

Automation tools in AV workflows

Building digital pipelines using standard IT tools.

Various steps when working with AV content

- Ingest
- Verification
- Storage
- Transcoding
- Packaging
- Delivery
- ..

Workflow management?

- DAMS
- Digipres systems like Archivematica, Preservica, Adlib
- Manual flow

Scripts are good, but..

- Individual scripts do not serve a generic purpose
- Complex workflows must chain many steps together
- Logging anyone?
- Auditing the logs anyone?



Is this deterministic?

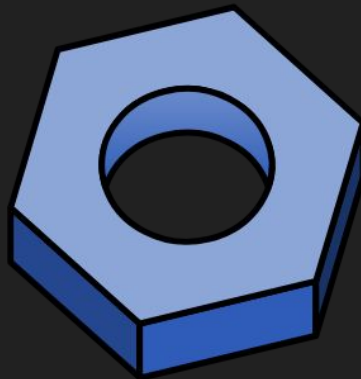
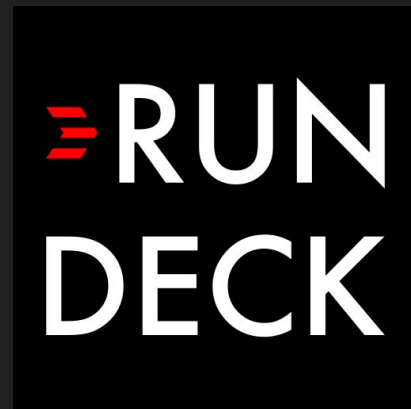
```
(venv) [digilab@dl1-render-1 ~]$ cd /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/
(venv) [digilab@dl1-render-1 ZBOROV]$ ll
total 204140708
-rwxr--r--. 1 1028 users 963133204 22. říj 16.09 Zborov_20181022_original_scan.wav
-rw-r--r--. 1 1024 users 68012932294 16. říj 18.29 ZBOROV_ALL_REELS_GRADED_WIP_181015_1080_24p_LT.mov
-rw-r--r--. 1 1024 users 68969349901 17. říj 20.52 ZBOROV_ALL_REELS_GRADED_WIP_181016_1080_24p_LT.mov
-rw-r--r--. 1 1024 users 69167624548 23. říj 13.08 ZBOROV_bez_orezu_1080_24p_422LT_MONOfinal_181023.mov
-rwxr--r--. 1 1028 users 961585926 22. říj 16.10 Zborov_restoration_20181022_bez_sumu_na_zacatku.wav
-rw-rw-r--. 1 1024 users 965447656 16. říj 10.12 Zborov_restoration_WIP_20181011.wav
(venv) [digilab@dl1-render-1 ZBOROV]$ bagit.py --md5 --shal .
2018-10-20 06:34:25,971 - INFO - Creating bag for directory /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV
2018-10-20 06:34:25,975 - INFO - Creating data directory
2018-10-20 06:34:25,977 - INFO - Moving Zborov_20181022_original_scan.wav to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/Zborov_20181022_original_scan.wav
2018-10-20 06:34:25,977 - INFO - Moving ZBOROV_ALL_REELS_GRADED_WIP_181015_1080_24p_LT.mov to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/ZBOROV_ALL_REELS_GRADED_WIP_181015_1080_24p_LT.mov
2018-10-20 06:34:25,978 - INFO - Moving ZBOROV_ALL_REELS_GRADED_WIP_181016_1080_24p_LT.mov to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/ZBOROV_ALL_REELS_GRADED_WIP_181016_1080_24p_LT.mov
2018-10-20 06:34:25,980 - INFO - Moving ZBOROV_bez_orezu_1080_24p_422LT_MONOfinal_181023.mov to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/ZBOROV_bez_orezu_1080_24p_422LT_MONOfinal_181023.mov
2018-10-20 06:34:25,981 - INFO - Moving Zborov_restoration_20181022_bez_sumu_na_zacatku.wav to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/Zborov_restoration_20181022_bez_sumu_na_zacatku.wav
2018-10-20 06:34:25,982 - INFO - Moving Zborov_restoration_WIP_20181011.wav to /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228/Zborov_restoration_WIP_20181011.wav
2018-10-20 06:34:25,983 - INFO - Moving /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tmpnm4jw228 to data
2018-10-20 06:34:25,984 - INFO - Using 1 processes to generate manifests: md5, shal
2018-10-20 06:34:25,985 - INFO - Generating manifest lines for file data/ZBOROV_ALL_REELS_GRADED_WIP_181015_1080_24p_LT.mov
2018-10-20 06:38:25,313 - INFO - Generating manifest lines for file data/ZBOROV_ALL_REELS_GRADED_WIP_181016_1080_24p_LT.mov
2018-10-20 06:42:28,468 - INFO - Generating manifest lines for file data/ZBOROV_bez_orezu_1080_24p_422LT_MONOfinal_181023.mov
2018-10-20 06:46:31,476 - INFO - Generating manifest lines for file data/Zborov_20181022_original_scan.wav
2018-10-20 06:46:34,917 - INFO - Generating manifest lines for file data/Zborov_restoration_20181022_bez_sumu_na_zacatku.wav
2018-10-20 06:46:38,264 - INFO - Generating manifest lines for file data/Zborov_restoration_WIP_20181011.wav
2018-10-20 06:46:41,848 - INFO - Creating bagit.txt
2018-10-20 06:46:41,896 - INFO - Creating bag-info.txt
2018-10-20 06:46:41,955 - INFO - Creating /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tagmanifest-md5.txt
2018-10-20 06:46:42,013 - INFO - Creating /mnt/vault/INGEST/UPP-TRANSFER/ZBOROV/tagmanifest-shal.txt
(venv) [digilab@dl1-render-1 ZBOROV]$ echo $?
0
(venv) [digilab@dl1-render-1 ZBOROV]$ ls
bag-info.txt bagit.txt data manifest-md5.txt manifest-shal.txt tagmanifest-md5.txt tagmanifest-shal.txt
(venv) [digilab@dl1-render-1 ZBOROV]$
```

