNLDSP_S_DLEITST3		Y		BnldspDDC				
delets3 23 BNLDSP_S_DLETTST3 Y 1 BnidspMEDQ PROGRAM STARTUP Program: [OCONFIGINSTALL FEC Name: general efault Priority: -30 Description: Install data used by loconfig library Dest dir: /usr/loca/bin Dest dir: /usr/loca/bin Dest file: loconfig library Dest File: loconfig library Gualifier: Group: coot Yate: Program type: command Mask; 555	dleitst3	22	BNLDSP_S_DLEITST3		Y		BnidspGFAS				
Program: IOCONFIGINSTALL Source dir /usr/loca/bin FEC Name: general Source dir /usr/loca/bin efault Priority: -30 Dest dir: /usr/loca/bin Description: Install data used by loconfig library Dest File: loconfigInstall RT Class: Owner: root Group: root Startup Value: Program type: command Program type: command Sequence In CLIC: N Mask; 555	dleitst3	23	BNLDSP_S_DLEITST3		Y		BnidspMEDQ				
PROBRM STARTUP Program: IOCONFIGINSTALL Source dir:/usrlocal/bin FEC Name: general Source file: ioconfiginstall FEC Name: general Dest dir:/usrlocal/bin Description: Install data used by loconfig library Description: Install data used by loconfig library Oualifier: Group: root Startup Startup Value: Program type: command Mask: 555 Command					NO AR			- 1999. 	4%.		2
Program: IOCONFIGNESTALL Source dir: Sou	PROGRAM S	TARTUP					_				
FEC Name: general Source file: joconfiginstall efout Priority: -30 Dest dir: /usrfloca/b/in Description: Install data used by joconfig library RT Class: Owner: root Group: root Startup Value: Program type: command N CLIC: N Mask: 555	Program: 100	ONFIGINSTALL					Source dir: /usr/local/bin				
efault Priority: -30 Dest dir: /usrl/ocal/bin Description: Install data used by loconfig library Dest File: loconfigInstall RT Class: Qualifier: Value: Program type: command In CLIC: N Mask: 555 Dest dir: /usrl/ocal/bin Dest File: loconfigInstall # Install data used by loconfig library loconfigInstall \$1 >/devicon 2 ~ &1 Sequence: 	FEC Name: ger	neral					Source file: loconfiginstall				
Description: Install data used by loconfig library RT Class: Owner: root Qualifier: Group: root Value: Program type: command In CLIC: N Mask: 555	efault Priority: -30						Dest dir: /usr/local/bin				
RT Class: Owner; root # Install data used by loconfig library Qualifier: Group; root Startup Value: Program type: command In CLIC: N Mask; 555	Description: Ins	tall data used by	ioconfig library				Dest File: loconfigInstall				
Rt Class: Owner root # Install data used by loconfig library Qualifier: Group: root Startup Value: Program type: command Sequence: In CLIC: N Masic 555	_										
Qualifier: Group: root Startup loconfiglinitali \$1 >/devicon 2>&1 Value: Program type; command Sequence: Sequence: In CLIC: N Mask; 555 Image: Command and a second and a	RT Class:		Owner: ro	ot			# Install data used by ioc	onfig library			÷
Value: Program type; command Sequence: In CLIC: N Mask; 555	Qualifier:		Group: ro	ot			Startup icconfigInstall \$1 ×/dev/c	on 2>&1			
In CLIC: N Mask: 555	Value:		Program type: co	mmand			Sequence:				
	In CLIC: N		Mask: 55	5							

Figure 8 FEC startup IOCONFIGINSTALL macro.

First login onto the FEC Configuration database as explained in Figure 1 Login form with 'hardware' application select.; and start the Oracle 'hardware' application and we select from its menu's 'DSC Configuration' dropdown list the item '# Dsc Crates'.



Figure 9 Selecting the '# Dsc Crates' form.

