

v.16.2.11
03/19/22

- Introduction
- New QString members of “BLOCK” class
- Work with names in the “Spectrometer design” dialog
- “Optic settings” dialog
- Block dialog titles
- Keeping block names in LISE files
- Block List File (BLF)
- Convert, Update, Replace Block Names with BLF

A1900 segmented

D1
S I1_slits -100 H +100
D2
S I2_slits -29.5 H +29.5
W I2_wedge
D3
D4
M FP_PPAC0
M FP_PPAC1
S FP_slits -25 H +25 -25 V
M FP_PIN
M FP_SCI

A1900 extended

F D1-Y s Y < 45
D1 Bp=3.0000 Tm
F D1-X s X < 100
d z030 standard : 56.4 cm
Q Q031TA MULT : 8.5903 kG
d z032 standard : 13.58 cm
Q Q033TB MULT : -10.584 kG
d z034 standard : 13.58 cm
Q Q035TC QUAD : 9.3041 kG
d z036 standard : 58.6 cm
F I1-focX R12 = 0
F I1-focY R34 = 0
F I1-AD R26 = 0
S Image1(037) slits -100 H +100 -100 V +100

BigRIPS

D1 Bp=8.9886 Tm
S ExitBeamDump slits -125 H +125
d Drift 2 beam-line : 3.48 m
W F1_wedge Al 15 mm
S F1 slit slits -120 H +120
D2 Bp=8.3626 Tm
S F2 slit slits -20 H +20 -120 V +120
d F2-F3 drift beam-line : 8.8 m
M F3PLscint H ₁₀ C ₉ 3000 μm
M F3DPPAC1 H ₈ C ₁₀ O ₄ 45 μm
M F3DPPAC2 H ₈ C ₁₀ O ₄ 45 μm
D3 Bp=8.2957 Tm
D4 Bp=8.2957 Tm
M F5DPPAC1 H ₈ C ₁₀ O ₄ 45 μm

SuperFRS

D TA->PF2
S F1-slit -160 H +5
M MW11
W F1-degrader
D PF2->PF4
M MW21
S PF4-slits -3 H +3
D PF4->MF1
S F3-slit -194 H +194
D MF1->MF2
M MW41
W F4-degrader
S F4-slits -150 H +150
D MF2->MF3

Current ARIS..

S FS_F2S2.SLH_D1862 -4 H +4	slits
M FS_F2S2.TD_D1864	H ₁₀ C ₉ 250 μm
D C_D3	Bp=5.5554 Tm
D C_D4	Bp=5.5554 Tm
S FS_F3S2.SLHW_1854 -20 H +20 -25 V +25	slits
M FS_F3S2.TD_D1855	H ₁₀ C ₉ 125 μm
M FS_F3S2.ELD_D1857	Si 500 μm
M FS_F3S2.ELD_D1858	Si 40 mm

FS_F3S2.ELD_D1857

what is the block??

FRIB users know this
"official name"
transcription to work?
It is hard to see because so
long name was squeezed.

Version 16.2

class **BLOCK**

protected:
 QString PrivateName;
 QString OfficialName;
 QString Comment;

New!



Version 16.1

class **BLOCK**

protected:
 char* PrivateName;

PrivateName (Nick Name)
 Official
 Comment

DB5_Sci
 FS_F3S2:TID_D1855
 scintillator , company ****, model ****, date ***

PrivateName

FS_F3S2:TID_D1855

"Spectrometer design" dialog

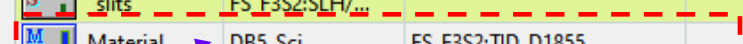
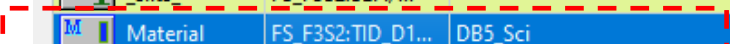
Spectrometer design