Automation to the rescue!

- Define inputs
- Implement steps by reusing existing tools and scripts
- Set validations and conditions for eventual branching
- Assign notifications
- Read the notifications :-)
- Audit the logs (GUI!)

There are generic tools available

- Jenkins
- Ansible
- Rundeck
- Buildbot
- ..



Jenkins



- Build automation server
- Web GUI, written in Java
- As it is generic, we can use it for whatever purpose
- Multi-tenant
- Plugin ecosystem

Jenkins jobs overview



AAA [Jenkins] x +
https://jenkins.digilab.nfa.cz

Work 4 search Jonáš Svatos | log out

Jenkins

ENABLE AUTO REFRESH

[add description](#)

AAA INGEST TAPE-SETS TOOLS ZALOHY ZZ-TAPE ZZZ-OLD +

S	W	Name ↓	Last Success	Last Failure	Last Duration	
		CHECK-DCP	7 days 3 hr - #19	16 days - #14	21 sec	
		EMAIL_LINKS	1 hr 59 min - #3884	N/A	6 ms	
		MAKE-BAGIT	4 min 58 sec - #12	11 min - #10	56 sec	
		MAKE-BLURAY	21 hr - #429	6 days 21 hr - #420	16 min	
		MAKE-DCP	1 day 5 hr - #191	5 days 0 hr - #184	32 min	
		MAKE-DCP-SCREENER	1 day 0 hr - #177	1 day 2 hr - #176	1 hr 27 min	
		MAKE-DVD	2 days 3 hr - #836	2 days 3 hr - #835	2 min 5 sec	
		MAKE-EXCERPTS	53 min - #547	N/A	29 min	
		MAKE-HD-MASTER	11 days - #42	1 mo 10 days - #36	4 hr 57 min	
		MAKE-HD-PREVIEW	2 days 4 hr - #14	18 days - #8	7 min 5 sec	
		MAKE-LOSSLESS	11 days - #6	N/A	1 day 2 hr	
		MAKE-SCREENER	2 hr 2 min - #4932	22 hr - #4911	3 min 6 sec	
		MAKE-STILLS	2 hr 29 min - #635	1 day 23 hr - #616	16 sec	
		PRINT-STITEK	2 mo 29 days - #158	3 mo 8 days - #153	2,7 sec	

Icon: [S](#) [M](#) [L](#)

[Legend](#) [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)