Then is asked the FEC from which information is required. We select e.g.:

+ Image: https://cs-ccr-oas3.cem.ch	/forms90/f90servlet?config=configlogin/	Google	۶
ygle G- ✓ Go ↔	🧔 퉑 👻 🙀 Bookmarks 🛛 🔊 14 blocked 🛛 🏷 Check 👻 🔨 AutoLink 👻 🔚 AutoFill 🔒 Send to 🕶 🥖		Settin
AB Controls Configuration Appli	cations - WebUtil	🟠 • 🖾 - 🖶 •	🕞 Page 🔹 🍈 Tools 🕚
Arress Bar	< ד x)		
Diagon, choose the application that	unu would like to work with		
abdevices bardware	User Name: Dracke		
	MAP HARDWARE	<u> 1</u>	
	File Dsc-Configuration ©omputers Definitions Cables Assets Info Windows He	elp	
Action Edit Query Block Reco	rd Field Help		
SELECT COMPUTER NAM	E		
	Polect DPC for undefind Crates and Modules		
	Select DSC for updating crates and wouldes		
	Int deliters		
	(dsc name may be null for access to all crates)		
	DSC Crates Help		
	and the second		
	Exit		
· ·			

Figure 10 Selecting the FEC.

This pops up the screen below, where we have to ask for the 'NextBlock' to get all information of the selected FEC we need to see / modify.

G		🔽 Go 🗄 🦪 🗸 🟠 E	ookmarks 👻 🔯 14	blocked	🏷 Check	🗕 🐔 Au	ioLink 👻 📍	🔄 AutoFill 🔒	Send to 👻 🔏			0
6	AB Controls Config	uration Applications - WebUtil								<u>6</u> • 6 • 1	🖶 🔹 🔂 Paç	ie + 🍈 T
_												
ess	Bar							K IN X				
ase,	choose the applic	cation that you would like to w	ork with	User	Name:	bracke						
bdev	ices hardw	are										
		K	AP HARDWARE	2 C						<u>اتر ک</u>		
			Eile Dsc-Configu			Definition	ns <u>C</u> able:	s <u>A</u> ssets inf	o Windows Help			
					22222							
à co	MPCRATES	********						*******				
Exit	GETDSCN	NAME PrevBlock << <	> >> Ne:	xtBlock	MC	DULES	New	Rec DupRe	c DupFld DelRe	ec Commit RollBack Que	ry List	
	CRATES IN TH	HE PS CONTROL SYSTEM		1								
	FECname	Crate type reference	Crate type	B/L C	r Buil	Room	Rack	Cables	Label	Function	Crateld	
	dleitst3	WIE-CR-VME64X	HCCVRWA		864				DLEITST3	RF test 864	7016	Use F
												Use F
						1						
						1						
			1				11	-				
									i terreta de la companya de la compa			

Figure 11 Crate 'modules' configuration (initial).

With the overview after 'NextBlock' we clearly see entries for 3 instances of the BNLDSP driver for the Bnldsp boards of the LEIR beamcontrol system.

