





- Calculation of matrix between two selected blocks 
- The “New version check” dialog update for SSL 
- Effective dipole radius information (corresponds to B) in dipole dialogs 
- LISE development assistance team 
- Loading ARIS experimental settings (savesets)
https://lise.nsl.msui.edu/16/16_14_14_ARIS_savest.pdf
- Migration to Qt 6.5 LTS
- Update of ARIS dipole calibrations (by Shane)

We need this utility to create ARIS reconstruction maps

Experimental Settings Physics Models Calculat

- Projectile
- Target
- Stripper after Target
- Spectrometer Design
- Optics**
 - Tune spectrometer for the setting fragment on beam axis
 - Tune spectrometer for the setting fragment at middle of slit
 - OPTIMIZATION (optical element parameters fitting)
 - Manual recalculation of e-blocks matrices (only for Experts!)
 - Update matrices linked with COSY files
 - Multipole: set Action for all multipoles if Brho-value changes
 - Envelope plot
 - First order matrix elements: Plot
 - First order matrix elements: View & Print
 - Calculate matrix between two selected blocks**
 - Optic settings: FAST EDITING
 - Optic settings: View & Print
 - Brho (Erho) Analyser
 - The First- and Second- Order Matrix Elements for an Ideal Maget
- Gamma registration
- Setting Fragment
- Tune spectrometer for the primary beam

Matrix calculation between two blocks

1st block:

2nd block:

Both blocks will be included in calculation

Dimension: mm / mrad cm / mrad

Matrix from dummy+matrix to DB5_Slits

Number of blocks: 68; Length: 39.0942 m

transport format [mm-mrad]

```

* TRANSFORM 1 *
1 [X]: +9.4426e-01 +2.1197e-05 0 0 0 +1.6194e-03
2 [T]: -7.9454e-01 +1.0590e+00 0 0 0 -1.4270e-03
3 [Y]: 0 0 +7.8804e-01 -3.0366e-05 0 0
4 [F]: 0 0 +5.6530e-01 +1.2689e+00 0 0
5 [L]: +1.1513e-05 +1.0972e-05 0 0 +1.0000e+00 -1.3031e+01
6 [D]: 0 0 0 0 0 +3.0310e+00

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* TRANSFORM 2 *
1 1: +8.5792e-05
1 2: -2.6363e-03 -2.6428e-03
1 3: 0 0 +8.1473e-05
1 4: 0 0 +2.6782e-03 +2.6192e-03
1 5: 0 0 0 0 0
1 6: -2.1875e-04 +5.7659e-03 0 0 0 -3.4986e-03

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2 1: +7.0279e-03
2 2: +9.8076e-03 +4.5466e-03
2 3: 0 0 -1.0082e-02
2 4: 0 0 -1.2823e-02 -5.0851e-03
2 5: 0 0 0 0 0
2 6: +1.2558e-02 +2.2116e-02 0 0 0 +1.8386e-03

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3 1: 0
3 2: 0
3 3: +5.0096e-06 +7.6253e-04 0
3 4: +6.9289e-04 +9.7169e-04 0 0
3 5: 0 0 0 0 0
3 6: 0 0 -8.0253e-04 -2.7384e-03 0 0

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4 1: 0
4 2: 0
4 3: -3.1840e-02 -1.9573e-02 0
4 4: -1.8791e-02 -1.3859e-02 0 0
4 5: 0 0 0 0 0
4 6: 0 0 -2.4102e-02 -8.6520e-02 0 0

-----
5 1: +9.1964e-03
5 2: +1.1519e-02 +5.7945e-04
5 3: 0 0 -1.3353e-02
5 4: 0 0 -1.6005e-02 -1.0783e-02
5 5: 0 0 0 0 0
5 6: +2.9273e-03 -1.1780e-02 0 0 0 +2.1432e-03

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6 1: 0
    
```

Sasha's project

Week 17 (04/24/2023)

Sasha

- Adaption of the SSL Qt(v.6.5) example to reach the LISE site
- It's adaptation of this solution to the LISE code source
- Utility source quality improvement with substitution of char* style with reliable QString & QStringList classes
- but then the work stalled... the connection does not work in the LISE program