Block	Nickname	Official	Z-q	Length, m	Enable
S	_slits_	DB2 slits		0	<input checked="" type="checkbox"/>
W	Wedge	DB2 Wedge			<input type="checkbox"/>
D	** Dipole	C_D2	0	9.745	<input checked="" type="checkbox"/>
A	FaradayCup	FaradayCup 2			<input type="checkbox"/>
M	Material	FS_F2S2:PM_D1...			<input type="checkbox"/>
S	_slits_	FS_F2S2:SLH_D1...		0	<input checked="" type="checkbox"/>
W	Wedge	FS_F2S2:WED_D...			<input type="checkbox"/>
M	Material	FS_F2S2:PM_D1...			<input type="checkbox"/>
M	Material	FS_F2S2:TID_D1...			<input checked="" type="checkbox"/>
A	FaradayCup	FaradayCup 3			<input type="checkbox"/>
D	** Dipole	C_D3	0	9.745	<input checked="" type="checkbox"/>
M	Material	DB4 PPAC			<input type="checkbox"/>
D	** Dipole	C_D4	0	9.809	<input checked="" type="checkbox"/>
M	Material	FS_F3S2:PM_D1...			<input type="checkbox"/>
M	Material	FS_F3S2:PM_D1...			<input type="checkbox"/>
S	_slits_	FS_F3S2:SLH/...		0	<input checked="" type="checkbox"/>
M	Material	FS_F3S2:TID_D1... DB5_Sci			<input checked="" type="checkbox"/>
M	Material	FS_F3S2:ELD_D1...			<input checked="" type="checkbox"/>
M	Material	FS_F3S2:ELD_D1...			<input checked="" type="checkbox"/>

Spectrometer design

Block	Nickname	Official	Z-q	Length, m	Enable
S	_slits_	DB2 slits		0	<input checked="" type="checkbox"/>
W	Wedge	DB2 Wedge			<input type="checkbox"/>
D	** Dipole	C_D2	0	9.745	<input checked="" type="checkbox"/>
A	FaradayCup	FaradayCup 2			<input type="checkbox"/>
M	Material	FS_F2S2:PM_D1...			<input type="checkbox"/>
S	_slits_	FS_F2S2:SLH_D1...		0	<input checked="" type="checkbox"/>
W	Wedge	FS_F2S2:WED_D...			<input type="checkbox"/>
M	Material	FS_F2S2:PM_D1...			<input type="checkbox"/>
M	Material	FS_F2S2:TID_D1...			<input checked="" type="checkbox"/>
A	FaradayCup	FaradayCup 3			<input type="checkbox"/>
D	** Dipole	C_D3	0	9.745	<input checked="" type="checkbox"/>
M	Material	DB4 PPAC			<input type="checkbox"/>
D	** Dipole	C_D4	0	9.809	<input checked="" type="checkbox"/>
M	Material	FS_F3S2:PM_D1...			<input type="checkbox"/>
M	Material	FS_F3S2:PM_D1...			<input type="checkbox"/>
S	_slits_	FS_F3S2:SLH/...		0	<input checked="" type="checkbox"/>
M	Material	DB5_Sci FS_F3S2:TID_D1855			<input checked="" type="checkbox"/>
M	Material	FS_F3S2:ELD_D1...			<input checked="" type="checkbox"/>
M	Material	FS_F3S2:ELD_D1...			<input checked="" type="checkbox"/>

Button to swap Nickname and Official name



Selected block: Material(Detector)

Enable

Set block name automatically

Block nickname: FS_F3S2:TID_D1855

Block Length [m]: 0

Official name: DB5_Sci

Length after [m]: 85.401

Block Comment: scintillator , company ****, model ****, Sequence number: 33

Selected block: Material(Detector)

