screeniocs Reformatting

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8 Feb 2024 (updated 21 Mar 2024)

Outline

- Purpose
- New screeniocs format
- Cade's contributions
- Dependencies
- Additional functions
- Test plan
- Backout plan

Purpose

- The current format of screeniocs is complex, resulting in spaghetti code
  - IOC type inferred from column 3
  - Columns 2-4 have assorted contents based on type
- Thus, we need a new format to streamline the parsing of screeniocs
- Support for both formats is required
  - Scripts reading screeniocs will rely on common parsing functions rather than their own

Type	Column #1	Column #2	Column #3	Column #4	Column #5
HIOC	Alias	TS node	TS port #	Host screen started	Comment, opt.
SIOC	Alias	Binary w/ full path	SIOC	Host screen started	Comment, opt.
VIOC	Alias	Host screen started	User	Binary w/full path, opt.	Comment, opt.

New screeniocs format

- This new format, proposed by Kristi, simplifies parsing by making each column more uniform
  - IOC type is explicitly specified in column #1
  - Screen host is only in one column, #3
- Version number indicated at top of file
  - **# FORMAT=1**
  - Old format indicated by a format of 0 or absence of this line

Column #1	Column #2	Column #3	Column #4	Column #5
FORMAT	0 or 1			
HIOC	Alias	user@host	user@ts_node:port	Comment, optional
SIOC	Alias	user@host	Full path, optional	Comment, optional
VIOC	Alias	user@host	Full path, optional	Comment, optional
NIOC	Alias	user@host	Full path	Comment, optional

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Examples under new format

- **Hard IOCs (including CPUs)**

Type	Alias	User and host	Terminal server user, node, and port
HIOC	cpu-b34-fb01	laci@lcls-dev1	root@ts-b34-nw02:2011
HIOC	cpu-b084-pm02	laci@lcls-dev1	root@ts-b033-nw01:2010
HIOC	ioc-b084-cd02	laci@lcls-dev1	root@ts-b084-nw09:2008

- **Linux soft IOCs**

Type	Alias	User and host	Executable, including path
SIOC	sioc-alh0-app00	laci@dev-rhel7	/afs/slac/g/lcls/epics/iocCommon/...
SIOC	sioc-alh0-odm00	laci@dev-rhel7	/afs/slac/g/lcls/epics/iocCommon/...

- **LinuxRT IOCs**

Type	Alias	User and host	Executable, including path (optional)
VIOC	sioc-sys0-fb01	laci@cpu-b34-fb01	
VIOC	sioc-sys0-lg01	laci@cpu-b34-fb01	
VIOC	sioc-b084-pm03	laci@cpu-b084-pm02	/afs/slac.stanford.edu/g/lcls

- **Non-standard IOCs**

Type	Alias	User and host	Executable, including path
NIOC	mps_manager	laci@lcls-dev1	/bin/bash
NIOC	mps_history_sc	laci@lcls-dev1	/bin/bash

Cade's contributions

Project 2: Reformatting screeniocs database, Amending Dependencies

Old screeniocs Format

Type	Col #1	Col #2	Col #3	Col #4	Col #5
HIOC	Alias	TS node	TS port #	Host screen started	Comment, opt.
SIOC	Alias	Binary w/full path	SIOC	Host screen started	Comment, opt.
VIOC	Alias	Host screen started	User	Binary w/full path, opt.	Comment, opt.

New screeniocs Format

Col #1	Col #2	Column #3	Col #4	Col #5
FORMAT	0 or 1			
HIOC	Alias	user@host	user@ts_node:port	Comment, optional
SIOC	Alias	user@host	Full path, optional	Comment, optional
VIOC	Alias	user@host	Full path, optional	Comment, optional
NIOC	Alias	user@host	Full path	Comment, optional

Conversion Script (New)
- Script that converts the old screeniocs format to new one
- Accounts for headers, edits, and authors

Test Conversion Script (New)
- Checks that all the IOCs from the old format are present in the new format