Page generated: Oct 17, 2018 2:47:48 PM CEST [REST API](#) [Jenkins ver. 2.121.3](#)
SCM Sync status : Last operation @ Tue May 08 22:59:52 CEST 2018

Jenkins job parameters



The screenshot shows the Jenkins web interface for a job named "Project MAKE-BAGIT". The browser address bar indicates the URL: `https://jenkins.digilab.nfa.cz/view/AAA/job/MAKE-BAGIT/build?delay=0sec`. The Jenkins logo and navigation menu are visible at the top. The main content area displays the job parameters for a build:

- Project MAKE-BAGIT**
- This build requires parameters:
- SOURCE**: `/mnt/central/TEMP_JONAS/SPC_zvuk`
- EXTERNAL_DESCRIPTION**:
 - What to bag: [redacted]
 - Content description: Sound masters for Staré pověsti české, a 1952 film by Jiří Trnka. Digitally restored version 2015.
- INTERNAL_DESCRIPTION**:
 - Technical description: Please see GENERAL_INFORMATION.pdf in the bag
- INTERNAL_IDENTIFIER**: `4001054`
- INTERNAL_IDENTIFIER**: AIS number
- NODE**: `dl1-render-1` (dropdown menu)

A "Build" button is located below the parameters. On the left side, there is a "Build History" section with a search bar and a list of recent builds:

Build Number	Timestamp	Status
#10	Oct 17, 2018 2:36 PM	Failed
#9	Oct 17, 2018 2:11 PM	Failed
#8	Apr 5, 2018 2:09 PM	Success
#7	Apr 5, 2018 2:07 PM	Success
#6	Feb 2, 2018 2:02 AM	Success
#5	Feb 2, 2018 2:01 AM	Failed
#4	Dec 29, 2017 7:23 AM	Success
#3	Dec 29, 2017 7:20 AM	Success
#2	Dec 29, 2017 7:19 AM	Success
#1	Dec 29, 2017 7:19 AM	Success

Jenkins job parameters config



The screenshot displays the Jenkins job configuration interface for a job named 'MAKE-BAGIT'. The browser address bar shows the URL `https://jenkins.digitlab.nfa.cz/job/MAKE-BAGIT/configure`. The configuration is set to 'General' and includes the option 'This project is parameterized' which is checked.

Three 'String Parameter' sections are visible, each with a red 'X' icon in the top right corner:

- String Parameter 1:**
 - Name: SOURCE
 - Default Value: (empty)
 - Description: What to bag
 - Options: [Plain text] [Preview](#), Trim the string
- String Parameter 2:**
 - Name: EXTERNAL_DESCRIPTION
 - Default Value: (empty)
 - Description: Content description
 - Options: [Plain text] [Preview](#), Trim the string
- String Parameter 3:**
 - Name: INTERNAL_DESCRIPTION
 - Default Value: (empty)
 - Description: Technical description
 - Options: [Plain text] [Preview](#), Trim the string

At the bottom left, there are 'Save' and 'Apply' buttons.

