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Vie_setup

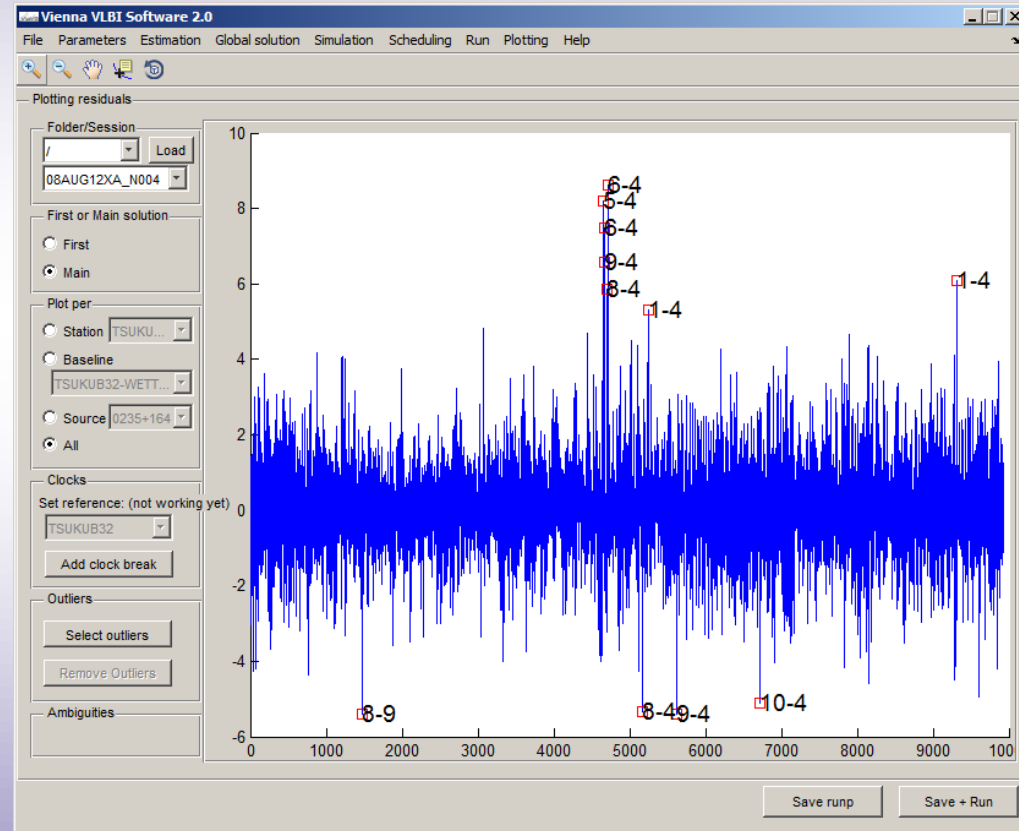
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VieVS User Workshop
11 – 13 September, 2012
Vienna






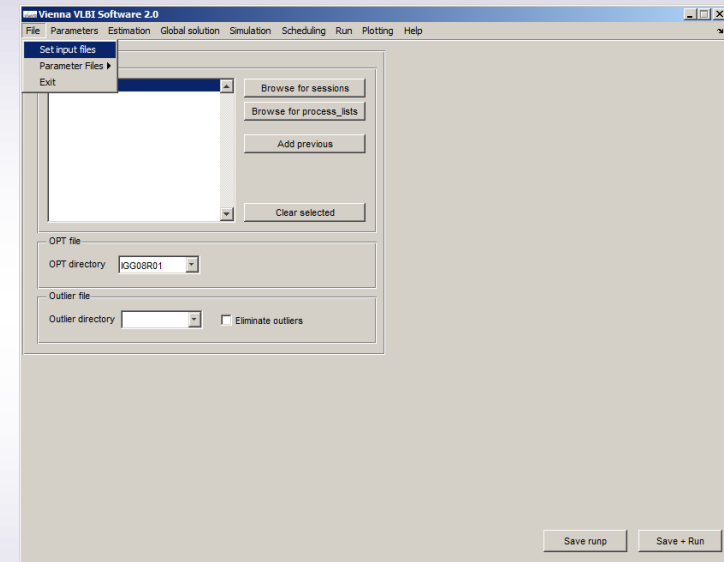
Vie_setup

-  Is GUI for Vienna VLBI Software
-  Is easy to use (windows style)
-  Comes with a plotting tool



