

A New GUI for BURT

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Introduction

- Requirement to save machine settings
 - output PVs, status values etc.
- Restore following machine restart.
- Restore to a known working configuration
- Save settings for different machine operation modes and restore to revert to that mode.

Why?

Study of Diamond requirements and survey of available software

- BURT
- autoSaveRestore
- Channel Watcher (SLAC)
- CASR (APS)

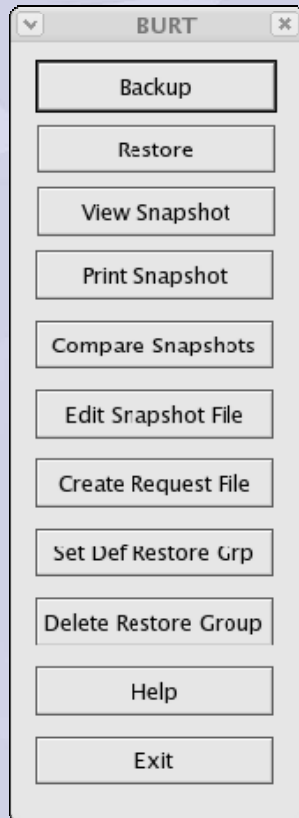
Why?

- BURT for operator save / restore of settings
- autoSaveRestore for automatic save / bumpless reboot

Why?

- Looked at existing GUI for BURT.
- BURTGOOEY
- BESSY front end
- New Diamond front-end based on Python/Qt.

Basic Requirements

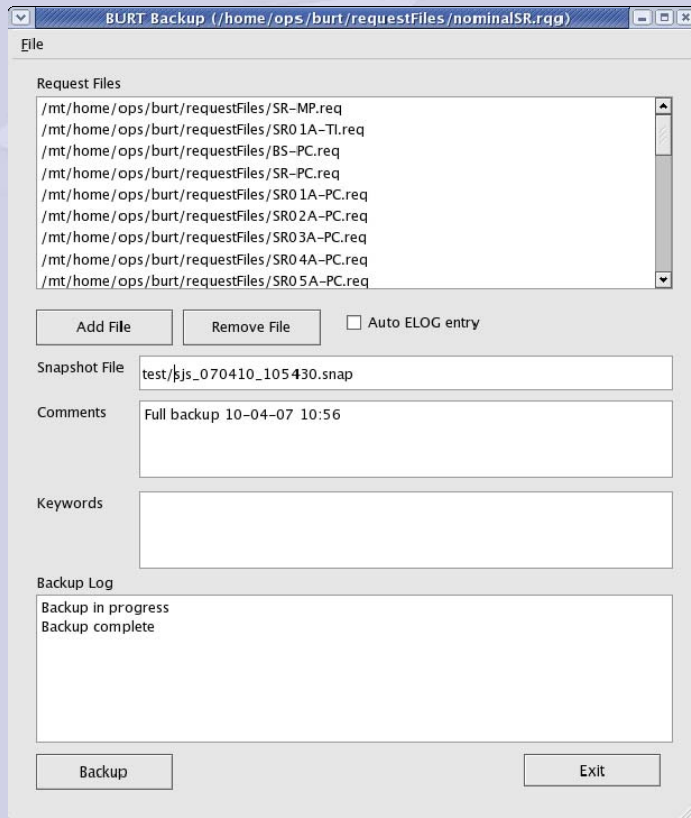


- Backup, restore
- View, print, compare
- Create request files
- Edit Snapshots

Evolving Requirements

- Request File Management
- Backup File Management
- Request File Groups
- Backup to single/multiple files
- Restore Groups
- Default Restore Groups
- Dated directories
- Mandatory comments
- Auto ELOG of save / restore

Backup



- Select list of snapshot files or request group
- Default file name
- Pop-up box on success/failure
- Report details of errors in log field and file
- Automatic ELOG

Restore

BURT Restore (/home/ops/burt/backupFiles/Apr07/cc83_070405_142745.rgr)