Jenkins build log



```
MAKE-BAGIT #12 Console [Parameters [Jenkins]]
https://jenkins.digilab.nfa.cz/view/AAA/job/MAKE-BAGIT/12/console
Jenkins > AAA > MAKE-BAGIT > #12
2018-10-17 14:43:03,185 - INFO - Generating manifest lines for file data/lengths.xls
2018-10-17 14:43:03,203 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel0.wav
2018-10-17 14:43:03,512 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel1.wav
2018-10-17 14:43:04,684 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel10.wav
2018-10-17 14:43:06,605 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel11.wav
2018-10-17 14:43:09,587 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel2.wav
2018-10-17 14:43:12,000 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel3.wav
2018-10-17 14:43:14,007 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel4.wav
2018-10-17 14:43:16,285 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel5.wav
2018-10-17 14:43:19,017 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel6.wav
2018-10-17 14:43:20,653 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel7.wav
2018-10-17 14:43:22,925 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel8.wav
2018-10-17 14:43:25,920 - INFO - Generating manifest lines for file data/DCP/SPC_24fps_6ch_reel9.wav
2018-10-17 14:43:29,251 - INFO - Generating manifest lines for file data/Deckclick/SPC_deckclick_reel1.wav
2018-10-17 14:43:30,779 - INFO - Generating manifest lines for file data/Deckclick/SPC_deckclick_reel2.wav
2018-10-17 14:43:33,525 - INFO - Generating manifest lines for file data/Deckclick/SPC_deckclick_reel3.wav
2018-10-17 14:43:35,148 - INFO - Generating manifest lines for file data/Deckclick/SPC_deckclick_reel4.wav
2018-10-17 14:43:36,898 - INFO - Generating manifest lines for file data/Deckclick/SPC_deckclick_reel5.wav
2018-10-17 14:43:37,855 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel0.wav
2018-10-17 14:43:37,922 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel1.wav
2018-10-17 14:43:38,118 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel10.wav
2018-10-17 14:43:38,428 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel11.wav
2018-10-17 14:43:38,918 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel2.wav
2018-10-17 14:43:39,314 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel3.wav
2018-10-17 14:43:39,883 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel4.wav
2018-10-17 14:43:40,257 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel5.wav
2018-10-17 14:43:40,746 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel6.wav
2018-10-17 14:43:41,033 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel7.wav
2018-10-17 14:43:41,366 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel8.wav
2018-10-17 14:43:41,859 - INFO - Generating manifest lines for file data/Restored/SPC_full_restored_0424_reel9.wav
2018-10-17 14:43:42,506 - INFO - Generating manifest lines for file data/Scanned_source/SPC_poz_reel1.wav
2018-10-17 14:43:43,795 - INFO - Generating manifest lines for file data/Scanned_source/SPC_poz_reel2.wav
2018-10-17 14:43:44,517 - INFO - Generating manifest lines for file data/Scanned_source/SPC_poz_reel3.wav
2018-10-17 14:43:45,342 - INFO - Generating manifest lines for file data/Scanned_source/SPC_poz_reel4.wav
2018-10-17 14:43:46,197 - INFO - Generating manifest lines for file data/Scanned_source/SPC_poz_reel5.wav
2018-10-17 14:43:46,696 - INFO - Creating bagit.txt
2018-10-17 14:43:46,697 - INFO - Creating bag-info.txt
2018-10-17 14:43:46,700 - INFO - Creating /mnt/central/TEMP_JONAS/SPC_zvuk/tagmanifest-sha256.txt
2018-10-17 14:43:46,719 - INFO - Creating /mnt/central/TEMP_JONAS/SPC_zvuk/tagmanifest-sha512.txt
[WS-CLEANUP] Deleting project workspace... [WS-CLEANUP] done
Finished: SUCCESS

Page generated: Oct 17, 2018 2:43:10 PM CEST REST API Jenkins ver 2.121.3
SCM Sync status : Last operation @ Tue May 08 22:59:52 CEST 2018
```

Jenkins job tasks



MAKE-BAGIT Config [Jenkins] x

https://jenkins.digitlab.nfa.cz/job/MAKE-BAGIT/configure

Jenkins > MAKE-BAGIT >

General Source Code Management Build Triggers Build Environment **Build** Post-build Actions

Execute shell [X] [?]

Command

```
#!/bin/bash
set +x
virtualenv-3 venv
source venv/bin/activate
pip install --quiet bagit
export PYTHONUNBUFFERED=1
```

[See the list of available environment variables](#)

Advanced...

Execute shell [X] [?]

Command

```
#!/bin/bash
set +x
source venv/bin/activate

ORGANIZATION="Národní filmový archiv"
ORGANIZATION_ADDRESS="Malesická 12, Praha 3, 130 00, Czech Republic"
CONTACT_NAME="Digital laboratory"
CONTACT_EMAIL="digitlab@nfa.cz"

bagit.py --source-organization "$ORGANIZATION" --organization-address "$ORGANIZATION_ADDRESS"
```

[See the list of available environment variables](#)

Advanced...