Matlab interface

-  .m file - Code
-  .fig file – Objects
-  Starts by running .m file






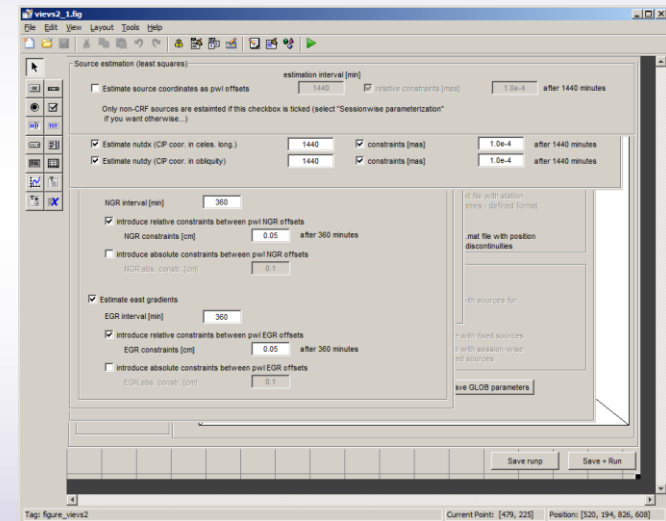
GUI .m file

- Consists of matlab code
- Callbacks for objects
- Further functions possible

```
146 - dirInlobTrDatum((dirInlobTrDatum.ledir))=[];
147 - dirInlobTrReduce((dirInlobTrReduce.ledir))=[];
148 - dirInlobTrFsscont((dirInlobTrFsscont.ledir))=[];
149 - dirInlobTrVel((dirInlobTrVel.ledir))=[];
150 - dirInlobTrVelTies((dirInlobTrVelTies.ledir))=[];
151 - dirInlobTrDatum((dirInlobTrDatum.ledir))=[];
152 - dirInlobCrfFixed((dirInlobCrfFixed.ledir))=[];
153 - dirInlobCrfReduce((dirInlobCrfReduce.ledir))=[];
154
155 % set new entries for popup menu
156 set(handles.popupmenu_setInput_optDir, 'String', (dirInOptFolder.name))
157 if isempty(dirInOutletFolder.name)
158     set(handles.popupmenu_setInput_outDir, 'String', ' ');
159 else
160     set(handles.popupmenu_setInput_outDir, 'String', ('', dirInOutletFolder.name));
161 end
162 set(handles.popupmenu_parameters_tropo_externalFile, 'String', (dirInTrpFolder.name))
163 set(handles.popupmenu_parameters_sonn_ext, 'String', (dirInIonFolder.name))
164 if isempty(dirInAntFolder)
165     set(handles.popupmenu_parameters_statCorr_nontidalAtmoOceanLoad, 'String', ' ');
166 else
167     set(handles.popupmenu_parameters_statCorr_nontidalAtmoOceanLoad, 'String', (dirInAntFolder.name))
168 end
169 set(handles.popupmenu_parameters_refFrame_otherTRF, 'String', (dirInTrfFolder.name))
170 if isempty(dirInCrfFolder)
171     set(handles.popupmenu_parameters_refFrame_otherCRF, 'String', ' ');
172 else
173     set(handles.popupmenu_parameters_refFrame_otherCRF, 'String', (dirInCrfFolder.name))
174 end
175 set(handles.popupmenu_parameters_statCorr_tidalAtmoOceanLoad, 'String', (dirInOsideFolder.name))
176 set(handles.popupmenu_parameters_statCorr_tidalAtmoOceanLoad, 'String', (dirInKsideFolder.name))
177 if isempty(dirInHydFolder)
178     set(handles.popupmenu_parameters_statCorr_hydroLoading, 'String', ' ');
179 else
180     set(handles.popupmenu_parameters_statCorr_hydroLoading, 'String', (dirInHydFolder.name));
181 end
182 set(handles.popupmenu_parameters_sop_aPriori_other, 'String', (dirInEopFolder.name))
183 set(handles.popupmenu_parameters_sop_oceanTideModel, 'String', (intstrp (OceanTideModel), (dirInEopFolder.name)));
184 set(handles.popupmenu_plot_folder_subFolder, 'String', ['/'], (dirInDataFolder.name));
185 set(handles.popupmenu_plot_folder2_subFolder, 'String', ['/'], (dirInDataFolder.name));
186 set(handles.popupmenu_plot_folder3_subFolder, 'String', ['/'], (dirInDataFolder.name));
187 set(handles.popupmenu_plot_residuals_folder, 'String', ['/'], (dirInDataFolder.name));
188 set(handles.listbox_vis_ein_paramFile, 'String', (dirInTurFolder.name))
```