Parse Script (New)
- Script that parses IOC data from new format
- Reduces spaghetti code in dependent scripts

pyiocscreen (Amended)
- Generates screen options for IOCs and executes them

checkIOCDirs (Amended)
- Looks at HIOCs, VIOCs, and SIOCs in new format and ensures that their corresponding directories exist in $EPICS_IOCS and $IOC_DATA

testScreenIOCSParse (Amended)
- Checks the parse functionality to ensure data is being extracted appropriately

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Cade's contributions

- **updatescreeniocs.py**: converts to new format
- **revertscreeniocs.py**: reverts to old format
- **compareIOCfiles.py**: tests consistency between original, converted, and reverted screeniocs
- Conversion example:
  - Old

```
cpu-b084-pm05     ts-b033-nw01     2008      lcls-dev1      # Advantech 8101 for Profile Monitor Testing
sioc-b34-ss01 /afs/slac/g/lcls/epics/iocCommon/sioc-b34-ss01/iocSpecificRelease/bin/rhel6-x86_64/SelfSeedingMotion sioc lcls-dev1
sioc-b084-bp01        cpu-b084-hp01         laci       # LCLS-II BPM testing (Sonya)
```

  - New

```
HIOC    cpu-b084-pm05     laci@lcls-dev1        root@ts-b033-nw01:2008 # Advantech 8101 for Profile Monitor Testing
SIOC    sioc-b34-ss01     laci@lcls-dev1        /afs/slac/g/lcls/epics/iocCommon/sioc-b34-ss01/iocSpecificRelease/bin/rhel6-x86_64/SelfSeedingMotion
VIOC    sioc-b084-bp01    laci@cpu-b084-hp01    # LCLS-II BPM testing (Sonya)
```

Dependencies on Dev

Script	Owner	Information obtained from screeniocs
createDetachedScreen.bash	Ken/Jingchen	Terminal server and port for specified HIOC
createDetachedScreenFORRESTART_dev.bash	Ken/Jingchen	Terminal server and port for specified HIOC
get-TS-info	Ken/Jingchen	All terminal servers
iocTSmgr	Ken/Jingchen	Terminal server and port for specified HIOC
ioc_check	Kristi	Existence of specified IOC
ioc_deployment_report.py	Patrick (gone)	All IOCs
restartALLIOCLogging_dev.bash	Ken/Jingchen	All HIOCs

Dependencies on Dev (cont.)

Script	Owner	Information obtained from screeniocs
restartIOCConsole.bash	Ken/Jingchen	Terminal server and port for specified HIOC
screenlogd.bash	Ken/Jingchen	All IOCs, all LinuxRT CPUs
siocRestart	An	Existence of SIOC (and corresponding LinuxRT, if applicable)
MagnetAutoCheckout	An	Existence of specified SIOC, TS & port for corresponding CPU
miscIOCWebUtils	Murali	LinuxRT IOCs for specified CPU
multi_facility_deploy	An	All IOCs and their info
pyIocConsole	An	All IOCs and their info

Dependencies on FACET

Script	Owner	Information obtained from screeniocs
createDetachedScreenFORRESTART_facet.bash	Ken/Jingchen	Terminal server and port for specified HIOC
createDetachedScreen_facet.bash	Ken/Jingchen	Terminal server and port for specified HIOC
restartALLIOCLogging_facet.bash	Ken/Jingchen	All HIOCs
restartIOCConsole_facet.bash	Ken/Jingchen	Terminal server and port for specified HIOC
screenlogd_facet.bash	Ken/Jingchen	All HIOCs

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Dependencies on LCLS

Script	Owner	Information obtained from screeniocs
createDetachedScreen.bash	Ken/Jingchen	Terminal server and port for specified HIOC
createDetachedScreenFORRESTART.bash	Ken/Jingchen	Terminal server and port for specified HIOC
get-TS-info	Ken/Jingchen	All terminal servers
iocTSmgr	Ken/Jingchen	Terminal server and port for specified HIOC
ioc_check	Kristi	Existence of specified IOC
ioc_deployment_report.py	Patrick (gone)	All IOCs
restartALLIOCLogging.bash	Ken/Jingchen	All HIOCs

Dependencies on LCLS (cont.)