File

Snapshot Files

Snapshot File	Generated from Request File
/home/ops/burt/backupFiles/Apr07/LI-PC/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LI-PC.req
/home/ops/burt/backupFiles/Apr07/LI-DI/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LI-DI.req
/home/ops/burt/backupFiles/Apr07/LI-RF/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LI-RF.req
/home/ops/burt/backupFiles/Apr07/LI-TI/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LI-TI.req
/home/ops/burt/backupFiles/Apr07/LB-PC/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LB-PC.req
/home/ops/burt/backupFiles/Apr07/LB-DI/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/LB-DI.req
/home/ops/burt/backupFiles/Apr07/BR-DI/cc83_070405_142745.snap	/mt/home/ops/burt/requestFiles/BR-DI.req

Browse Add File Remove File Validate Auto ELOG entry

Restore Log

```
BR01C-MP-PLC-02:SETFILTER ... ca_array_put() nelem 1 ... Write access denied
BR02C-MP-PLC-01:SETFILTER ... ca_array_put() nelem 1 ... Write access denied
BR03C-MP-PLC-01:SETFILTER ... ca_array_put() nelem 1 ... Write access denied
BR04C-MP-PLC-01:SETFILTER ... ca_array_put() nelem 1 ... Write access denied
Cannot write to status PVCS-CS-MSTAT-01:LBBURT
Cannot write to status PVCS-CS-MSTAT-01:LBBURTPATH
```