GUI .fig file

-  All objects (panels, buttons, text, boxes,...)
-  Create/Change with GUIDE
-  Simple (code behind is more difficult)



GUI handles structure

➤ One variable for all content

➤ GUI parameters (state)

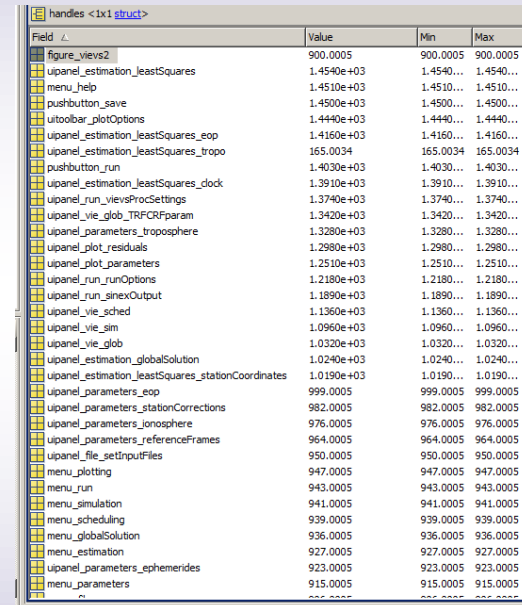
➤ User data

➤ Overgiven in functions
(function → need to be saved or returned)

➤ Fields are object handles



get(handles.checkbox_run_allowStationwise, ...

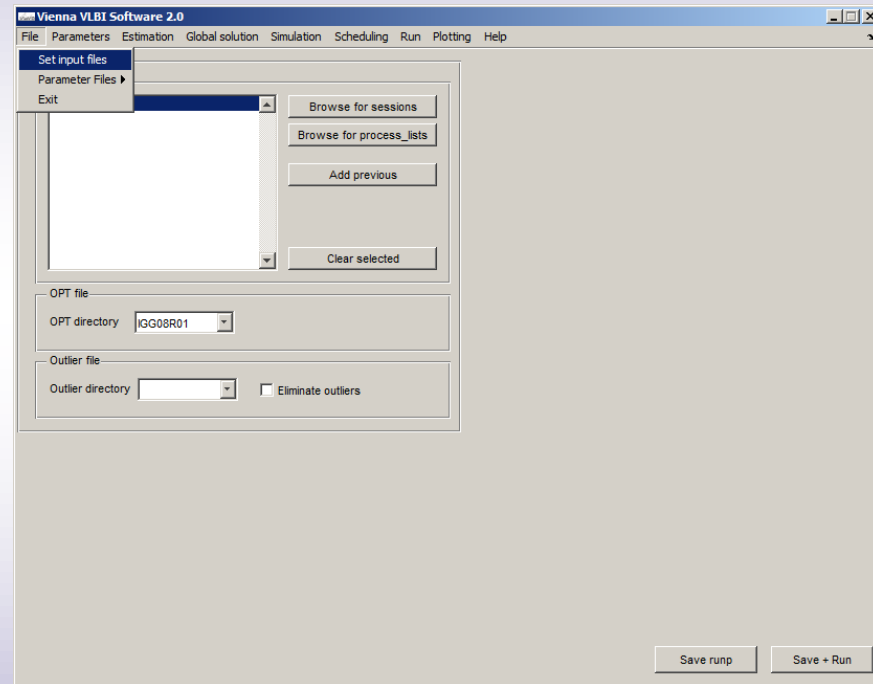
'Value') returns current value of checkbox (1 oder 0)