gle	G	@	50 4 🧭 🌄 👻 💈	Boo	okmarks	•	Si 14 blocked	Check	•	S A	utoLink 👻 📔 AutoFi	🌛 Send to 👻 🖉			() Sett
8	C	AB Controls Configuration A	Applications - WebUtil									1.1-2			🏚 🔹 📑 Page 🔹 🄇	Tools
Plea ab CON	se, o devi IPCI	choose the application t ces hardware RATES	hat you would like 1	to wo	rk with		User	Name:	bra	icke		Eile Dsc-Config	te uration <u>C</u> o	omputers Definitions Cable	s <u>A</u> ssets Info <u>V</u>	Vindov
tion cit	⊑di	it Query Block Record CRATES Prev	d Eield Help /Block << <	>	>>	Ne	extBlock				NewRec DupRe	c DupFid DelR	ec Com	mit RollBack Query	List	
1	10D	ULES IN CRATE														
Ds	cna	ame: dleitst3	Crate Lab	el:	DLEITS	вт3										
Slo	t S	S Moduletype refer.	Moduletype	L	ın T	I	Mastertype	Lu	n Al	DR	Remarks		5	Special Driver Params	Mod_ld	
1		RI03-8064RD	HCCVUEB												16671	
1	2	CTRP	HCCTRP												16672	
5		BNLDSP		0					Y						18122	
6		BNLDSP		1			15		Y						18123	
7		BNLDSP		2					Y						18124	
_	-			-					_	-						
_	-	-		-					_	+	-					
-	-			-		-			_	+						
-	-	-	-			-				┢	_					
_	+			-	_	-			_	+						
-	-			-						┢	-					
-	+		-	-						÷					-	
-	-		-	-		-				÷						
-	+		-	1	_			_	-	÷					-	
				-						÷						
	1	1		1						1	1					
	xc	EPTIONS						INTER	RUE	TS		SI	GNALS			
rive	r Na	ame	Prio		Insta	nc	e I	lum S	iuba	dd	ess	Con	nector	Signal		-75
iteri	upt	Level	Vector													
ase	Ade	dres 1	2	_												
omi	nen	it														
= mo	dule	e generation inhibited, 'D	i'≒ no driver, 'N'≒ not	tinsta	lled, el	sei	null									

Figure 12 Crate 'modules' configuration (after 'NextBlock').

It is in the collumn, indicated by the mouse cursor, where one can put (or omit, like here) an 'I' flag if it is required to inhibit loading of instance (Lun) '0' of the BNLDSP driver at FEC startup.

When changing, one should also do 'Commit' in order to update the database. Afterwards a new transfer.ref file must be created and installed. The procedure for this is explaned in document: 'The generation of Bnldsp C object code modules and libraries for the LEIR Fesa BnldspXXX device classes.' It can be found in the DOCUMENTATION directory of the Bnldsp C software at the CERN CVS repository.

Here is an excerpt of the transfer.ref file for dleitst3 that was created with all 3 instances of the driver inhibited:

WARNING: File generated from database. Can be overwritten at any time !

***** IOCONFIG Information *****

 #
 In mln bus mtno module-type
 Iu W AM DPsz basaddr1
 range1 W AM DPsz basaddr2
 range2 testoff
 sz sl ss

 #+#
 1
 0 PCI
 502 CTRP
 0 N -- DP16
 0
 0 N -- --- 0
 0
 0
 1
 2

 #+#
 2
 0 VME
 186 RIO3-8064RD
 0 N -- DP16
 0
 0 N -- --- 0
 0
 0
 1<-1</td>

In sin bus mtno module-type Iu evno subaddr A1 F1 D1 A2 F2 D2

```
#
# ***** Program Startup before drivers *****
#
#
# start local errors output
#% prio 18 errlocal >/dev/con 2>&1 &
#% cd /usr/local/drivers/sacvme; sacvmeinstall -R0 -M0 -V254 -L2
#% cd /usr/local/drivers/ctr; ctrinstall
#
#% upfiles -all
#% wreboot -all
#% end
#
# ***** Program Startup after drivers *****
#
#
# Install data used by ioconfig library
/usr/local/bin ioconfigInstall /usr/local/bin ioconfigInstall root root 555 command 30 % ioconfigInstall >/dev/con 2>&1
%
#
```

And here is seen the same excerpt, but from a transfer.ref file generated after taking away the 'I' flag like is shown in the screencapture of Figure 12 Crate 'modules' configuration (after 'NextBlock').