Save Apply

Jenkins past build detail



The screenshot shows the Jenkins web interface for a specific build. The browser address bar indicates the URL: `https://jenkins.digilab.nfa.cz/job/MAKE-BAGIT/16/parameters/`. The Jenkins logo and navigation menu are visible at the top. The main content area is titled 'Build #16' and contains a 'Parameters' table with the following entries:

Parameters	
SOURCE	/mnt/vault/V_RESENI/MASTER/FRANTA_TYMAL
EXTERNAL_DESCRIPTION	Vyber krizeneckekeho pro Frantiska Tymala
INTERNAL_DESCRIPTION	Format QuickTime, ProRes 422HQ, Full HD 24fps, LPCM 24bit 48kHz
INTERNAL_IDENTIFIER	Trello #2914
NODE	dl1-render-1

At the bottom of the page, the following information is displayed:

Page generated: Oct 26, 2018 8:34:21 AM CEST Jenkins ver. 2.121.3
SCM Sync status : Last operation @ Tue May 08 22:59:52 CEST 2018

Jenkins job chaining



The screenshot shows the Jenkins configuration interface for a job named 'MAKE-SCREENER'. The browser address bar indicates the URL is <https://jenkins.digilab.nfa.cz/job/MAKE-SCREENER/configure>. The configuration page has several tabs: 'General', 'Source Code Management', 'Build Triggers', 'Build Environment', 'Bindings', 'Build', and 'Post-build Actions'. The 'Post-build Actions' tab is active, showing a section titled 'Steps to run if condition is met'. Inside this section, there is a configuration for a 'Trigger/call builds on other projects' step. This step is configured with 'Build Triggers' set to 'EMAIL_LINKS' and the option 'Block until the triggered projects finish their builds' checked. Below this, there is a 'Predefined parameters' section with two parameters: 'EMAILS=\$USER_EMAIL' and 'LINKS=\$LINKS'. At the bottom of the configuration area, there are buttons for 'Save' and 'Apply', and a dropdown menu labeled 'Add step to condition'.

Jenkins slaves



The screenshot shows the Jenkins web interface. The top navigation bar includes the Jenkins logo, a search bar, and the user name 'Jonáš Svatoš'. The main content area displays a table of nodes. On the left, there is a sidebar with navigation options like 'Back to Dashboard', 'Manage Jenkins', and 'Build Queue'. The table lists various nodes, including 'brazil', 'dl1-pi-1', 'dl1-projekce-1', 'dl1-render-1' through '7', and 'master'. Each row shows the node's status (e.g., 'Idle', 'Offline', 'In sync'), architecture, clock difference, and free disk, swap, and temp space. A 'Refresh status' button is located at the bottom right of the table.

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	brazil		N/A	N/A	N/A	N/A	N/A
	dl1-pi-1		N/A	N/A	N/A	N/A	N/A
	dl1-projekce-1	Linux (amd64)	In sync	945,11 GB	7,76 GB	850,58 GB	33ms
	dl1-render-1	Linux (amd64)	In sync	458,67 GB	860,30 MB	3,80 GB	34ms
	dl1-skener-1		N/A	N/A	N/A	N/A	N/A
	dl1-storage-1-read	Linux (amd64)	In sync	11,36 GB	886,00 MB	11,36 GB	32ms
	dl1-render-2	Linux (amd64)	In sync	689,83 GB	23,70 GB	9,16 GB	5ms
	dl1-render-3		N/A	N/A	N/A	N/A	N/A
	dl1-render-4		N/A	N/A	N/A	N/A	N/A
	dl1-render-5	Windows 7 (amd64)	2 sec behind	331,10 GB	7,25 GB	26,24 GB	4ms
	dl1-render-6		N/A	N/A	N/A	N/A	N/A
	dl1-render-7		N/A	N/A	N/A	N/A	N/A
	master	Linux (amd64)	In sync	6,20 GB	393,74 MB	6,20 GB	0ms
Data obtained			31 min	31 min	31 min	31 min	31 min

Jenkins slave tag matching



The screenshot shows the Jenkins configuration interface for a job named 'MAKE-SCREENER'. The browser address bar indicates the URL is `https://jenkins.digilab.nfa.cz/job/MAKE-SCREENER/configure`. The configuration page has several tabs: 'General', 'Source Code Management', 'Build Triggers', 'Build Environment', 'Bindings', 'Build', and 'Post-build Actions'. The 'Source Code Management' tab is active.