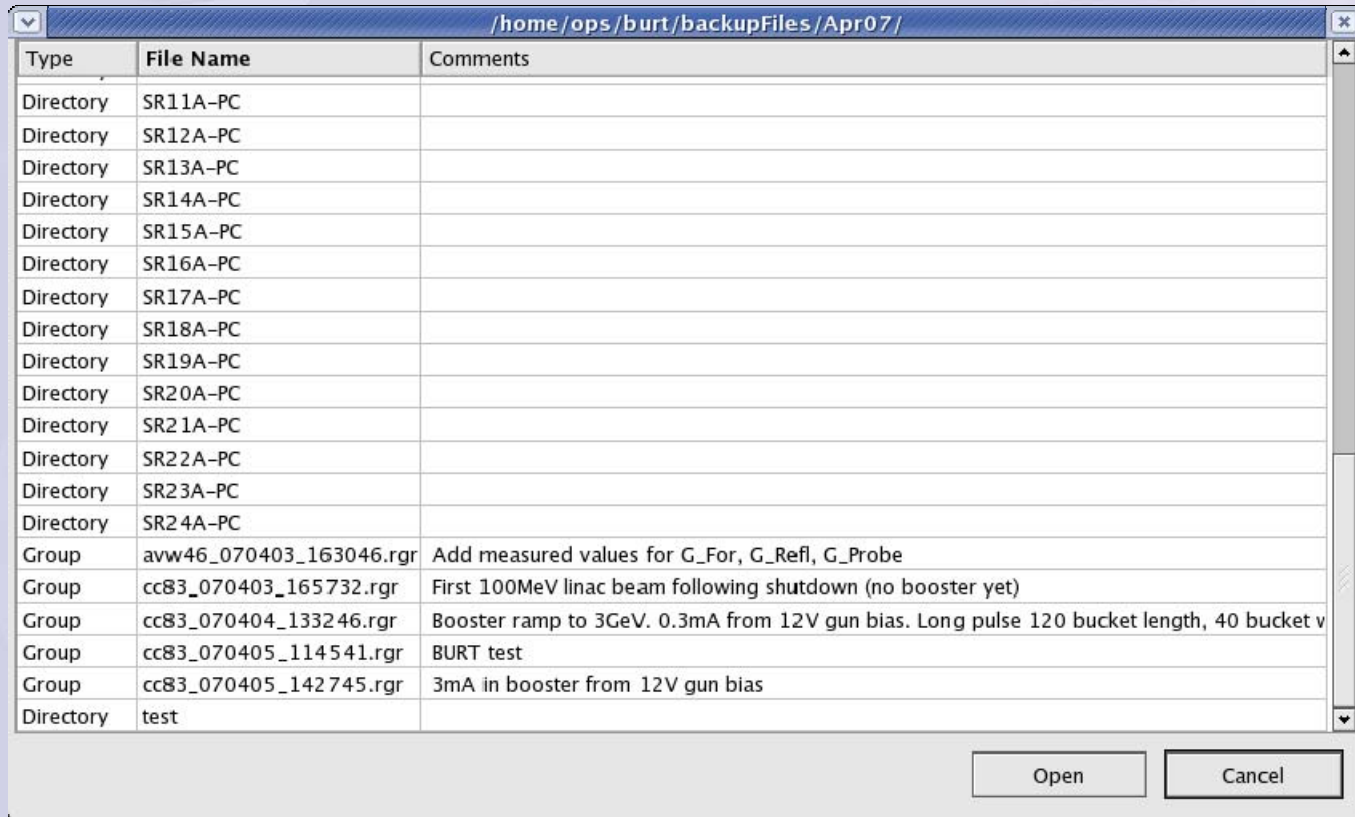
Restore complete

Restore Exit

Restore

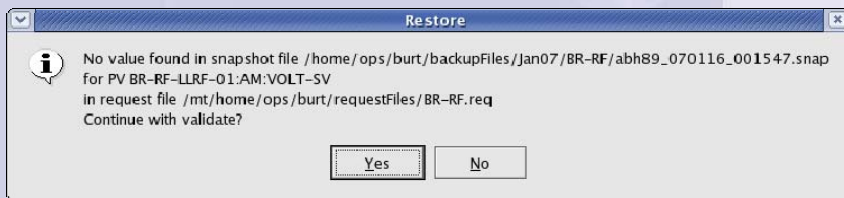
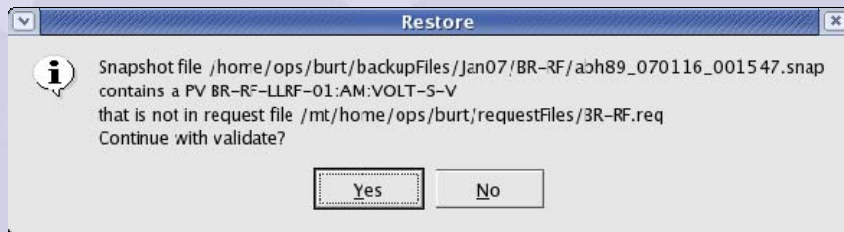
- Select restore group or individual snapshot files
- Show request group for each snapshot file
- Pop-up for success/failure
- Error details in log box / file
- Automatic ELOG
- Save restore group pathname to PV