\$Id: transfer.ref,v 1.40 2007/09/13 15:30:13 bracke Exp \$ #* # WARNING: File generated from database. Can be overwritten at any time ! # # ***** IOCONFIG Information *****

 # In min bus mtno module-type
 Iu W AM DPsz basaddr1
 range1 W AM DPsz basaddr2
 range2 testoff sz sl ss

 #+# 1
 0 PCI
 502 CTRP
 0 N -- DP16
 0 N -- --- 0
 0 0 1 2

 #+# 2
 0 VME
 186 RIO3-8064RD
 0 N -- DP16
 0 N -- --- 0
 0
 0 1 -1

 #+# 3
 0 VME
 82 BNLDSP
 0 YEX DP32 2000000
 e00000 N ----- 0
 0
 600000 4 5 -1

 #+# 4 0 VME 82 BNLDSP 1 Y EX DP32 3000000 e00000 N -- ----2 Y EX DP32 4000000 e00000 N -- ----0 0 600000 4 6 -1 0 0 600000 4 7 -1 #+# 5 0 VME 82 BNLDSP # In sln bus mtno module-type Iu evno subaddr A1 F1 D1 A2 F2 D2 # # ***** Program Startup before drivers ***** # # start local errors output #% prio 18 errlocal >/dev/con 2>&1 & #% cd /usr/local/drivers/sacvme; sacvmeinstall -R0 -M0 -V254 -L2 #% cd /usr/local/drivers/ctr; ctrinstall #% cd /usr/local/drivers/BnldspVME; modinst BNLDSP -U0 -O2000000 -V220 -L2 -, -U1 -O3000000 -V221 -L2 -, -U2 -O4000000 -V222 -L2 # #% upfiles -all #% wreboot -all #% end # # ***** Program Startup after drivers ***** # # Install data used by ioconfig library /usr/local/bin ioconfigInstall /usr/local/bin ioconfigInstall root root 555 command 30 % ioconfigInstall >/dev/con 2>&1 % #

The bold printing lines are the result of taking out the 'I' flag for all 3 instances of ModuleType reference 'BNLDSP'. The information for actually loading the driver in memory in the line: cd /usr/local/drivers/BnldspVME; modinst BNLDSP -U0 -02000000 -L2, -, etc. comes from the expansion of the BNLDSP 'Module Type Reference' macro in the overview of Figure 12 Crate 'modules' configuration (after 'NextBlock'). This expansion is shown in the database form like:

ogle C-		50 🚸 📾 🚨 👻 😚 Boo	kmarks 👻 🐼 14 block	ed 🌮 Check 🗸	🐴 AutoLink 👻 🎙	AutoFil 🏊 Send	to v 🖉					O Settin
AB CO	ontrols Configuration A	Applications - WebUtil							<u>م</u>	⊠ - ⊕	• 🕞 Page •	O Tools
	-										-	
												C
	PES 20000000											
Action Edit	Query Block Rec	ord Eield Help										
Exit	Pr	revBlock << < >	>> NextBlock	(NewRe	c DupRec Du	pFld DelRec	Commit R	ollBack	Query	List	ws
MODUL	LE DRIVER TYPE	S FOR DSC										
						_						
D	Orivername	BNLDSP_DEV	Priority		Master ?	N						
s	Subdirectory	BnidspVME		Filename	modinst							
				_		_						
M	Moduletype	BNLDSP	Ma	xmodules 4	Restart							
TAGS:	Address	0 NextAddr	Vector	V Leve	I L Lun	U Separ	Subslot					
SLAVETAG	GS:Address	NextAddr										
Int Voctor I	Ponest	-										
IIIC-VECIOI I	nehear											
	Parameters	BNLDSP										
	Doworko	ř										
	Remarks											
Type of mod	dule which is control	lled (list available)	1 1								_	
Record: 1/1		List of Valu	<050	*								

Figure 13 'Module Type Reference' expansion.

We come here via:

- Oracle hardware application, selecting menu 'Definitions' dropdownlist and then '# DSC List of drivertypes'.
- Filling in the query form field 'Moduletype' with 'BNLDSP'.
- Click tab: 'Execute Query'.

I shall not go into more detail of this aspect of the hardware controls database usage. Some further information can be found in the document: 'Hardware configuration management for the DSC: A functional description.' written by Alain Gagnaire and which is also in the DOCUMENTATION directory of the Bnldsp C software at the CERN CVS repository.

You can also find it (with other related documents) at:

http://bracke.home.cern.ch/bracke/HTML/LEIR_Development/LEIR_Development.htm
