

ECCS v2.1.0

eduGAIN Connectivity Check Service

24 May 2022

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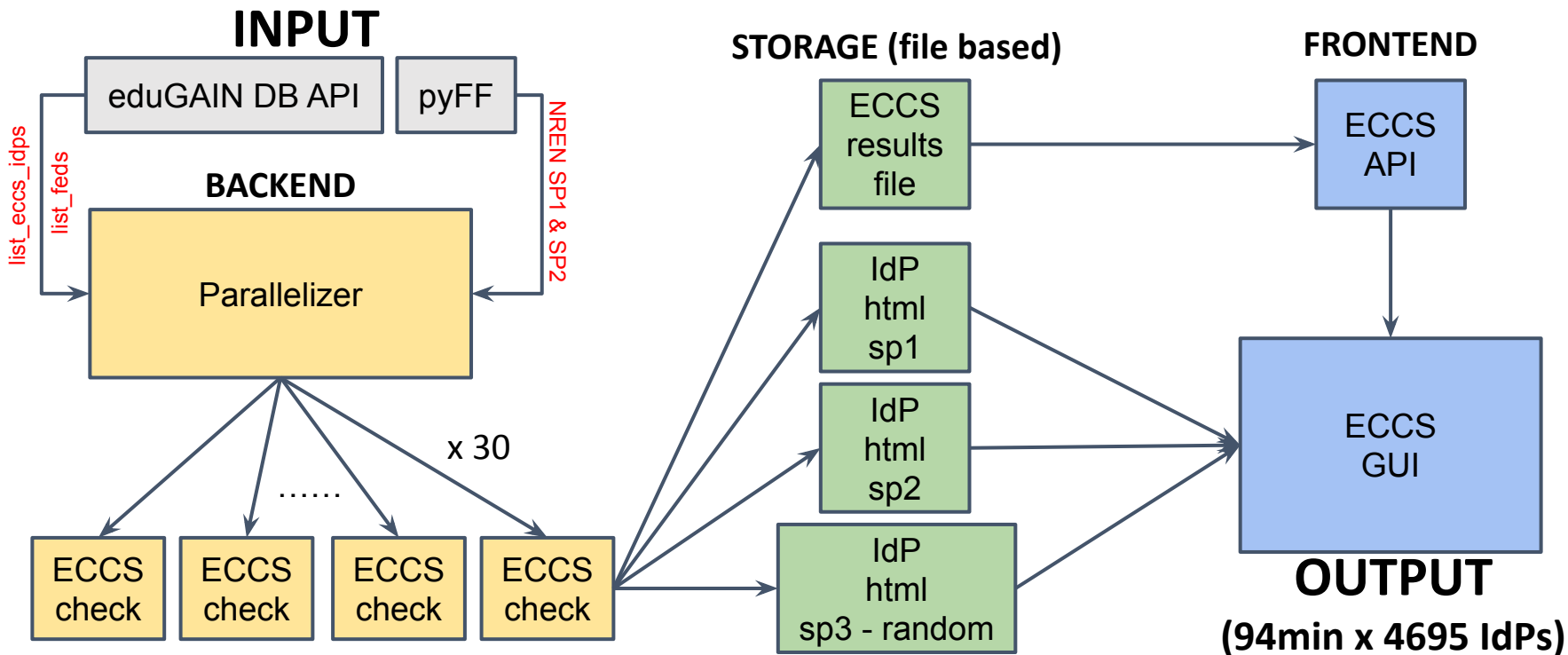
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Determine where possible whether an eduGAIN IdP consumes the eduGAIN SAML 2.0 Metadata provided by its own Federation.

Increase the service overall quality and user experience of the eduGAIN interederation service by making federation and Identity Provider operators aware of configuration problems.

Architecture

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eduGAIN DB API

eduGAIN DB API's called actions:

- the IdPs to check => [list_eccs_idps](#)
- the Federations datas => [list_fed](#)

pyFF

python Federation Feeder (pyFF) v2.0.0 is used to:

- download NREN SPs metadata via IDEM MDX
- validate signature and syntax metadata
- generate input/sps-metadata.xml

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Parallelizer

The Parallelizer is a Python script that has the goal of running several ECCS check in parallel. The default number of parallel commands is set to **30**.