- Complete migration to Qt 6.5
- Merge official and local versions
- Improve Weekly report quality to clarify purpose, completed steps, next steps, problems
- Find out why Ssl is not supported in the LISE project though it is supported by all Qt network examples (not more than 4 hours)
 - Google
 - Play with openSsl
- Create “http” executable release version, which creates output resultfile in the LISE files folder
- Update LISE to read “http” result file in order to get new version information
- Then Instead “http” executable release version create “http” dll version and connect to LISE

https://wiki.qt.io/Deploy_an_Application_on_Windows

If the library is missing, then the message to send to the user, but not in this case

Initial deployment (Quick and dirty)

1. Close Qt Creator.
2. Copy the following into C:\Deployment\
 1. The *release version* of **MyApp.exe**
 2. All the **.dll files** from C:\Qt\5.2.1\mingw48_32\bin\
 3. All the **folders** from C:\Qt\5.2.1\mingw48_32\plugins\
 4. (If you used QML) All the **folders** from C:\Qt\5.2.1\mingw48_32\qml\
3. Rename C:\Qt\ to C:\Qt\Hidden\ (This turns your PC into a clean environment, just like one that doesn't have Qt installed).
4. Launch C:\Deployment\MyApp.exe.

If your app worked correctly, congratulations! You are almost ready for deployment. You don't want to ship a 1.5GB package though, so it's time to clean up unused files.

If it didn't work correctly, ask for help (see the Appendix)

Final deployment (Cleaned up)

Do the deletion steps below in C:\Deployment\ and all of its subdirectories. After each deletion, launch C:\Deployment\MyApp.exe and test it. If it stops working, restore it

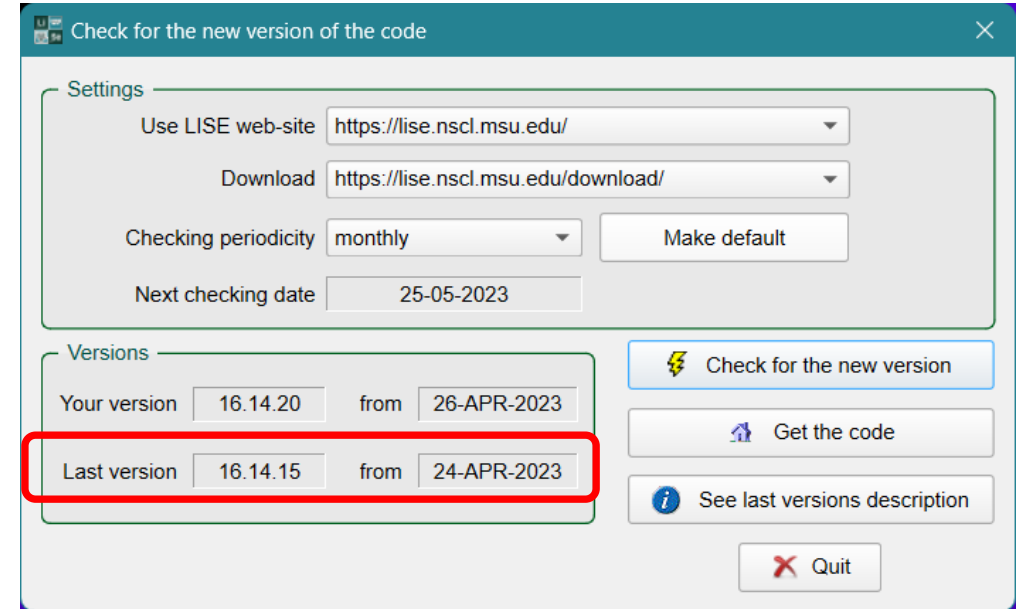
1. Launch MyApp.exe. While it is running, try to delete all DLLs. The DLLs that aren't used will go to the recycle bin, leaving behind only the DLLs that you need. (This t
2. (If you used QML) Delete a few .qml files and try relaunching MyApp.exe. Repeat until you try all .qml files.
3. (If you used QML) Delete *qmlDir* files from the folders that have no more DLLs or .qml files

