



Improvements to Hall C High Voltage Backup-Restore Program

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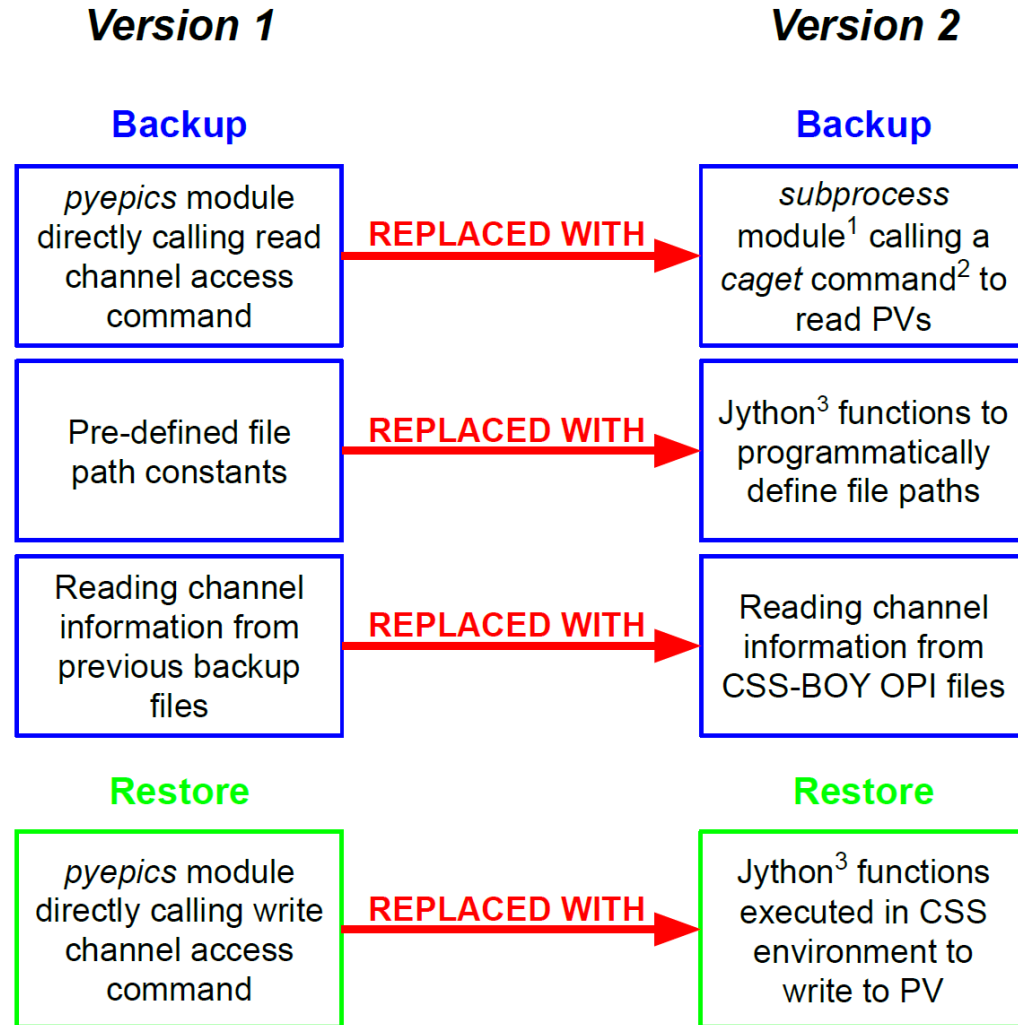
Hall C HV Backup and Restore

- For the new CSS-BOY high voltage controls system, a CSS-compatible backup and restore program is needed.
 - Allows users to save present HV channels' settings and restore from previous backups.
- Version 1: Python program called by CSS.
- When implementing program into Hall C's controls environment, a few problems arose.

Problems Faced with Version 1

- Version 1 required *pyepics*.
 - Module must be installed on PC for program to work correctly.
 - ✓ Installation requires network access to package management website.
 - Replaced with *subprocess* module calling *caget*.
- Pre-defined file paths caused errors.
 - Version 1 had path of files in workspace defined as constants.
 - ✓ Required manual update if program was moved to different location.
 - Replaced with Jython function to programmatically define file paths.
- Version 1 relied on previous backups as a template.
 - Leads to incorrect backup data if physical channel wiring is changed between backups.
 - Replaced with reading channel information directly from CSS-BOY OPI files.

