

TSA CLIENT NEW VERSION

12 years later (2007), a new version arises...



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eHealth Team

- Julie Sansdrap: Project manager
- Benoit Dupont: Architect
- Luca Di Marino: Analyst
- Marc Van Cauwenberghe: Application Engineer

The timestamp client mission

- Each hospital generates daily prescriptions
- The law states that these prescriptions are timestamped in a way that if fraud is suspected, then it can be detected
- The controlling authority is the INAMI
- The service provider is eHealth
- The clients are the hospitals

Why ?

- The TTScient uses TLS 1.0 or 1.1
- eHealth reverse proxy, first point of contact for all our webservices, will block all TLS 1.0 and 1.1 for our next major release 20192 (10/2019)
- Old client is difficult to maintain as it has never been updated and relies on outdated technologies (java6, old mssql db, axis, wrapper, ...)
- It uses a bugged version of the timestamping webservice (v1)
 - Double encoding in base64 issue
 - The token returned contains the full SignResponse and not just the token (doesn't respect the RFC)

What ?

- A full new client is proposed
 - Code and processes are simplified
 - Uses the timestamping webservice v2 instead of v1
- It needs to be installed on all the hospitals that use the old client

TS Client model

- A bag
 - Is a collection of journals, that are offuscated (hashed)
 - Is sent to eHealth webservice to be timestamped, avoid too many requests
 - Content cannot be known by eHealth thanks to offuscation
- A journal is a singular item that represent the data from the client, for example a prescription

Client v1 processes

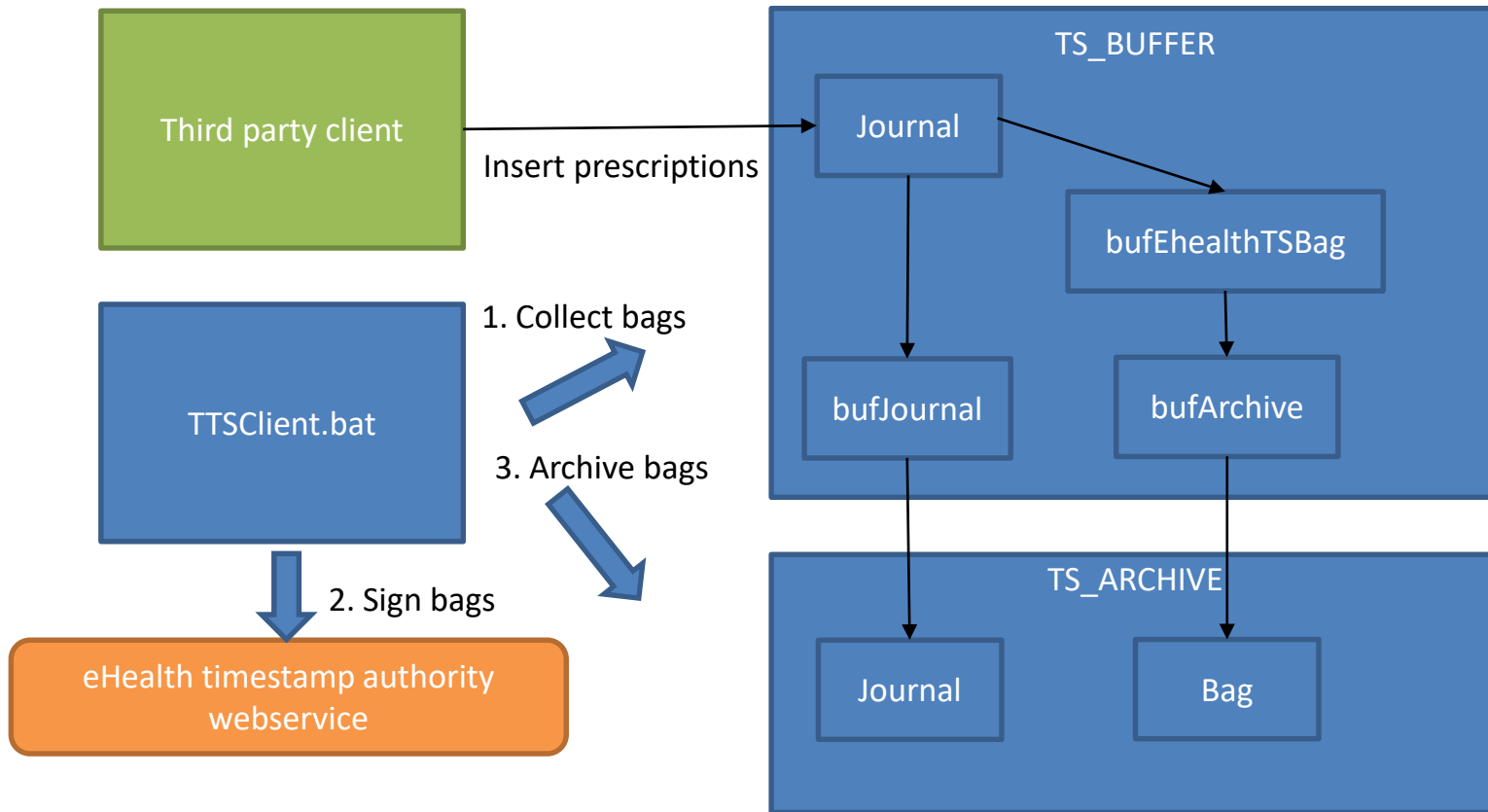
- The **TTSCClient** sign bags and archive them in a database
- The **checkArchiveDB** ensure that things archived are correct
- The **Viewer** allows the user
 - To visualize the database content with a GUI,
 - To do coherence verification (green/red bullets)
 - To export the database for the INAMI
- Other bats display in command line the database content or do more specific validations