When you have removed all the files that you don't need,

1. Rename C:\Qt\Hidden\ back to C:\Qt\ to restore your installation.
2. Distribute your app.

| Name | Ext | Size | ↓ Date |
|-----------------|-------|-----------|------------|
| [.] | <DIR> | | 04/25/2023 |
| [imageformats] | <DIR> | | 04/24/2023 |
| [platforms] | <DIR> | | 04/24/2023 |
| [styles] | <DIR> | | 04/24/2023 |
| [tls] | <DIR> | | 04/24/2023 |
| Charge | exe | 232,448 | 04/24/2023 |
| lisepp | ini | 0 | 04/24/2023 |
| Qt6Svg | dll | 359,600 | 03/25/2023 |
| Qt6Widgets | dll | 6,640,304 | 03/25/2023 |
| Qt6PrintSupport | dll | 406,192 | 03/25/2023 |
| Qt6Network | dll | 1,660,592 | 03/25/2023 |
| Qt6Gui | dll | 9,728,176 | 03/25/2023 |
| Qt6Core | dll | 6,510,776 | 03/25/2023 |
| libwinpthread-1 | dll | 53,248 | 11/16/2021 |
| libstdc++-6 | | | |
| libgcc_s_seh-1 | | | |

| Name | Ext | Size |
|------------------|-------|---------|
| [.] | <DIR> | |
| qschannelbackend | dll | 231,616 |
| qopensslbackend | dll | 342,720 |
| qcertonlybackend | dll | 105,152 |



Project completed

- Works if the calibration file contains the 4th column Reff
- Implemented for all ARIS dipoles (Shane)
- Reff is extrapolated as a function of B (field)
- It is supposed to develop a Reff use option for B ρ and block matrix calculations

| 1st column: | the Current (I [A]) | required |
|-------------|--------------------------------|----------|
| 2nd : | Magnetic field (B[T]) from NMR | required |
| 3rd : | set Magnetic field (B set[T]) | optional |
| 4th : | R effective (R[m]) | optional |

| # | i[A] | Bcenter[T] | Bprobe[T] | Reff[m]* | Ks[T.m] |
|---------|------|------------|-----------|-------------|----------|
| 5 | 10 | | | | |
| 33.61 | | 0.284716 | 0.284716 | 4.238133422 | 0.631808 |
| 67.082 | | 0.558486 | 0.558486 | 4.233366573 | 1.237932 |
| 100.82 | | 0.831364 | 0.831364 | 4.2280658 | 1.840482 |
| 134.48 | | 1.088346 | 1.088346 | 4.226003279 | 2.408216 |
| 167.96 | | 1.304729 | 1.304729 | 4.217994569 | 2.881542 |
| 201.55 | | 1.480764 | 1.480764 | 4.196071186 | 3.253324 |
| 234.97 | | 1.637448 | 1.637448 | 4.165843953 | 3.571652 |
| 270.17 | | 1.780775 | 1.780775 | 4.131173358 | 3.851954 |
| 302.04 | | 1.90511 | 1.90511 | 4.096135009 | 4.085949 |
| 336.136 | | 2.017083 | 2.017083 | 4.063302313 | 4.291425 |

Reff was calculated from Ks

https://lise.nscl.msu.edu/porting/porting_team.html#assistance



The LISE⁺⁺ Assistance Team

Members assisting on the LISE⁺⁺ code development

| | | |
|----------------------|----------------------|--|
| S. Watters | PHY/MSU grad | <ul style="list-style-type: none"> • ARIS extended configuration and calibration files • LISE optical utilities benchmarks |
| D. Kaloyanov | PHY/MSU undergrad | <ul style="list-style-type: none"> • migration of the LISE databases from DBF to MDB |
| A.O. Tarasova | CSE/MSU undergrad | <ul style="list-style-type: none"> • Adaptation of the LISE "new version" utility to SSL connection |
| A. Elkin | CSE/MSU undergrad | <ul style="list-style-type: none"> • LISE site statistics analysis |