

Rucio overview

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- General concepts
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Rucio Account

- Entry point and unit of assigning privileges, ownership and quota.
- A rucio account can represent
 - Individual users
 - Group of users, e.g. physics groups
 - Organized ATLAS activity, e.g. tzero
- Users are authorized to log to an account using their credentials
 - X509, GSS, user/pass, ...

Namespace

- Data hierarchy (file → dataset → container*)
- Files, datasets and containers are identified by a <scope:name> (did)
- Scope partitions and isolates the namespace into several sub-spaces:
 - User: **user.jdoe:004406.EXT0.00011.root**
 - Group: **group.phys-higgs:08.physicsD3PDSlimmed.root**
 - Detector: **data11_7TeV:AOD.491965._0042.pool.root.1**
- Metadata

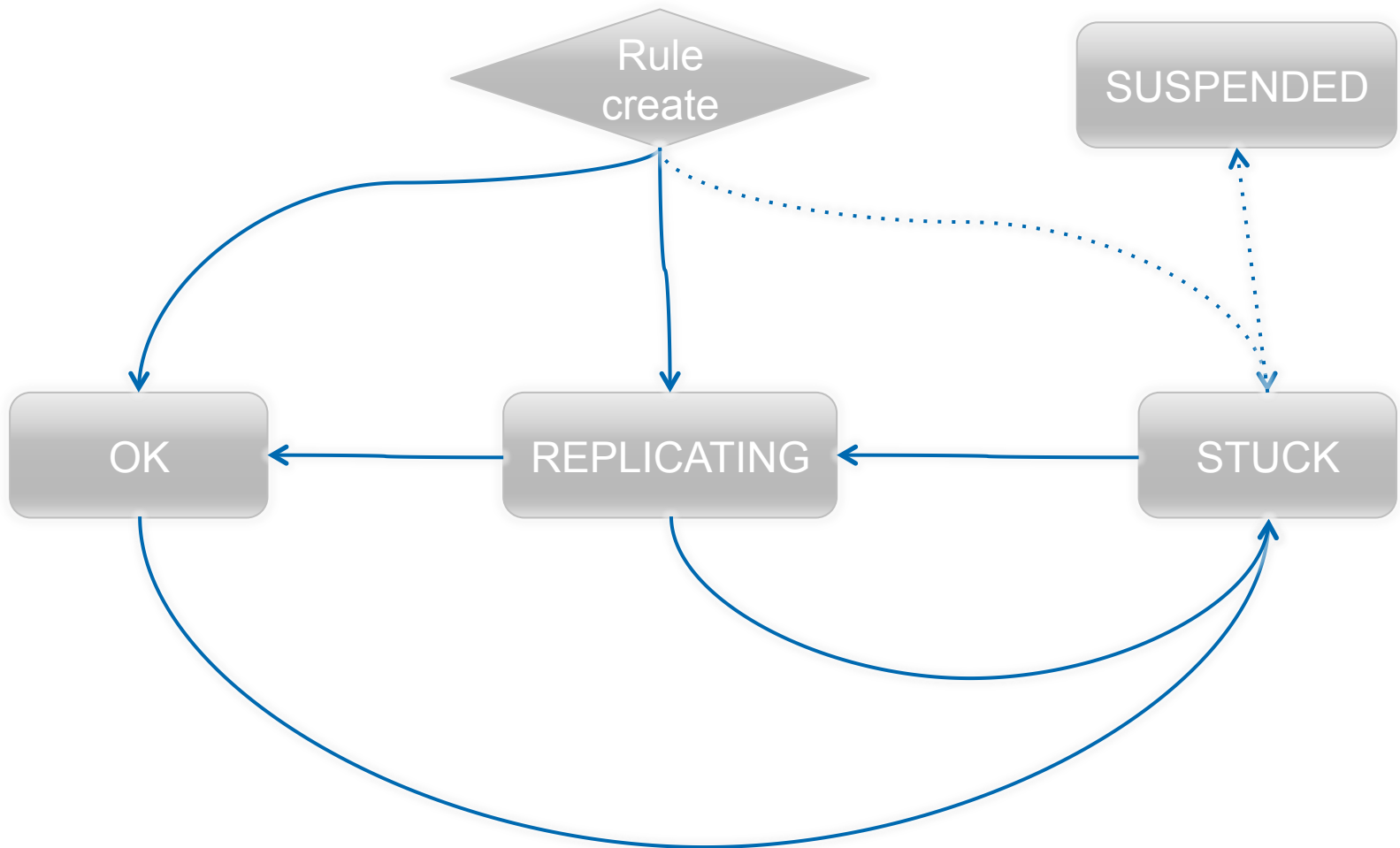
Rucio Storage Element (RSE)

- Software abstraction of a storage end-point
- Deterministic mapping between the logical and the physical file name (some exceptions)
- Each RSE can support multiple protocols
- RSEs can be grouped in logical ways
 - Tagging
 - Attributes
- RSE expressions can be used to select group of RSEs

Replication rules

- A replication rule blocks the replicas of a did from deletion on a RSE.
 - If the did has no replicas at the RSE the rule also transfers them there.
- Accounts are accounted for rules, not actually created replicas.
- Rules have many options:
 - Weights
 - Source replica expression
 - Notifications
 - ...