The Parallelizer uses the **asyncio** library to run concurrent subprocesses using the `async/await` syntax and a queue.

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ECCS
check

The ECCS check is written in Python and it is the core of the eduGAIN Connectivity Check Service:

1. it doesn't check the disabled IdPs
2. it verifies the SSL certificate of the IdP SSO HTTP-Redirect Location
3. it tests the IdP with 3 different SPs (2 real + 1 fake)
4. it returns the result

Functioning - No check for disabled IdPs

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The ECCS check allows owners to disable the check for their IdP:

1. By the robots.txt file into the *DocumentRoot* of their IdP HTTP-Redirect SSO Location
2. By asking to the eduGAIN Operation Team through their Federation Operators

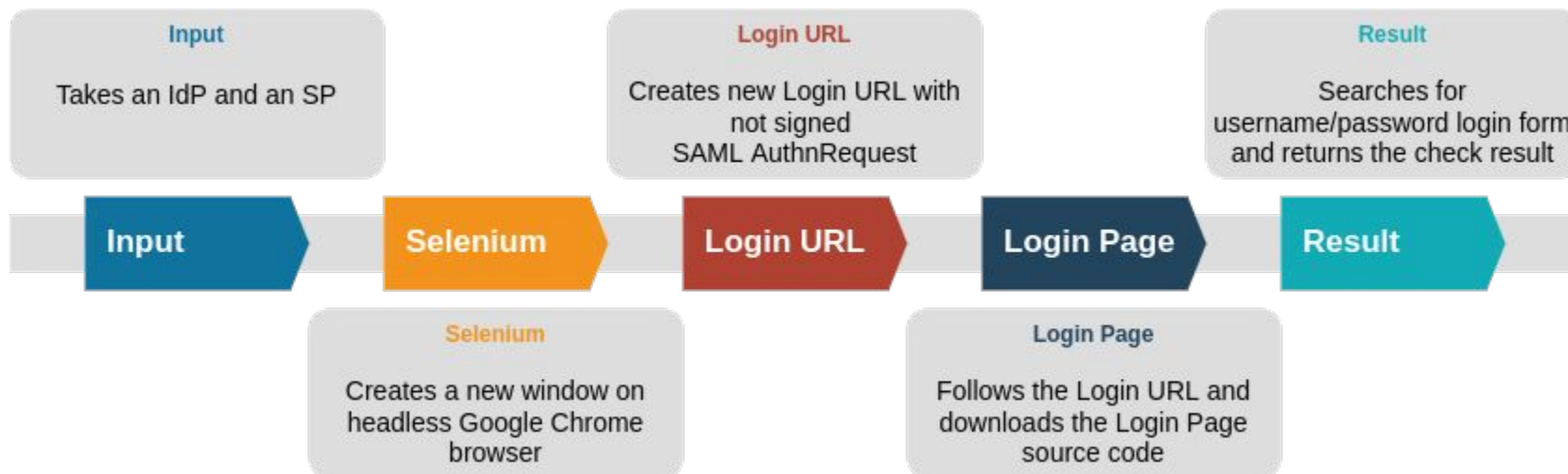
Functioning - SSL Validation

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ECCS check validates the SSL certificate used by the IdP SSO HTTP-Redirect Location before doing the check and stops itself by returning the **ERROR** status if the certificate is not valid.

Functioning - IdP Login Page test

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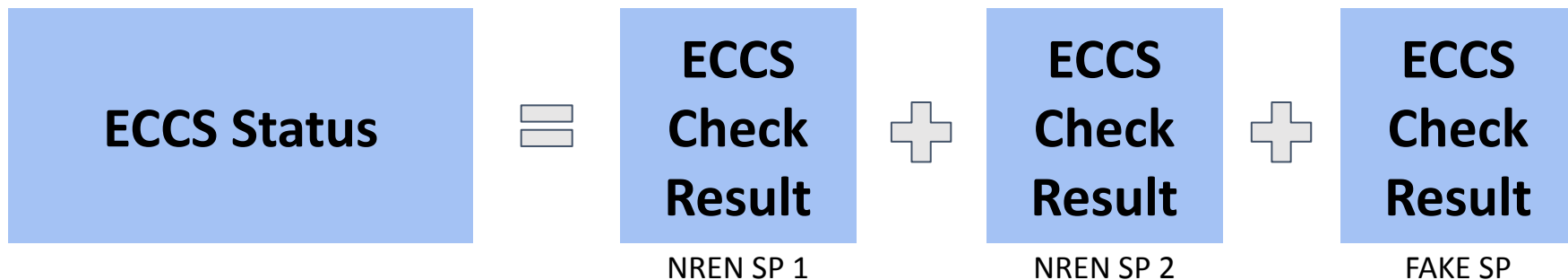
ECCS handles two type of result:

1. **ECCS Check Result:**

the result of the ECCS check performed for an IdP on a single SP (**checkResult**)

2. **ECCS Status:**

the result of the sum of all ECCS check results performed for an IdP (**status**)



Functioning - IdP Login Page test

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ECCS Check Results	Reason
OK	The IdP <i>most likely</i> correctly consumes eduGAIN metadata and returns a valid login page or an HTTP Basic Authentication form.
<i>Disabled</i>	The IdP has been excluded by either robots.txt or admin request.
<i>Unable-To-Check</i>	The IdP can't be checked because it does not return a recognised login page or an error recognised by check.
<i>No-SP-Metadata-Error</i>	The IdP <i>most likely</i> does not consume the eduGAIN metadata correctly because it returns a message like " <i>No return endpoint available for relying party</i> " or " <i>No metadata found for relying party</i> " or other recognised error. The message is detected on the login page code by a regular expression.

Functioning - IdP Login Page test

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ECCS Check Results	Reason
<i>Connection-Error</i>	The IdP can't be check because ECCS met a connection problem during the opening of the login page.
<i>IdP-Generic-Error</i>	The IdP returns a recognised error instead of a recognised login page. The error is detected on the login page code by a regular expression.
<i>SSL-Error</i>	The IdP has an SSL problem on its SSO HTTP-Redirect Location
<i>Timeout</i>	The IdP does not display its Login page within 60 seconds.
<i>403-Forbidden</i>	The IdP returns a 403 HTTP status code

Functioning - IdP Login Page test

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ECCS Check Result			ECCS Status
SP1 (IDEM)	SP2 (SWITCH)	SP3 (FAKE)	
Disabled	Disabled	Disabled	DISABLED
OK	OK	Any check result, but not OK	OK
OK	OK	OK	UNKNOWN
Unable-To-Check	OK	Any check result	UNKNOWN

Functioning - IdP Login Page test

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ECCS Check Result			ECCS Status
SP1 (IDEM)	SP2 (SWITCH)	SP3 (FAKE)	
Connection-Error	OK	Any check result	ERROR
OK	IdP-Generic-Error	Any check result	ERROR
SSL-Error	OK	Any check result	ERROR
OK	Timeout	Any check result	ERROR
403-Forbidden	OK	Any check result	ERROR
OK	No-SP-Metadata-Error	Any check result	ERROR

Functioning - Returning the check result

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The output is a Python dictionary with the results of all ECCS checks performed for the IdP

```
{
  "displayName": "ABC",
  "entityID": "https://idp.example.org/idp/shibboleth",
  "registrationAuthority": "http://www.federation.org/",
  "contacts": {
    "technical": "mailto:technical1@example.org,mailto:technical2@example.org",
    "support": "mailto:support1@example.org"
  },
  "status": "OK",
  "sp1": {
    "entityID": "https://sp-demo.idem.garr.it/shibboleth",
    "checkTime": "2022-05-02T05:30:33Z",
    "checkResult": "OK"
  },
  "sp2": {
    "entityID": "https://attribute-viewer.aai.switch.ch/interfederation-test/shibboleth",
    "checkTime": "2022-05-02T05:30:56Z",
    "checkResult": "OK"
  },
  "sp3": {
    "entityID": "https://syrugumqau.org/shibboleth",
    "checkTime": "2022-05-02T05:31:06Z",
    "checkResult": "No-eduGAIN-Metadata"
  }
}
```


Functioning

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ECCS
results
file

IdP
html
sp1

IdP
html
sp2

IdP
html
sp3 - random

The results of the ECCS check are stored in JSON and HTML files and then used by the ECCS API and ECCS GUI to display the results quickly.