Field	Value	Min	Max
figure_views2	900.0005	900.0005	900.0005
upanel_estimation_leastSquares	1.4540e+03	1.4540...	1.4540...
menu_help	1.4510e+03	1.4510...	1.4510...
pushbutton_save	1.4500e+03	1.4500...	1.4500...
toolbar_plotOptions	1.4440e+03	1.4440...	1.4440...
upanel_estimation_leastSquares_eop	1.4160e+03	1.4160...	1.4160...
upanel_estimation_leastSquares_tropo	165.00034	165.00034	165.00034
pushbutton_run	1.4030e+03	1.4030...	1.4030...
upanel_estimation_leastSquares_clock	1.3910e+03	1.3910...	1.3910...
upanel_run_viewsProcSettings	1.3740e+03	1.3740...	1.3740...
upanel_vie_glob_TRFCRParam	1.3420e+03	1.3420...	1.3420...
upanel_parameters_troposphere	1.3280e+03	1.3280...	1.3280...
upanel_plot_residuals	1.2980e+03	1.2980...	1.2980...
upanel_plot_parameters	1.2510e+03	1.2510...	1.2510...
upanel_run_runOptions	1.2180e+03	1.2180...	1.2180...
upanel_vie_sined	1.1890e+03	1.1890...	1.1890...
upanel_vie_sined	1.1360e+03	1.1360...	1.1360...
upanel_vie_sim	1.0960e+03	1.0960...	1.0960...
upanel_vie_glob	1.0320e+03	1.0320...	1.0320...
upanel_estimation_globalSolution	1.0240e+03	1.0240...	1.0240...
upanel_estimation_leastSquares_stationCoordinates	1.0190e+03	1.0190...	1.0190...
upanel_parameters_eop	999.0005	999.0005	999.0005
upanel_parameters_stationCorrections	982.0005	982.0005	982.0005
upanel_parameters_ionosphere	976.0005	976.0005	976.0005
upanel_parameters_referenceFrames	964.0005	964.0005	964.0005
upanel_file_setInputFiles	950.0005	950.0005	950.0005
menu_plotting	947.0005	947.0005	947.0005
menu_run	943.0005	943.0005	943.0005
menu_simulation	941.0005	941.0005	941.0005
menu_scheduling	939.0005	939.0005	939.0005
menu_globalSolution	936.0005	936.0005	936.0005
menu_estimation	927.0005	927.0005	927.0005
upanel_parameters_ephemerides	923.0005	923.0005	923.0005
menu_parameters	915.0005	915.0005	915.0005

Minimum for VieVS

-  Select session(s)
-  Click „Save + Run“



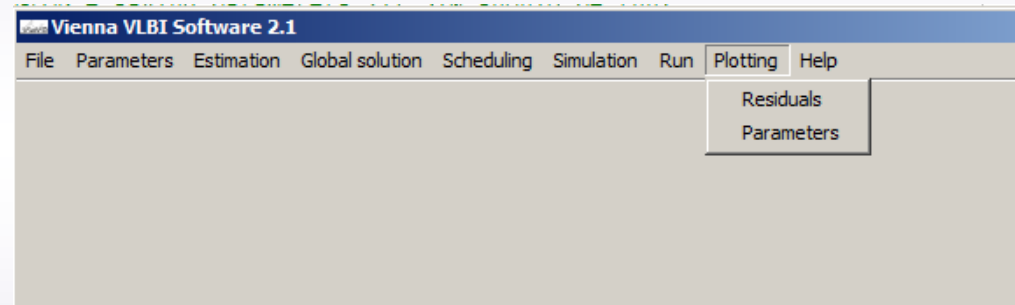
More options

- 👤 A priori models (vie_mod)
- 👤 Estimation options (vie_ism)
- 👤 Scheduling (vie_sched)
- 👤 Simulation (vie_sim)
- 👤 Global solution (vie_glob)