Script	Owner	Information obtained from screeniocs
restartIOCConsole.bash	Ken/Jingchen	Terminal server and port for specified HIOC
screenlogd.bash	Ken/Jingchen	All IOCs, all LinuxRT CPUs
siocRestart	An	Existence of SIOC (and corresponding LinuxRT, if applicable)
MagnetAutoCheckout	An	Existence of specified SIOC, TS & port for corresponding CPU
multi_facility_deploy	An	All IOCs and their info
pyIocConsole	An	All IOCs and their info

Dependencies on TestFac

Script	Owner	Information obtained from screeniocs
createDetachedScreenFORRESTART_acctest.bash	Ken/Jingchen	Terminal server and port for specified HIOC
createDetachedScreen_acctest.bash	Ken/Jingchen	Terminal server and port for specified HIOC
restartALLIOCLogging_acctest.bash	Ken/Jingchen	All HIOCs
screenlogd_acctest.bash	Ken/Jingchen	All HIOCs

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Cron jobs

Script	Owner	Facility	Host
screenlogd.bash	Ken/Jingchen	LCLS	lcls-daemon2
get-TS-info	Ken/Jingchen	LCLS	lcls-daemon2
screenlogd_facet.bash	Ken/Jingchen	FACET	facet-daemon1

Additional functions

- parseScreenIOCS.py already provides a function to list all IOCs and their properties (`--list`)
- Additional helper functions will be provided to simplify dependent scripts

Short form	Long form	Description
-S	--siocs-only	For `--list`, only search SIOCs and LinuxRT IOCs
-j	--json	For `--list`, print IOC info in JSON format
-i	--list-ioc	Depending on the input, list ● The IOCs booted on a CPU ● The CPU/server on which an IOC is booted ● The IOCs/CPUs on a terminal server ● All IOCs matching a regex pattern. In this case, if `--screenhost` is specified, show only those configured to run on that host (regex allowed)
-T	--list-ts	Return the terminal server and port to which a hard IOC is connected. If you do not specify the IOC, all terminal servers are listed.

Test plan

- Dev first (3/21-3/22)
- Upgrade pyIocConsole
  - cd into pyIocConsole sandbox
  - `cram upgrade -f {facility} V_1_0_27`
- Upgrade dependent scripts
  - `cd $TOOLS/script`
  - `cvs commit -m "Use pyIocConsole to parse screeniocs" {script}`
- Test scripts
- Run Cade's conversion script on screeniocs
  - `mv screeniocs screeniocs.bak`
  - `updatescreeniocs.py -r screeniocs.bak -w screeniocs`
- Test iocConsole functionality on Linux IOCs, LinuxRT IOCs, and hard IOCs
- If successful, repeat on TestFac (3/21), FACET (3/26-3/28), LCLS (4/3)

Backout plan

- Run Cade's revert script
  - `cd $EPICS_IOCS/facility`
  - `mv screeniocs screeniocs.bak`
  - `revertscreeniocs.py -r screeniocs.bak -w screeniocs`
- Revert dependent scripts
  - `cd $TOOLS/script`
  - `cvs update -j {current revision} -j {previous revision} {script}`
  - `cvs commit -m "Undo changes" {script}`
  - If only there was a simple CVS command to roll back one version!
- Test scripts
- Revert pyIocConsole
  - `cd pyIocConsole`
  - `cram revert -f {facility}`
- Test iocConsole functionality on Linux IOCs, LinuxRT IOCs, and hard IOCs

Conclusion

- New screeniocs format introduced to reduce spaghetti code
- Many dependencies to be adjusted to utilize common parseScreenIOCs functions
- Format switch to occur in phases (Dev, FACET, LCLS, TestFac)
- Reminder to use new format when adding new entries post-format switch

Column #1	Column #2	Column #3	Column #4	Column #5
HIOC	Alias	user@host	user@ts_node:port	Comment, optional
SIOC	Alias	user@host	Full path, optional	Comment, optional
VIOC	Alias	user@host	Full path, optional	Comment, optional
NIOC				