Under the 'Source Code Management' tab, there are several options:

- Throttle builds
- Prepare an environment for the run
- Disable this project
- Execute concurrent builds if necessary
- Restrict where this project can be run

The 'Label Expression' is set to `linux && cuda`. Below this, a note states: `Label linux&&cuda` is serviced by 4 nodes. Permissions or other restrictions provided by plugins may prevent this job from running on those nodes.

Below the 'Restrict where this project can be run' section, there is a section for 'Source Code Management' with the following options:

- None
- Git

Under the 'Git' option, there is a 'Repositories' section with the following details:

- Repository URL: `https://git.digilab.nfa.cz/digilab/fmpeg-builder.git`
- Credentials: `jenkins-bot/*****`

At the bottom of the configuration page, there are 'Save' and 'Apply' buttons, and an 'Add Repository' button.

Jenkins as a cron



The screenshot shows the Jenkins interface for the 'CHECKSUM_PREPISY' project. The main heading is 'Project CHECKSUM_PREPISY'. Below it, the 'Build on:' field is set to '10/26/18 10:00 PM' with a 'Schedule' button. A left sidebar contains navigation options: Back to Dashboard, Status, Changes, Workspace, Build Now, Delete Project, Configure, Rebuild Last, Dependency Graph, Favorite, Schedule Build, and Rename. At the bottom, there is a 'Build History' section with a 'trend' link and RSS feeds for all builds and failures. The footer indicates the page was generated on Oct 26, 2018, at 8:14:29 AM CEST, using Jenkins ver. 2.121.3, with the last operation occurring on Tue May 08 22:59:52 CEST 2018.

The screenshot shows the 'Build Triggers' configuration page for the 'CHECKSUM_PREPISY' project. The 'Build periodically' checkbox is checked, and the 'Schedule' field contains the cron expression 'H 10 * * *'. Below this, a message states: 'Would last have run at Cvrtek, 25. října 2018 10:38:50 CEST; would next run at Pátek, 26. října 2018 10:38:50 CEST.' Other options like 'Trigger builds remotely', 'Build after other projects are built', 'GitHub hook trigger for GITScm polling', and 'Poll SCM' are unchecked. The 'Build Environment' section below has 'Delete workspace before build starts' and 'Abort the build if it's stuck' unchecked. At the bottom, there are 'Save' and 'Apply' buttons, and a checkbox for 'Clean up all workspaces of this job in the same slavegroup'.

Jenkins job config in Git



The screenshot shows a GitLab interface for a repository named 'jenkins-conf'. The file 'config.xml' is selected, showing its content. The XML configuration includes settings for Jenkins plugins like 'SlaveUtilizationProperty' and 'RebuildSettings', and parameter definitions for 'INPUT_DIR' and 'DCP_NAME'.

```
1 <?xml version='1.0' encoding='UTF-8'?>
2 <project>
3   <actions/>
4   <description/>
5   <keepDependencies>false</keepDependencies>
6   <properties>
7     <com.suryagaddipati.jenkins.SlaveUtilizationProperty plugin="slave-utilization-plugin@1.8">
8       <needsExclusiveAccessToNode>false</needsExclusiveAccessToNode>
9       <singleInstancePerSlave>false</singleInstancePerSlave>
10      <slaveUtilizationPercentage>0</slaveUtilizationPercentage>
11    </com.suryagaddipati.jenkins.SlaveUtilizationProperty>
12    <com.sonyericsson.rebuild.RebuildSettings plugin="rebuild@1.25">
13      <autoRebuild>false</autoRebuild>
14      <rebuildDisabled>false</rebuildDisabled>
15    </com.sonyericsson.rebuild.RebuildSettings>
16    <hudson.model.ParametersDefinitionProperty>
17      <parameterDefinitions>
18        <hudson.model.StringParameterDefinition>
19          <name>INPUT_DIR</name>
20          <description/>
21          <defaultValue/>
22        </hudson.model.StringParameterDefinition>
23        <hudson.model.StringParameterDefinition>
24          <name>DCP_NAME</name>
25          <description/>
26          <defaultValue/>
27        </hudson.model.StringParameterDefinition>
28      </parameterDefinitions>
```

Conclusions

- Standardized workflow needs deterministic steps
- As little human intervention as possible
- There are generic automation servers available
- Log retention!
- Jenkins is great



Thanks! Questions?

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github.com/NFAcz