Plotting

In menu Plotting

- Residuals
- Parameters



Plot residuals

 First (only clock+zwd)

→ Clock breaks

 Main solution

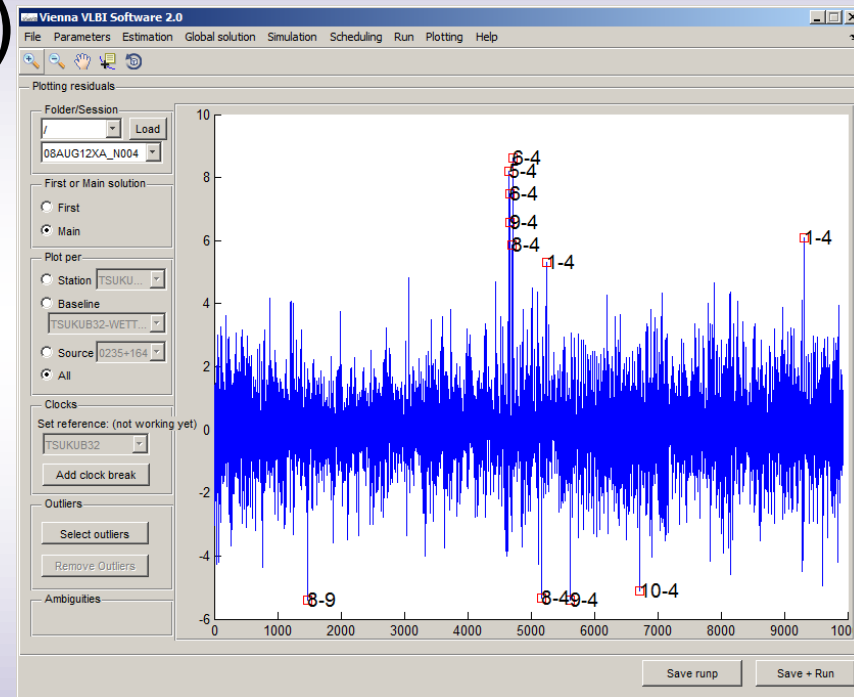
 Baseline-wise

 Station-wise






 Source-wise

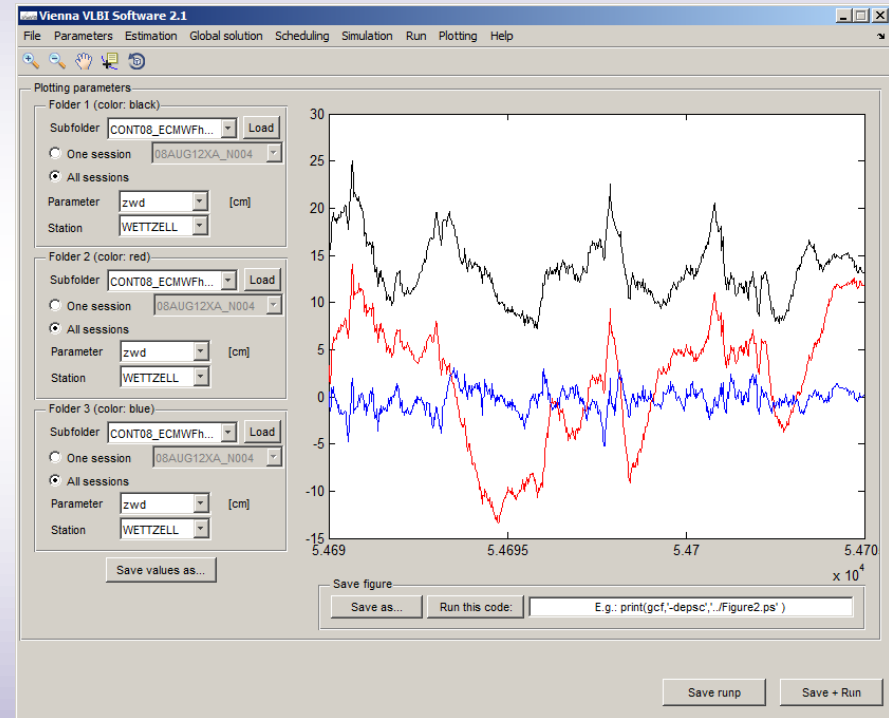
+ Clock breaks adding

+ Outlier selection



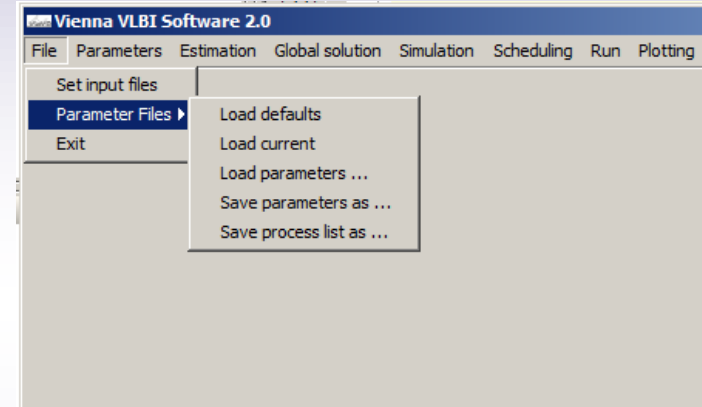
Plot parameters

-  One/all session(s) in folder
-  Parameters per station
-  Comparison (up to three) possible
-  Save values as text
-  Print to any format






Save and load GUI state

- Get GUI options from a parameter file