Old client architecture

- Client is written in Java6
- Microsoft SQL Server database with two schemas:
 - TS_BUFFER
 - TS_ARCHIVE
- Collection of .bat, signer and verification installed as Windows services

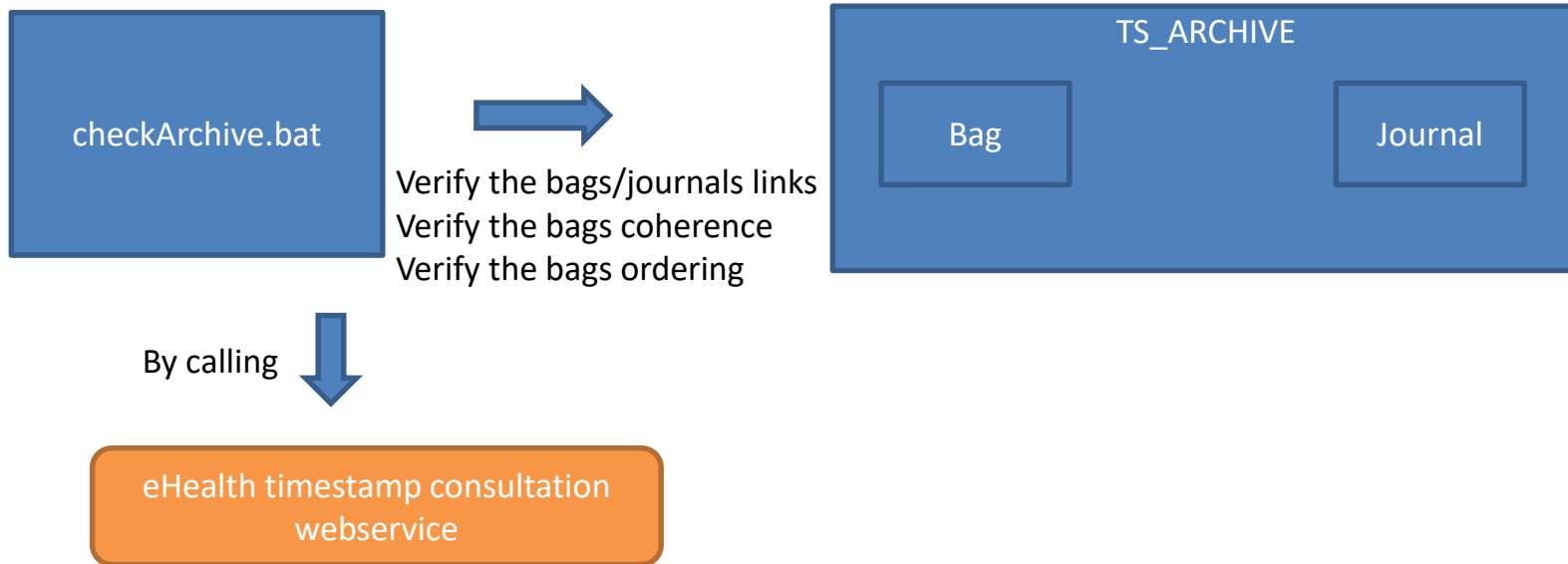
Old client architecture (1)