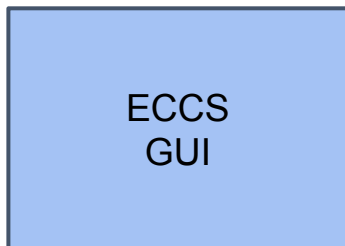
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ECCS
API

The ECCS API provides two actions:

- **eccsresults**: Returns ECCS results
- **fedstats**: Returns federation statistics

The ECCS GUI uses the power of [DataTables](#) to quickly load the JSON produced by the ECCS API and display the results:



eduGAIN Connectivity Check Service ([Instructions](#), [Contacts](#))

The purpose of the eduGAIN Connectivity Check is to identify eduGAIN Identity Providers (IdP) that does not properly consume eduGAIN SAML2 SP metadata.

Show IdPs with status: ERROR OK UNKNOWN DISABLED Select date:

Show entries

Showing 1 to 10 of 4,687 entries

Previous 2 3 4 5 ... 469 Next

	DisplayName	EntityID	Registration Authority
<input data-bbox="591 745 614 758" type="button" value="+"/>	A'SHARQIYAH UNIVERSITY	http://adfs.asu.edu.om/adfs/services/trust	http://www.omren.om
<input data-bbox="591 781 614 794" type="button" value="+"/>	A'Sharqiyah University (OM-KID)	https://trc.asu.edu.om/idp/shibboleth	https://www.trc.gov.om/trcweb/
<input data-bbox="591 817 614 831" type="button" value="+"/>	A*STAR - Agency for Science, Technology and Research	https://a-star.singaren.net.sg/simplesaml/saml2/idp/metadata.php	https://www.singaren.net.sg
<input data-bbox="591 853 614 867" type="button" value="+"/>	A. T. Still University	https://my.atsu.edu/swPublicSSO/SAML/incommon	https://incommon.org
<input data-bbox="591 889 614 903" type="button" value="+"/>	AAF Virtual Home	https://vho.aaf.edu.au/idp/shibboleth	https://aaf.edu.au
<input data-bbox="591 926 614 939" type="button" value="+"/>	AAI@EduHr - Croatian Research and Education Federation	https://login.aaiedu.hr/edugain/saml2/idp/metadata.php	http://www.srce.hr
<input data-bbox="591 962 614 975" type="button" value="+"/>	Aalborg University	https://wayf.aau.dk	https://www.wayf.dk

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1. **History of the results:** the user can see the results of the check run in the past
2. **SSL validation on IdP SSO HTTP-Redirect Location**
3. **ECCS check switch off by the user or their own Federation Operators:** the user can use a simple 'robots.txt' file or ask to their own Federation Operator to disable her/his own IdP with the help of eduGAIN Operation Team member.
4. **JSON API:** providing several kind of information
5. **Customizable Data Set:** the data showed in the results table can be customized through parameters in the service URL
6. **Simple:** No database needed, The service manages simple text files only, Only 4 possible statuses: ERROR, OK, DISABLED, UNKNOWN. The check stops at the login page or at SSL Certificate validation, hence, No complete login happens.
7. **Fast:** 1,2 seconds average to check an IdP

Demo

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<https://technical.edugain.org/eccs>

Demo - Customized Data Set

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https://technical.edugain.org/eccs?reg_auth=http://ukfederation.org.uk&status=ERROR

https://technical.edugain.org/eccs?reg_auth=http://ukfederation.org.uk&check_result=SSL-Error

Demo - JSON API

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https://technical.edugain.org/eccs/api/eccsresults?reg_auth=http://ukfederation.org.uk&status=ERROR&format=simple

https://technical.edugain.org/eccs/api/fedstats?reg_auth=http://ukfederation.org.uk&date=2022-05-23

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- **GUI Developers**
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- **Géant GitLab Repository:**
 - <https://gitlab.geant.org/edugain/eccs>
- **Géant Wiki Documentation:**
 - <https://wiki.geant.org/display/eduGAIN/eduGAIN+Connectivity+Check>

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Thank you all!



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