 - Same parameterization
- Defaults
- Current – before very latest action
- Save process_list



Program structure

-  `>> views` opens current GUI version (2.0)
-  `>> views('xx')` opens GUI of version x.x
-  `>> views('batch')` runs batch version of views

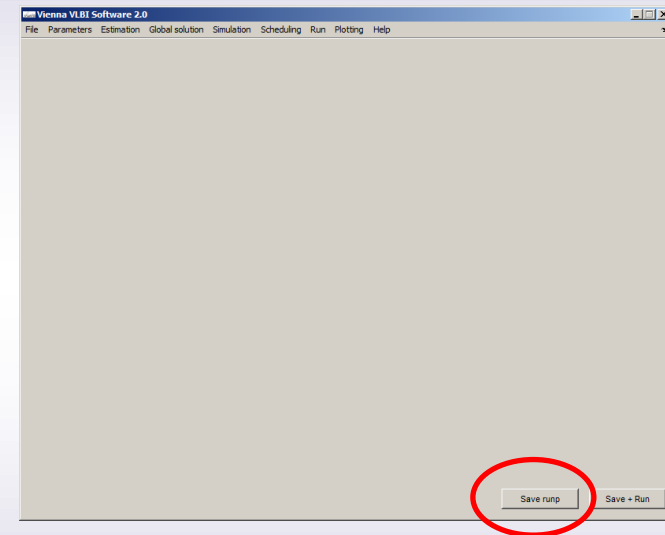
GUI = Prepare processing

Batch = Do processing




vie_setup

→ Save runp („Last user action in GUI“)

- Creates input protocol
- Saves runp.mat
- Saves process_list.mat
- Saves parameter.mat file(s)
- Saves sched, sim and glob parameters