Restore File Browser



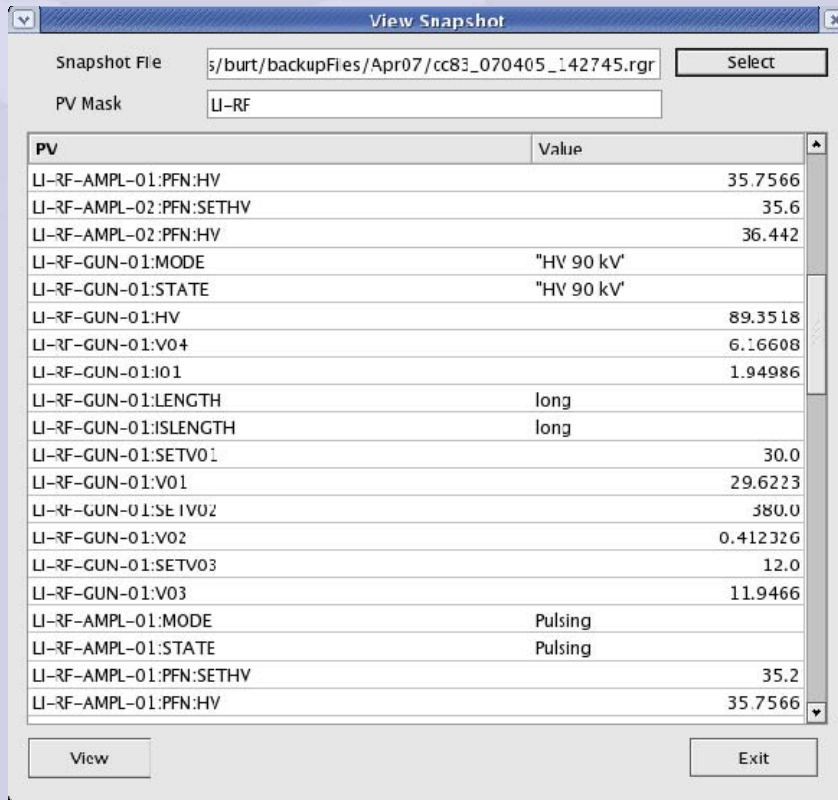
Type	File Name	Comments
Directory	SR11A-PC	
Directory	SR12A-PC	
Directory	SR13A-PC	
Directory	SR14A-PC	
Directory	SR15A-PC	
Directory	SR16A-PC	
Directory	SR17A-PC	
Directory	SR18A-PC	
Directory	SR19A-PC	
Directory	SR20A-PC	
Directory	SR21A-PC	
Directory	SR22A-PC	
Directory	SR23A-PC	
Directory	SR24A-PC	
Group	avw46_070403_163046.rgr	Add measured values for G_For, G_Ref1, G_Probe
Group	cc83_070403_165732.rgr	First 100MeV linac beam following shutdown (no booster yet)
Group	cc83_070404_133246.rgr	Booster ramp to 3GeV. 0.3mA from 12V gun bias. Long pulse 120 bucket length, 40 bucket v
Group	cc83_070405_114541.rgr	BURT test
Group	cc83_070405_142745.rgr	3mA in booster from 12V gun bias
Directory	test	

Validate Restore



- PV in request file missing from snapshot
- PV in snapshot not in request file
- Duplicate PV in restore (e.g. in two snapshot files)

View Snapshot



Snapshot File: s:/burt/backupFiles/Apr07/cc83_070405_142745.rgr

PV Mask: LI-RF

PV	Value
LI-RF-AMPL-01:PFN:HV	35.7566
LI-RF-AMPL-02:PFN:SETHV	35.6
LI-RF-AMPL-02:PFN:HV	36.442
LI-RF-GUN-01:MODE	"HV 90 kV"
LI-RF-GUN-01:STATE	"HV 90 kV"
LI-RF-GUN-01:HV	89.3518
LI-RF-GUN-01:V04	6.16608
LI-RF-GUN-01:I01	1.94986
LI-RF-GUN-01:LENGTH	long
LI-RF-GUN-01:ISLENGTH	long
LI-RF-GUN-01:SETV01	30.0
LI-RF-GUN-01:V01	29.6223
LI-RF-GUN-01:SE IV02	380.0
LI-RF-GUN-01:V02	0.412326
LI-RF-GUN-01:SETV03	12.0
LI-RF-GUN-01:V03	11.9466
LI-RF-AMPL-01:MODE	Pulsing
LI-RF-AMPL-01:STATE	Pulsing
LI-RF-AMPL-01:PFN:SETHV	35.2
LI-RF-AMPL-01:PFN:HV	35.7566

Buttons: View, Exit

- View single snapshot or Restore Group.
- PV mask.
- Display PVs in human-readable form – floating point or exponential as appropriate.

