

# **New Path w/ Commandline Arguments Filtering**

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March 16, 2023

# XALT: Outline



# XALT

- ▶ Based on last month's presentation
- ▶ I have implemented "Approach 2"
- ▶ Namely a built-in pattern matching
- ▶ It is not perfect
- ▶ But it will work well with python
- ▶ It is currently available under the testing branch

# Some issue to deal with

- ▶ Many commands take command line argument
- ▶ This includes python
- ▶ Below is a list of *some* of them (via zsh tab completion)
- ▶ Python: no options with values
- ▶ But some programs may take options with values

```
% python3 -<tab>  
option  
-B  -- don't write .py[co] files on import  
-E  -- ignore PYTHON* environment variables (such as PYTHONPATH)  
-I  -- isolate Python from the user's environment  
-O  -- optimize generated bytecode slightly  
-OO -- remove doc-strings in addition to the -O optimizations  
-x  -- skip first line of source, allowing use of non-Unix forms of #!cmd
```

## Approach 2: XALT does the filtering for you

- ▶ This consists of two parts in your site Config.py file
- ▶ Changes to path\_patterns
- ▶ Add in a new group of patterns: path\_arg\_patterns

# Adding the CUSTOM tag to path\_patterns

```
path_patterns = [  
    ['CUSTOM', r'.*\python[0-9][^/][^/]*'],  
    ...  
]
```

- ▶ Only paths that have the “CUSTOM” tag will get further filtering
- ▶ A site can have as many “CUSTOM” tags as they like

# The new `path_arg_pattern`

```
path_arg_patterns = [  
    ['SKIP', r'.*\python[0-9][^/;][^/;]*;.*\share\.*'],  
    ['PKGS', r'.*\python[0-9][^/;][^/;]*;.*\data\.*'],  
    ['PKGS', r'.*\python[0-9][^/;][^/;]*;'],  
]
```

- ▶ The pattern is path + “;” + arg as shown above
  1. SKIP any python scripts that have /share/ as part of the path
  2. KEEP any python scripts that have /data/ as part of the
  3. KEEP any python scripts that have neither of the above
- ▶ Note the change in how the executable pattern is written!

# Rules

- ▶ For “CUSTOM” tags the arguments are each processed
- ▶ Arguments that start with minus [-] are ignored
- ▶ All other arguments would be abspath and checked for existence before being run through path\_arg\_patterns
- ▶ Not perfect but reasonably safe

# Could filter on option arguments

```
['CONTINUE, r'.*\/python[0-9][^/;][^/;]*;-.*'],
```

- ▶ Ignoring options could be under Site control
- ▶ With the pattern above.
- ▶ I don't this supporting this would be useful.



# Final patterns

```
['PKGS', r'.*\python[0-9][^/;][^/;]*;'],
```

- ▶ This pattern is there to handle when things do not match
- ▶ If this pattern is not provided then the default final pattern is a SKIP

# False matching

```
$ python -z /my/path/share/foo /my/path/data/hello.py
```

or

```
$ python -z /my/path/data/foo /my/path/share/hello.py
```

- ▶ Suppose you have either of the above command lines
- ▶ The first one would be SKIP'ed
- ▶ The second one would be KEEP'ed
- ▶ I see no general way to get this to work perfectly
- ▶ *This is NOT a current issue with python*

# a SKIP match

```
$ XALT_TRACING=run python /my/path/share/hello_world.py

track_executable():
-> arg: 1: value: "../../share/hello_world.py"
-> pattern: "/usr/bin/python3.10;/my/path/share/hello_world.py",
    track_executable token: 3: SKIP
```

- ▶ This is what happens when a pattern matches a SKIP
- ▶ This can be shown when XALT\_TRACING=run

# a PKGS match

```
$ XALT_TRACING=run python /my/path/data/hello_world.py

track_executable():
-> arg: 1: value: ".././data/hello_world.py"
-> pattern: "/usr/bin/python3.10;/my/path/data/hello_world.py",
track_executable token: 1: PKGS

myinit(0/1,LD_PRELOAD,/usr/bin/python3.10){
...
}
```

- ▶ This is what happens when a pattern matches a PKGS
- ▶ This can be shown when XALT\_TRACING=run
- ▶ This tag causes the execution to be TRACKED

# Final pattern

```
$ XALT_TRACING=run python2 /my/path/pkg_tracking.py --seq 22

track_executable():
-> arg: 1: value: "/my/path/pkg_tracking.py"
-> pattern: "/usr/bin/python2.7;/my/path/pkg_tracking.py",
    track_executable token: 5: CONTINUE
-> arg: 2: value: "--seq"
-> arg: 3: value: "22"
-> pattern: "/usr/bin/python2.7;", track_executable token: 1: PKGS

myinit(0/1,LD_PRELOAD,/usr/bin/python2.7){
    ...
}
```

- ▶ This last pattern is called after the command line has been processed
- ▶ In this case the tag is PKGS
- ▶ Without this pattern it is SKIP

# Show this in action

- ▶ xalt\_configuration\_report output
- ▶ example\_run.txt

# Conclusions

- ▶ Available now in the testing branch of XALT
- ▶ It works with the cases I have tested with
- ▶ Please test it out.

# Future Topics?

- ▶ No Meeting in April. I'll be out of town.
- ▶ Next Meeting will be on May 18, 2023 at 10:00 am U.S. Central (15:00 UTC)