Rule workflow



Subscriptions

- Different than DQ2 subscriptions!
- Subscriptions offer the on-demand creation of replication rules on new data based on pattern/metadata
- E.g.:
 - `data12_8TeV*physics_Egamma*AOD`
 - Rule with 1 copy on a Tier=1
 - Rule with 2 copies on a Tier=2, only transfer replicas from Tier=1

Clients & Tools

- Rucio Command line clients (CLI)
- Rucio Python API
- Rucio REST interface
- DQ2²Rucio Wrapper

- Rucio-UI <https://rucio-ui.cern.ch/>
- Dashboard (as always)
- Rucio Graphite server
<http://rucio-graphite-prod.cern.ch/dashboard/>

Examples: RSEs

- How to list RSEs

```
> rucio list-rses
AGLT2_CALIBDISK
AGLT2_DATADISK
AGLT2_LOCALGROUPDISK
AGLT2_PERF-MUONS
AGLT2_PHYS-HIGGS
AGLT2_PHYS-SM
AGLT2_PRODDISK
AGLT2_SCRATCHDISK
AGLT2_USERDISK
AM-04-YERPHI_LOCALGROUPDISK
...
```

Examples: RSEs

- How to use RSE expressions

```
> rucio list-rses --expression "tier=1&istape=True"
TRIUMF-LCG2_DATATAPE
BNL-OSG2_MCTAPE
INFN-T1_MCTAPE
BNL-OSG2_DATATAPE
IN2P3-CC_LOCALGROUPTAPE
SARA-MATRIX_DATATAPE
RRC-KI-T1_DATATAPE
FZK-LCG2_LOCALGROUPTAPE
NDGF-T1_DATATAPE
SARA-MATRIX_MCTAPE
TAIWAN-LCG2_DATATAPE
TRIUMF-LCG2_MCTAPE
...
```

Examples: Rules

- How to get rule information

```
> rucio rule-info 082a17053c29cfb5e05317938a895500
Id:                082a17053c29cfb5e05317938a895500
Account:           root
Scope:            mc11_7TeV
Name:             mc11_7TeV.105747.PythiaLLP_ggH1 ...
RSE Expression:   UKI-LT2-RHUL_DATADISK
Copies:           1
State:            OK
Locks OK/REPLICATING/STUCK: 40/0/0
Grouping:         DATASET
Expires at:       2014-12-03 22:55:05
Locked:          False
Weight:          None
Created at:       2012-04-07 22:55:45
Updated at:       2014-09-02 23:37:57
Error:           None
Subscription Id:  None
Source replica expression: None
```

Examples: Rules

- How to get rules for a did

```
> rucio list-rules --did mc11_7TeV:mc11_7TeV.105747.PythiaLLP_g ...
ID (account) SCOPE:NAME: STATE [LOCKS_OK/REPLICATING/STUCK],
RSE_EXPRESSION, COPIES
=====
=====
082a17053c29cfb5e05317938a895500 (root) mc11_7TeV:...: OK[40/0/0],
"UKI-LT2-RHUL_DATADISK", 1
```

Examples: Rules

- From file to rule

```
> rucio list-files mc11_7TeV:mc11_7TeV.105747...
mc11_7TeV:ESD.666068._000001.pool.root.1
...

> rucio list-rules --file mc11_7TeV:ESD.666068._000001.pool.root.1
ID (account) SCOPE:NAME: STATE [LOCKS_OK/REPLICATING/STUCK],
RSE_EXPRESSION, COPIES
=====
=====
082a17053c29cfb5e05317938a895500 (root) mc11_7TeV:...: OK[40/0/0],
"UKI-LT2-RHUL_DATADISK", 1
```

Examples: Rules

- Rules of an account

```
> rucio list-rules --account root
ID (account) SCOPE:NAME: STATE [LOCKS_OK/REPLICATING/STUCK],
RSE_EXPRESSION, COPIES
=====
=====
2b0f106cd7d547c48791855d1c1e8412 (root) tests:...: OK[8/0/0], "CERN-
PROD-RUCIOTEST_DATADISK", 1
08521f5225ee4d61e05317938a89f31b (root) data08_idcomm:...:
OK[1/0/0], "BNL-OSG2_DATATAPE", 1
c40f19d5806c4d04b3929b60203b6ae8 (root) tests:...: OK[8/0/0], "CERN-
PROD-RUCIOTEST_DATADISK", 1
08521f528ad34d71e05317938a895555 (root) data08_idcomm:...:
OK[1/0/0], "SARA-MATRIX_DATATAPE", 1
```