Input protocol

-  input_protocol.txt in /WORK/
-  Saves GUI options (models,...) in textfile
-  For user information (not used in processing!)

```
D:\VieVS\WORK\input_protocol.txt - Notepad++
Datei Bearbeiten Suchen Ansicht Kodierung Sprachen Einstellungen Makro Ausfuehren TextFX Erweiteru...
createWorldMapWithGriddedData.bat EOT11a_M2_amplitude.txt input_protocol.txt
1 created [yr mon day h min sec]: 2012 9 4 11 16 51
2
3
4 selected input files and models
5
6 -----
7
8 OPT directory: IGG08R01
9 OUTLIER directory:
10 remove outliers: 0
11
12 a priori TRF file: ../TRF/superstation.mat
13 TRF field (for main station file): vtrf2008
14
15 a priori CRF: ICRF2
16
17 cut-off elevation angle: 0 degree
18 quality code limit: 0
19
20 info about pressure and temperature: ngs
21 info about ionosphere: ngs
22
23 ephemerides: jpl_421
24
25 EOP file: C04 08
26 ocean tides: interpf (Conventions)
27 libration in xpol, ypol: 1
28 libration in UT1: 1
29 EOP interpolation: lagrange
30 tidal UT variations: 1
31
32 precession/nutation model: IAU_2006/2000A
33
34 solid Earth tides: 1
35 tidal ocean loading: 1 , FES2004.mat
36 tidal atmosphere loading: 1 , s12_cm_noib_leonid.mat
37 non-tidal atmosphere loading: 1 , GSFC
38 pole tide: 1 , mean pole model: cubic
39 ocean pole tide: 1 , mean pole model: cubic
40 hydrology loading: 0 , GSFC
41
42 antenna thermal deformation: 1
43 a priori troposphere gradients: zero
44 mapping functions: VM1
45
```

Runp.mat

-  In /WORK/
-  Is overwritten (exists once)
-  Gives:
 - paths (LEVELx subfolders)
 - 1|0 for all modules




```
Command Window
>> load('D:\VieVS\WORK\runp.mat')
>> runp

runp =

    init_path: [1x0 char]
    mod_path: [1x0 char]
    lsm_path: [1x0 char]
    sched: 0
    init: 1
    mod: 1
    lsm: 1
    glob: 0

fx >> |
```


Process_list.mat

-  In /WORK/
-  Is overwritten (exists once)
-  Gives VLBI experiments
(one line = one session)

```
Command Window
>> load('D:\VieVS\WORK\process_list.mat')
>> process_list

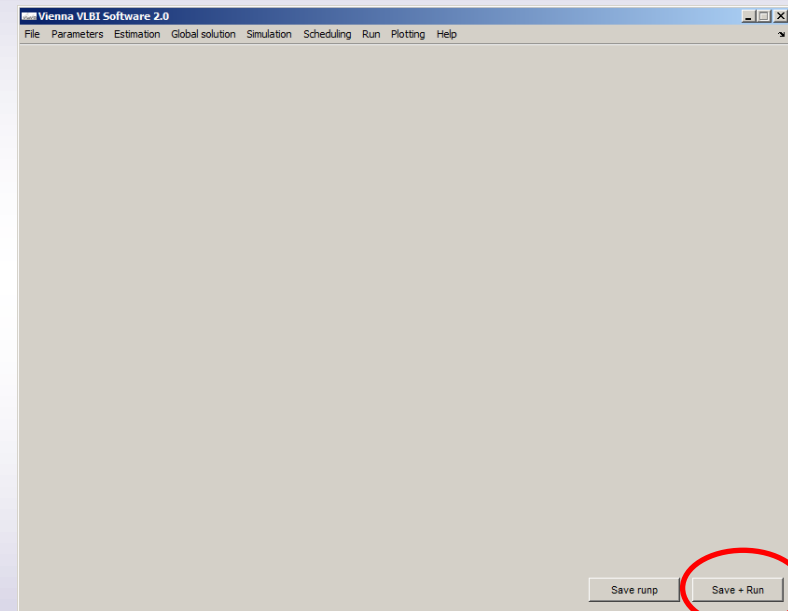
process_list =

2011/11APR04XA_N005

fx >>
```

Vie_batch (1)

- Does (batch) processing
- E.g. `vie_batch2_0.m`
- Independent from GUI
- Does processing (`vie_init`, `vie_mod`, `vie_lsm`, ...)



Vie_batch (2)