Enable

Set block name automatically

Block nickname: DB5_Sci

Block Length [m]: 0

Official name: FS_F3S2:TID_D1855

Length after [m]: 85.401

Block Comment: scintillator , company ****, model ****, Sequence number: 33

New column "Official name" in the setup dialogs

Spectrometer design

Block	Nickname	Official	Z-q	Length, m	Enable
Wedge	DB2 Wedge				
** Dipole	C_D2		0	9.745	✓
FaradayCup	FaradayCup 2				
Material	DB3_PPAC1	FS_F2S2:PM_D1658			
slits	DB3_slis	FS_F2S2:SLH_D1662		0	✓
Wedge	DB3_wedge	FS_F2S2:WED_D1660			
Material	DB3_PPAC2	FS_F2S2:PM_D1663			
Material	DB3_Sci	FS_F2S2:TID_D1664			✓
FaradayCup	FaradayCup 3	FaradayCup 3			
** Dipole	C_D3		0	9.745	✓
Material	DB4_PPAC				
** Dipole	C_D4		0	9.809	✓
Material	DB5_PPAC1	FS_F3S2:PM_D1849			
Material	DB5_PPAC2	FS_F3S2:PM_D1853			
slits	DB5_slits	FS_F3S2:SLH/V_1854		0	✓
Material	DB5_Sci	FS_F3S2:TID_D1855			✓
Material	DB5_Si_dE	FS_F3S2:ELD_D1857			✓
Material	DB5_Si_TKE	FS_F3S2:ELD_D1858			✓
** Dipole	C_D5		0	0	

Selected block

Enable Material(Detector)

Set block name automatically

Block nickname Block Length [m]

Official name Length after [m]

Block Comment Sequence number

Optic settings (fast editing)

Block	Nick Name	Official Name	Start (m)	Length (m)	B0(kG)*U	Br(Tm)cor*real	DriftM*Angle
drift	shield		0	0.502			standard
Rotate	RAm90		0.502	0			
** Dipole	PS1A		0.502	7.705	+14.0093	* 5.6037	* +30.0
finger	Drift 2		8.207	0			FiNgEr
** Dipole	PS1B		8.207	10.2	-14.0093	* 5.6037	* -30.0
slits	Drift 3		18.407	0			SLITS
** Dipole	PS1C		18.407	13.86	-13.9197	* 5.5679	* -50.0
** Dipole	PS1D		32.267	14.141	+13.9197	* 5.5679	* +50.0
slits	PS_FP_slit		46.408	0			SLITS
Rotate	RA90		46.408	0			
** Dipole	C_D1		46.408	9.694	+12.1676	* 5.5679	* +30.0
slits	DB2 slits		56.102	0			SLITS
** Dipole	C_D2		56.102	9.745	+12.1676	* 5.5679	* +30.0
slits	DB3_slis	FS_F2S2:SLH_D1662	65.847	0			SLITS
** Dipole	C_D3		65.847	9.745	+12.1403	* 5.5554	* +30.0
** Dipole	C_D4		75.592	9.809	+12.1403	* 5.5554	* +30.0
slits	DB5_slits	FS_F3S2:SLH/V_1854	85.401	0			SLITS

Selected block

Drift (multipole,slits)

Block name set default name

Block Length [m]

Length after this block [m]

Block Edit

Multipole Edit

Cuts,Acceptances

Optical Matrix

Angular acceptance (mrad)

Horizontal ± Use

Vertical ±

Shape Rectangle Ellipse

Inside Apert min

X=

Y=

Shape Rectangle

If block official name exists, then both names are plotted in the block edit dialog

DB3_Sci <> FS_F2S2:TID_D1664

H₁₀C₉

calculate reactions in this material

Z	Element	Mass	Stoich
<input checked="" type="checkbox"/>	1 H	1.008	10
<input checked="" type="checkbox"/>	6 C	12.011	9
<input type="checkbox"/>	14		
<input type="checkbox"/>	14		
<input type="checkbox"/>	14		

Compound dictionary

OK Cancel

Density 1.032

State of Matter
 Solid
 Gas

Thickness at 0 degrees
 250 μm
 25.8 mg

Atoms / cm² 2.50e+

General block settings

Calibration, Resolution, Thickness defect

C_D1 <> official name

Dispersive block (M-dipole)

Strength

Brho 5.56789 Tm
 B 1.21676 T
 I

Bend Sector

Radius = 4.576 m
 Angle = 30 deg
 Length = 2.396 m

OK
 Cancel
 Help

Optical block properties and Section-Element construction

S-block (Section)