Compare Snapshots

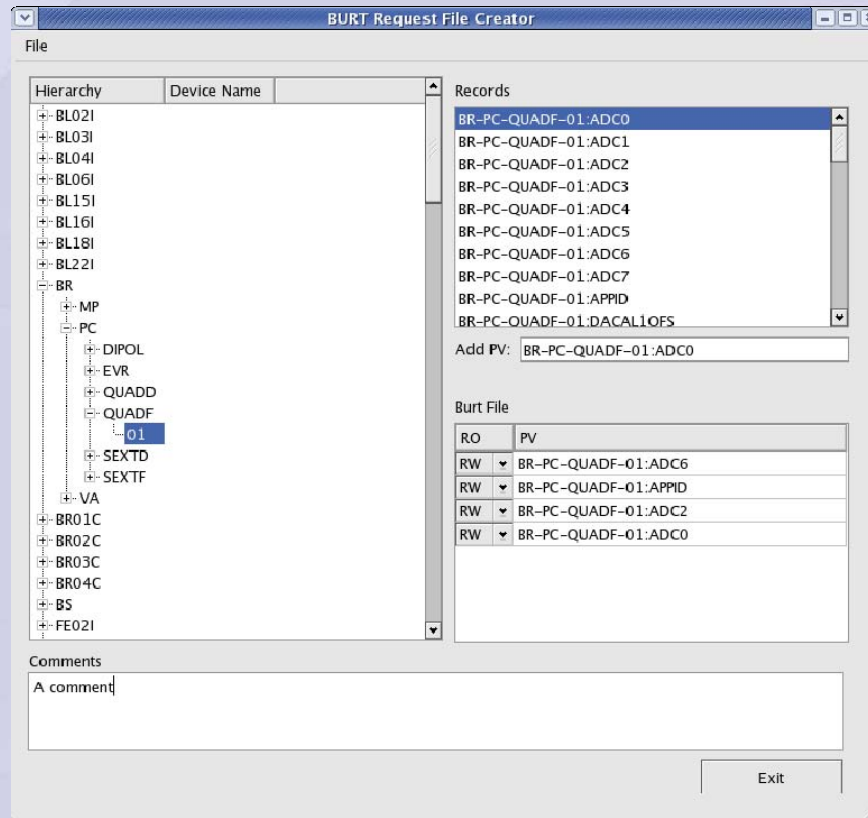
Compare Snapshots

Snapshot 1

Snapshot 2

PV	Snapshot 1	Snapshot 2
BR-RF-LLRF-01:PH:ABS-S	21000.0	10000.0
BR-RF-LLRF-01:AM:VOLT-S-V	0.0	N/A
BR-RF-LLRF-01:AM:WAVE	0.801251	0.701042
BR-RF-CRCAV-01:PR-S.VAL	1.65	1.65
BR-RF-CRCAV-01:PF-S.VAL	1.15	1.15
BR-RF-CRLD-01:PR-S.VAL	1.0	1.0
BR-RF-CRLD-01:PF-S.VAL	0.9	0.9
BR-RF-ICS-01:MAXFAULT-S.VAL	0.0	0.0
BR-RF-ICS-01:MINSTATE-S.VAL	0.0	0.0
BR-RF-DRV-01:PR.AOFF	0.0	0.0
BR-RF-DRV-01:PR.ASLO	1.0	1.0
BR-RF-DRV-01:PF.AOFF	0.0	0.0
BR-RF-DRV-01:PF.ASLO	1.0	1.0
BR-RF-HPA-01:PKF.AOFF	0.0	0.0
BR-RF-HPA-01:PKF.ASLO	1.0	1.0
BR-RF-HPA-01:PKR.AOFF	0.0	0.0
BR-RF-HPA-01:PKR.ASLO	1.0	1.0
BR-RF-LLRF-01:AM:VOLT-SV	N/A	0.0

Create Request File



Create Request File

- Tree view of database – expand, contract, select PVs as required.
- Derived by parsing .db files
- PV list stored in a flat file which is only regenerated if out-of date.
- Not widely used.

Miscellaneous

- Edit snapshot file
- Set Default Restore Group
- Delete Restore Group
- Help

Summary

- New front-end to BURT.
- Close fit to Diamond requirements (not always clearly expressed – developed by iteration).
- Extensively used during machine commissioning and operation.
- Still evolving.

A New GUI for BURT

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