Examples: Rules

- Create rule

```
> rucio add-rule mock:DSetMOCK 1 TOKYO-LCG2_LOCALGROUPDISK
e6f1cf3d8f6e435fa89b250a09b69162

> rucio add-rule mock:DSetMOCK 3 "tier=1&istape=False"
64a273ab213641b79826dae01127bea2

> rucio add-rule mock:DSetMOCK 3 "tier=1&istape=False" --lifetime
36000
e6f1cf3d8f6e435fa89b250a09b69162

> rucio add-rule mock:DSetMOCK 1 "tier=2" --source-replica-
expression "tier=1"
64a273ab213641b79826dae01127bea2

> rucio add-rule mock:DSetMOCK 1 "tier=2" --weight MoU
e6f1cf3d8f6e435fa89b250a09b69162
```


Rucio-UI: Subscriptions

ATLAS Rucio UI Monitoring ▾ Data Management ▾ Using account: barisits ▾ Other Monitoring ▾ [Help](#) ▾

You are here: Subscriptions [ddmadmin] Rucio Version: 0.2.7

Subscriptions

Show entries Search:

Name	Ok	Replicating	Stuck	Suspended
david tests project2	0	0	0	0
david tests project5	0	0	0	0
MWTEST stress test	0	0	0	0
Stress_test	0	0	0	0
Stress_test_t2	0	0	0	0
Stress_test_t2_scratch	0	0	0	0
Tape_read_test	12	0	1355	0
Tape_test	1	0	0	0
Tape_test_T0	1	0	0	0
tomas test1	0	0	0	0

Showing 1 to 10 of 11 entries Previous 2 Next

Last Update: 2014-12-03 16:40

Rucio-UI: Stuck rules

ATLAS Rucio UI Monitoring ▾ Data Management ▾ Search Using account: barisits ▾ Other Monitoring ▾ Help ▾

You are here: Rules for Subscription [ddmadmin, Tape_read_test, Stuck] Rucio Version: 0.2.7

Rules

Show entries Search:

Name	Creation Date	Locks OK	Locks Replicating	Locks Stuck
step14.10045.automatix_stream.rec on.ESD.677	Mon, 01 Dec 2014 18:32:22 UTC	0	0	8
step14.10074.automatix_stream.rec on.ESD.109	Wed, 03 Dec 2014 02:22:50 UTC	0	0	8
step14.10185.automatix_stream.rec on.ESD.26	Tue, 02 Dec 2014 16:26:22 UTC	0	0	8
step14.10195.automatix_stream.rec on.ESD.989	Tue, 02 Dec 2014 15:40:55 UTC	0	0	8
step14.10253.automatix_stream.rec on.ESD.714	Tue, 02 Dec 2014 06:36:51 UTC	0	0	8
step14.10258.automatix_stream.rec on.ESD.402	Wed, 03 Dec 2014 06:46:25 UTC	0	0	8
step14.10269.automatix_stream.rec on.ESD.496	Wed, 03 Dec 2014 02:35:53 UTC	0	0	8
step14.1027.automatix_stream.reco n.ESD.223	Tue, 02 Dec 2014 23:00:53 UTC	0	0	8
step14.10277.automatix_stream.rec on.ESD.300	Tue, 02 Dec 2014 22:29:46 UTC	0	0	8
step14.103.automatix_stream.recon .ESD.399	Wed, 03 Dec 2014 03:50:48 UTC	0	0	8