Setting Charge state for the Block (Z-q)

Tweak 0.2 %

Slits & Acceptances

Optical matrix

General block settings

E=A*
 Ch+B Calibration file

Matrix calculation

Matix calculation

If “Official name” or “comment” string size are > 1 ,
then these strings are stored in a file

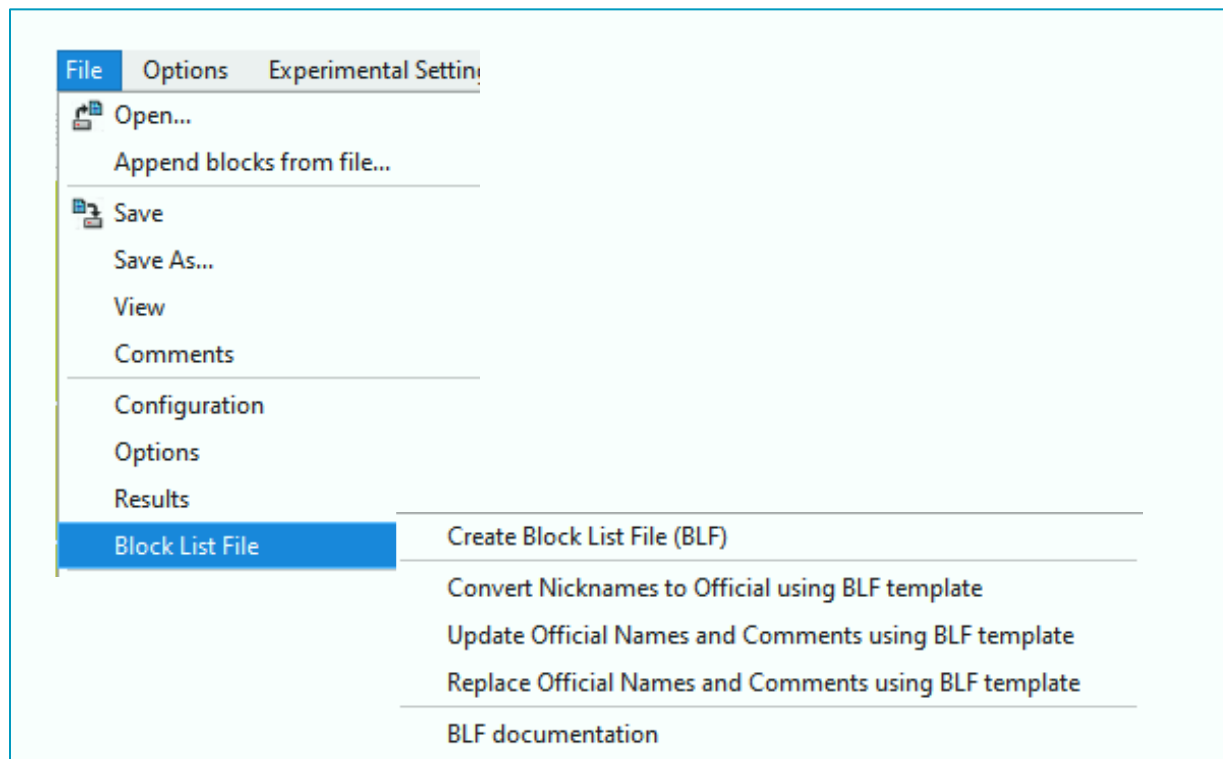
```

C:/temp/t6.lpp
Save As Print PrintView Consolas 9

{===== BLOCK S7 - Drift =====}

[S7_General]
    Name = DB5 slits,1 ; Name of Block, Constant name 1/0
    Official = FS_F3S2:SLH/V_1854
    .....
{===== BLOCK M8 - Material =====}

[M8_General]
    Name = DB5_Sci_1 ; Name of Block, Constant name 1/0
    Official = FS_F3S2:TID_D1855
    Comment = scintillator, company, model
    Available = 1
    Length = 0 m ; Length block for optical blocks
    
```