Comparison Between Version 1 and Version 2

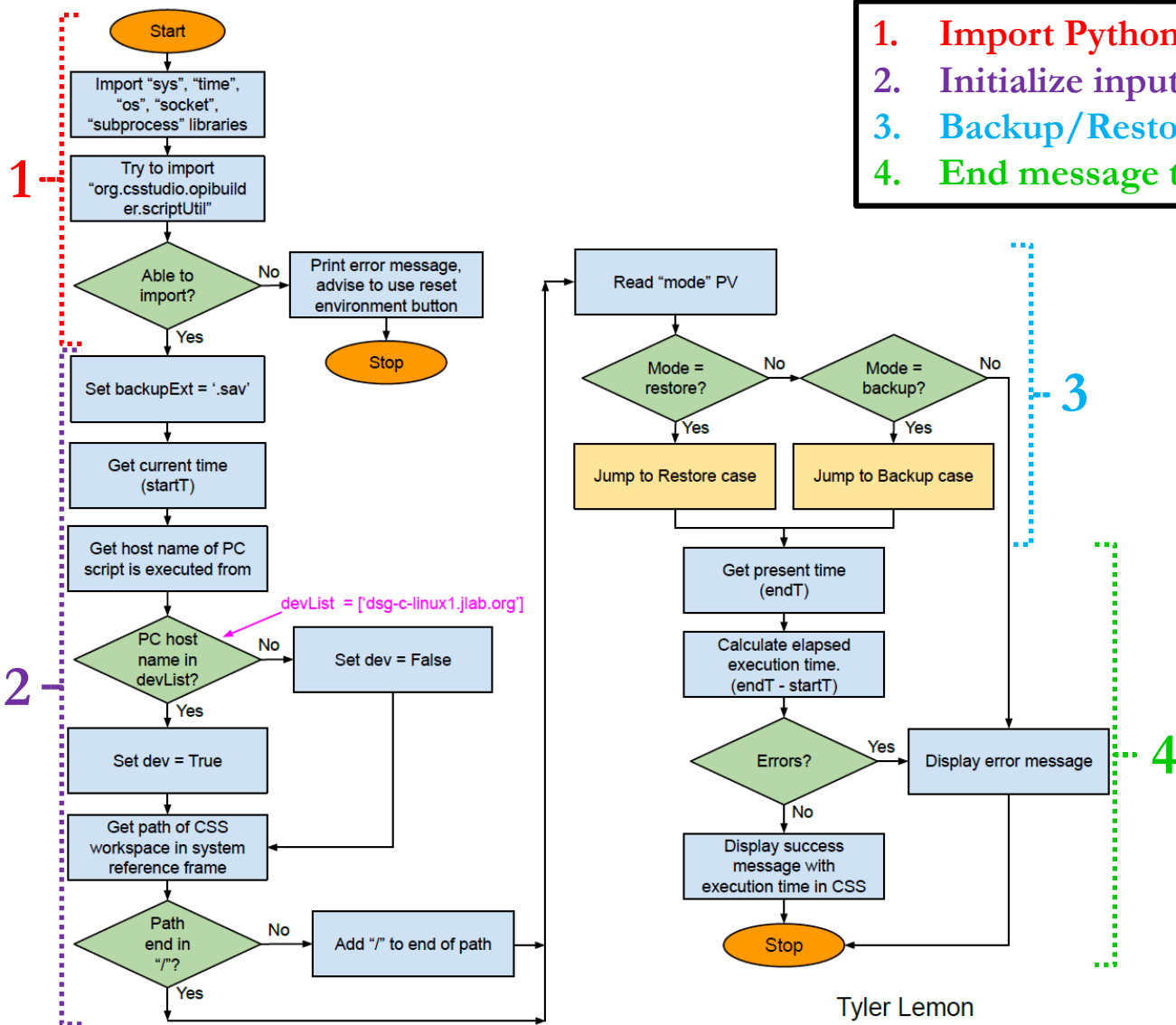


1 *subprocess* is a default module included in Python installations.

2 *caget* is a channel access command included with EPICS base.