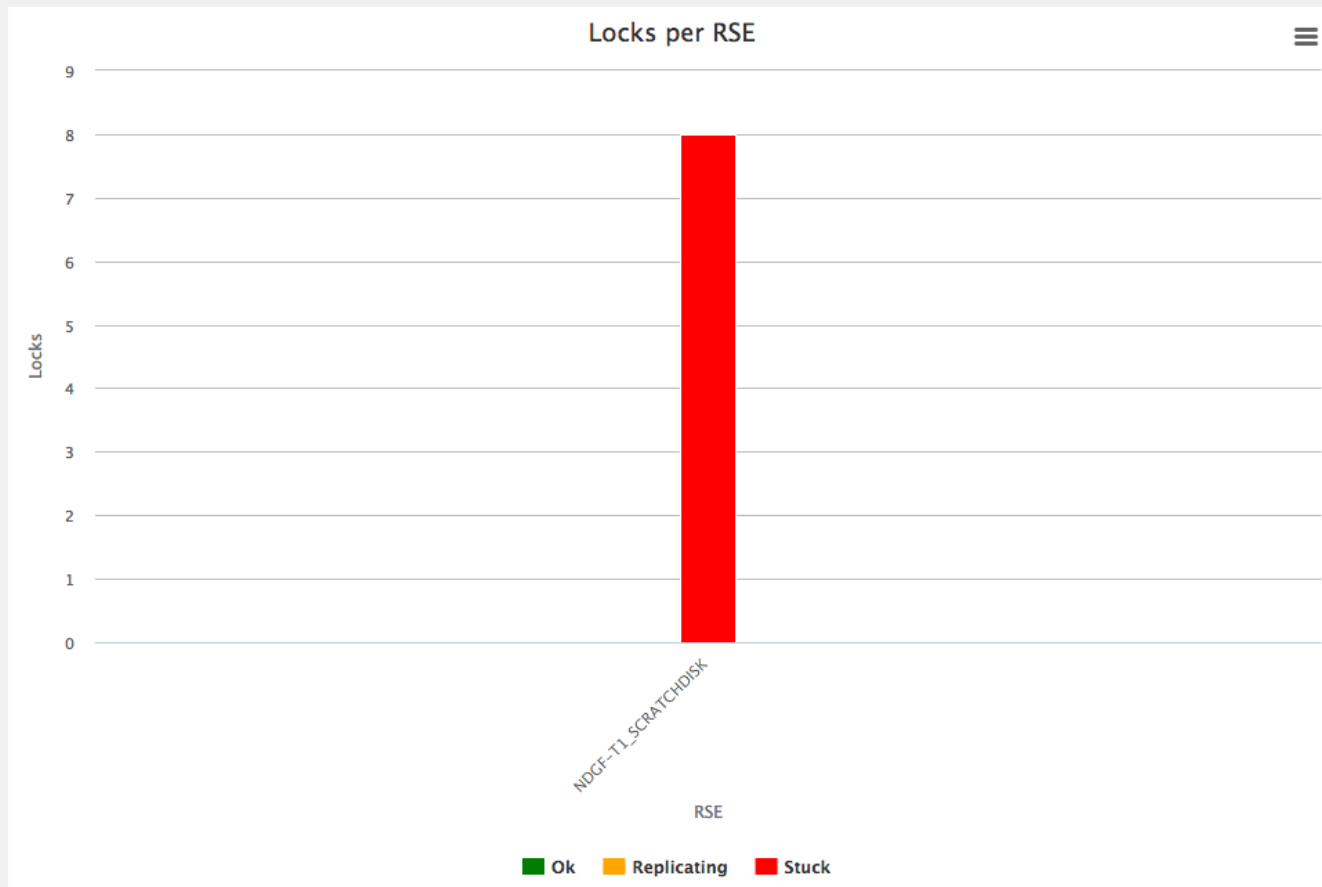
Showing 1 to 10 of 1,358 entries Previous 2 3 4 5 ... 136 Next

Rucio-UI: Stuck rule

Rule metadata	
account	ddmadmin
activity	T0 Export
copies	1
created_at	Wed, 03 Dec 2014 02:35:53 UTC
error	MissingSourceReplica
expires_at	Fri, 05 Dec 2014 02:35:53 UTC
grouping	DATASET
id	9abfc7fd4bc74a5f9349bc608f444771
locked	false
locks_ok_cnt	0
locks_replicating_cnt	0
locks_stuck_cnt	8
name	step14.10269.automatix_stream.recon.ESD.496
notification	NO
rse_expression	NDGF-T1_SCRATCHDISK
scope	tests
source_replica_expression	NDGF-T1-RUCIOTEST_DATATAPE
state	STUCK
stuck_at	Wed, 03 Dec 2014 02:46:27 UTC
subscription_id	5605283bb6c5412f84339d8b9d6175ab
updated_at	Wed, 03 Dec 2014 15:42:14 UTC

Rucio-UI: Stuck locks

Locks Overview



Rucio-UI: Stuck locks

Lock States per File

Show Search:

entries

Filename	RSEs
tests:ESD.00b0993496c24498b5e2f2ea1171be5c	NDGF-T1_SCRATCHDISK
tests:ESD.109806c26cf84c00b87e889f23f3ff30	NDGF-T1_SCRATCHDISK
tests:ESD.200b46ebffcb44328e588b9005630984	NDGF-T1_SCRATCHDISK
tests:ESD.542cd6d7f362486dab2aac1e84ef29f9	NDGF-T1_SCRATCHDISK
tests:ESD.5b96d6a9770e4ba5919bb39ee22fa703	NDGF-T1_SCRATCHDISK
tests:ESD.6e6366febd5744b5aa189c796e699941	NDGF-T1_SCRATCHDISK
tests:ESD.ae94dc4b18404c7d898b27d0c045e673	NDGF-T1_SCRATCHDISK
tests:ESD.c377c42c1e26494f9a304f72398a9dc9	NDGF-T1_SCRATCHDISK

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Questions?



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