- Default extensions : “csv” or “blf”
- Fields separated by comma
- BLF can be edited in Excel with keeping format

```

Lister - [c:\temp\ARIS.blf]
File Edit Options Encoding Help
N,Block,Nickname,Official,use,Length,after,comment
3,drift,shield,,1,0.502,0.502,
4,rotate,RA90,,1,0,0.502,
5,dipole,PS1A,,1,7.705,8.207,
6,finger,Drift 2,,1,0,8.207,mycomment
7,dipole,PS1B,,1,10.2,18.407,
8,slits,Drift 3,,1,0,18.407,
9,wedge,PS_wdg,,1,0,18.407,
10,dipole,PS1C,,1,13.86,32.267,
11,dipole,PS1D,,1,14.141,46.408,
12,faraday,FaradayCup 1,,0,0,46.408,
13,slits,PS_FP_slit,,1,0,46.408,
14,material,SlitsMaterial,,0,0,46.408,
15,rotate,RA90,,1,0,46.408,
16,dipole,C_D1,,1,9.694,56.102,
17,slits,DB2_slits,,1,0,56.102,
18,wedge,DB2_Wedge,,0,0,56.102,
19,dipole,C_D2,,1,9.745,65.847,
20,faraday,FaradayCup 2,,0,0,65.847,
21,material,DB3_PPAC1,FS_F2S2:PM_D1658,0,0,65.847,
22,slits,DB3_slis,FS_F2S2:SLH_D1662,1,0,65.847,
23,wedge,DB3_wedge,FS_F2S2:WED_D1660,0,0,65.847,
24,material,DB3_PPAC2,FS_F2S2:PM_D1663,0,0,65.847,
25,material,DB3_Sci,FS_F2S2:TID_D1664,1,0,65.847,
26,faraday,FaradayCup 3,,0,0,65.847,
27,dipole,C_D3,,1,9.745,75.592,
28,material,DB4_PPAC,,0,0,75.592,
29,dipole,C_D4,,1,9.809,85.401,
30,material,DB5_PPAC1,FS_F3S2:PM_D1849,0,0,85.401,mycomment
31,material,DB5_PPAC2,FS_F3S2:PM_D1853,0,0,85.401,gggd
32,slits,DB5_slits,FS_F3S2:SLH/U_1854,1,0,85.401,
33,material,DB5_Sci,FS_F3S2:TID_D1855,1,0,85.401,pin diode
34,material,DB5_Si_dE,FS_F3S2:ELD_D1857,1,0,85.401,
35,material,DB5_Si_TKE,FS_F3S2:ELD_D1858,1,0,85.401,
36,dipole,C_D5,,0,0,85.401,
37,material,Exp Timing,,0,0,85.401,
38,material,Exp PIN,,0,0,85.401,
39,material,Exp TKE,,0,0,85.401,

```

- BLF file is considered as a separator block name database to adapt previous ARIS files to new name policy
- BLF utilities use only 3rd (Nickname), 4th (Official), and last (Comment) columns
- Pay attention: BLF utilities do not check names for doubling!
- Blocks Order and number of blocks are not important, so blocks from different configuration can be merged to one BLF file to be used as a separator name database.
- The initial file ARIS.blf is located in the /files/examples/FRIB/ directory, and is distributed with the LISE installation package.
- It's suggested secondary beam group leader responsibility for updating the ARIS.blf file.
- **CONVERT**: a block **nickname** of current file is searched in the “**official name**” column of a BLF. In case of a positive result, this block is getting nickname, official name and comment lines from a BLF.
- **UPDATE**: a block **nickname** of current file is searched in the “**nick name**” column of a BLF. In case of a positive result, this block official name and comment lines are updated with the BLF corresponding lines if these lines of this block are empty.
- **Replace**: a block **nickname** of current file is searched in the “**nick name**” column of a BLF. In case of a positive result, this block official name and comment lines are replaced with the BLF corresponding lines.