3 Jython is an implementation of the Python language for the Java platform

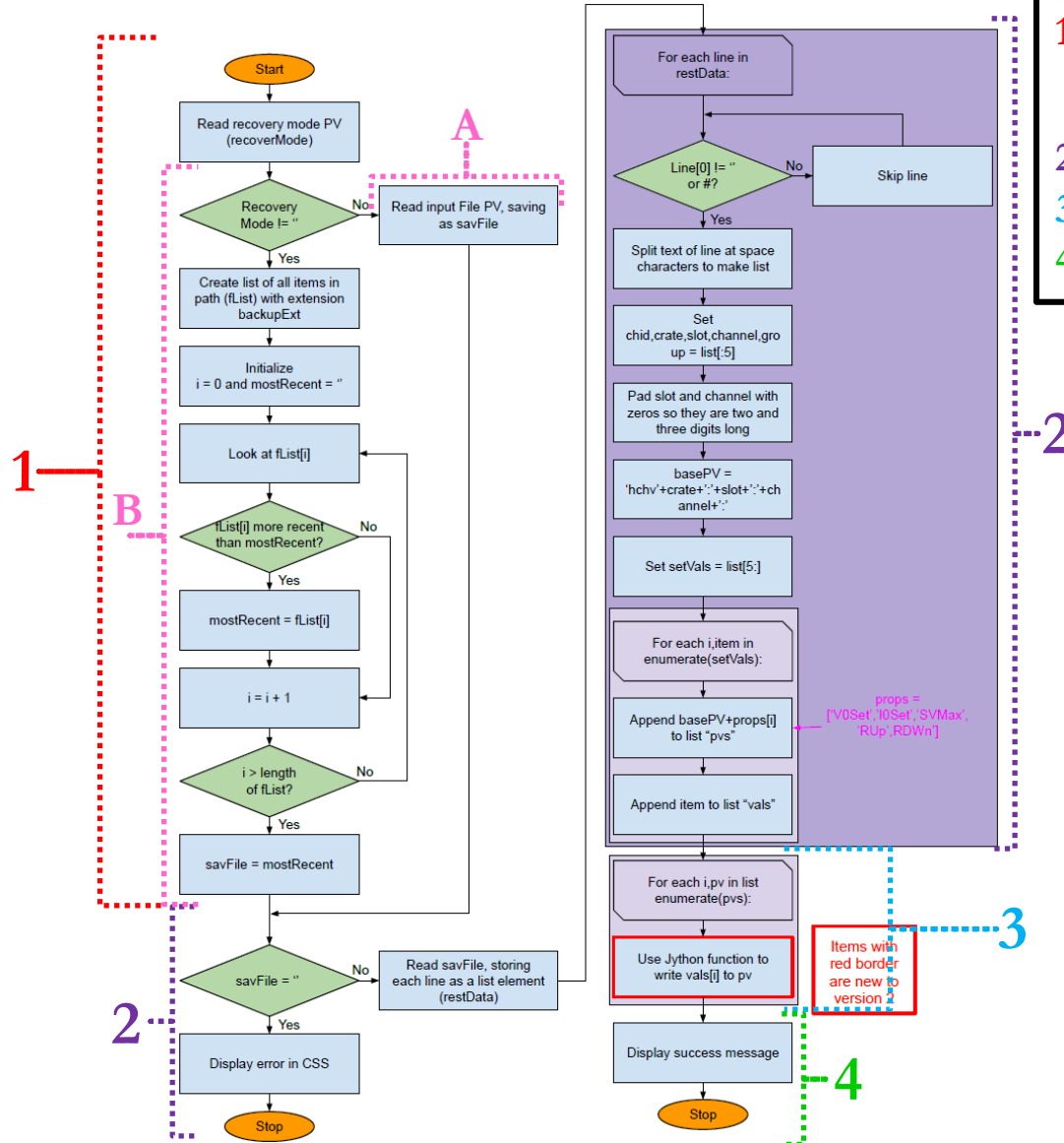
HV Backup/Restore Flow Chart



1. Import Python modules
2. Initialize input variables
3. Backup/Restore
4. End message to user

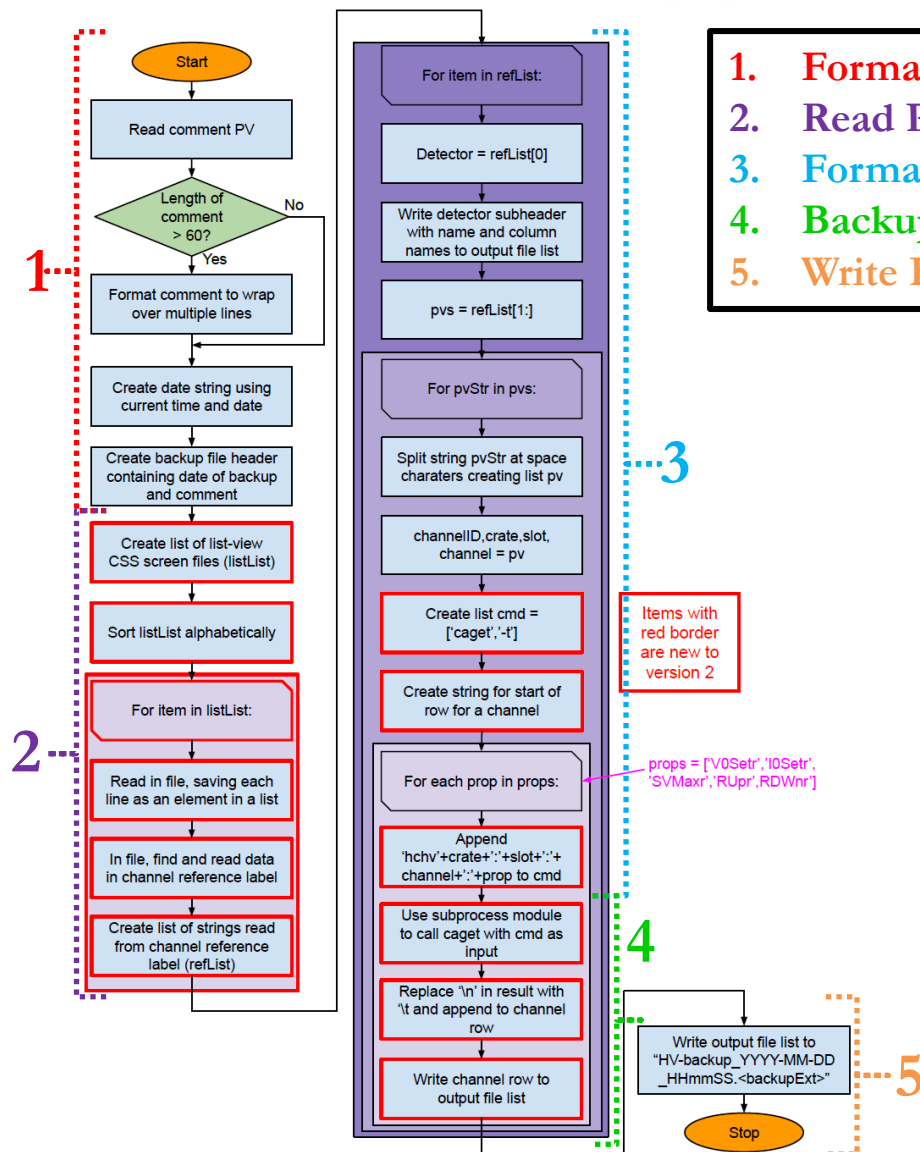
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HV Backup/Restore – Restore Case



1. Determine input backup file
 - A. User-declared
 - B. Default to most recent
2. Read/parse backup file
3. Restore
4. End message to user

HV Backup/Restore – Backup Case



1. Format backup file from user inputs
2. Read PVs from CSS-BOY OPIs
3. Format *caget* command
4. Backup
5. Write Backup File

Items with red border are new to version 2

props = ['V0Setr', 'I0Setr', 'SVMaxr', 'RUpr', 'RDWnr']

Conclusion

- HV backup and restore program redeveloped to remove dependencies.
 - *pyepics* replaced with *subprocess* calling *caget*.
 - Pre-defined file paths replaced with programmatically defined paths.
 - Reading from previous backup files replaced with reading from CSS-BOY OPI files.
- New version successfully tested and integrated into Hall C controls environment.
- Currently used by Hall C.