The TTSClient/Signing process



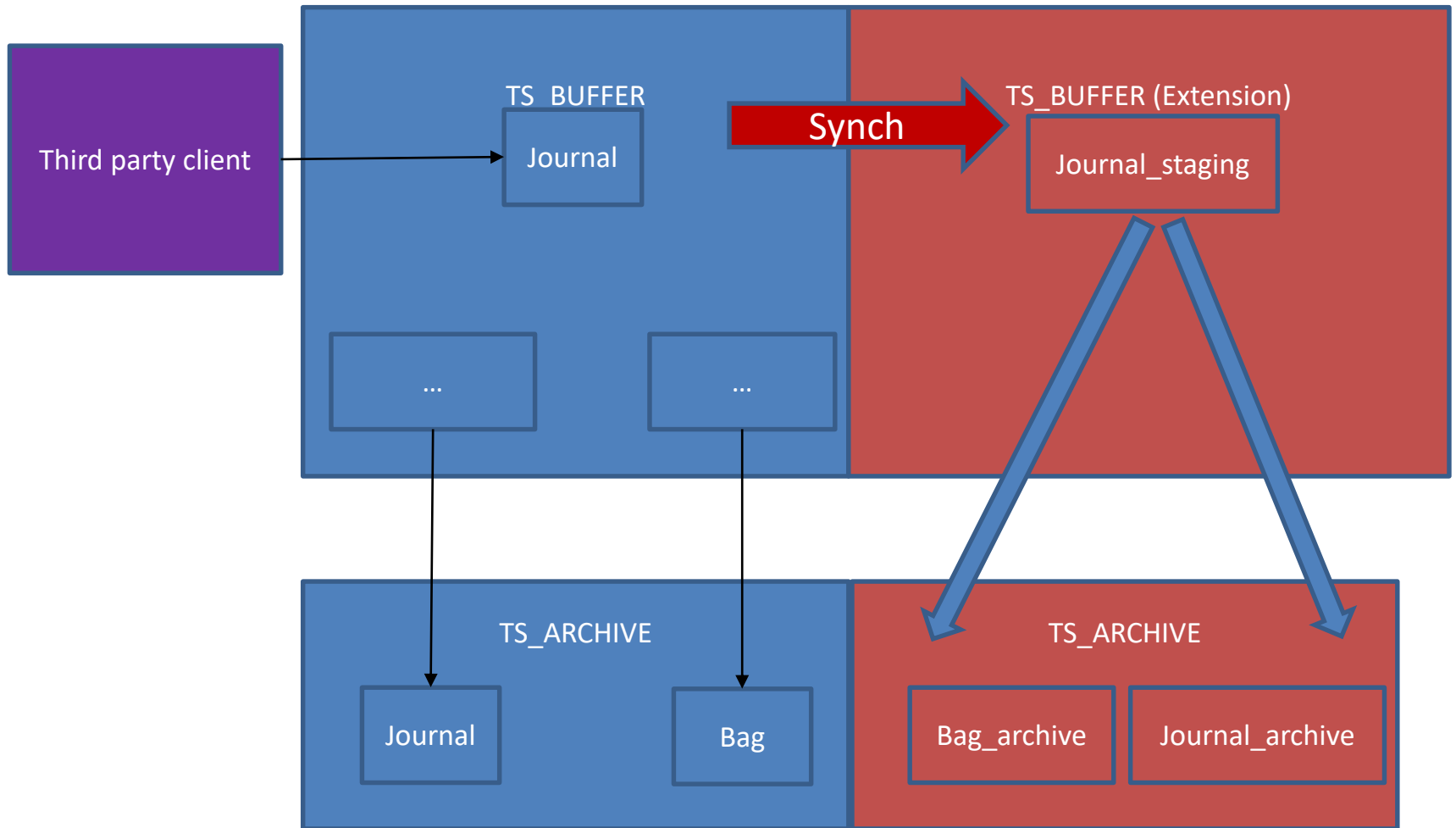
Old client architecture (2)

The verification process



- + tools (.bat and the Viewer) not represented here that
- > verify the integrity of the ts_buffer tables
- > display information on the different objects in the table

Client v2 new architecture



And the Viewer ?

- The Viewer is not provided by eHealth anymore
- The INAMI will use a dedicated tool for controls
- Hospitals can use the 'verify' option to validate the day's timestamps
- Command line tooling is provided to display the database content, or it can be done directly via a database tool like Microsoft SQL Server Management Studio

Technologies

- Java 8 OpenJDK because it has Oracle Long Term Support
- Microsoft SQL Server
- Windows/Windows server and Linux
- eHealth connector for
 - Webservice integration and security
 - Certificate TSL management
 - Timestamp validation

Execution

- Manual command-line execution of a jar (Spring Boot)
- Windows task scheduler or Linux cron for repeated executions
- Recommended execution frequency:
 - Sign: every 5 minutes
 - Verify: once per day
- Please ensure that your databases are backed up regularly

Deliverable

- Portal
 - <https://www.ehealth.fgov.be/ehealthplatform/nl/service-elektronische-datering-timestamping>
 - <https://www.ehealth.fgov.be/ehealthplatform/fr/service-datation-electronique-timestamping>
- Signed jars available on public Artifactory
 - <http://repo.ehealth.fgov.be/artifactory/webapp/#/artifacts/browse/tree/General/maven2/be/fgov/ehealth/timestamping/>
- Three jars
 1. timestamping-client-boot: sign and verify timestamp
 2. timestamping-client-configurationTemplate: installation template
 3. timestamping-client-validator: validates the installation configuration

Tooling

- Command line

```
java -Dloader.path=[path_to_you_configuration_folder]/ -jar timestamping-client-boot-1.0.0-beta-1.jar --[option]
```

- Options

- sign* Collect journal entries in a TSBag
Sign TSBag via a call to Timestamping Authority Service
Store TSBag and journal entries in hospital archives
- verify* Are all journal entries in a TSBag with the correct hash code?
Are all journal entries mentioned in a TSBag present in DB?
Is timestamp token ok? (digital signature, hashcode)
Content of hospital archive = content of eHealth archive
By default: today verification
Period configurable: *--start* and *--end*

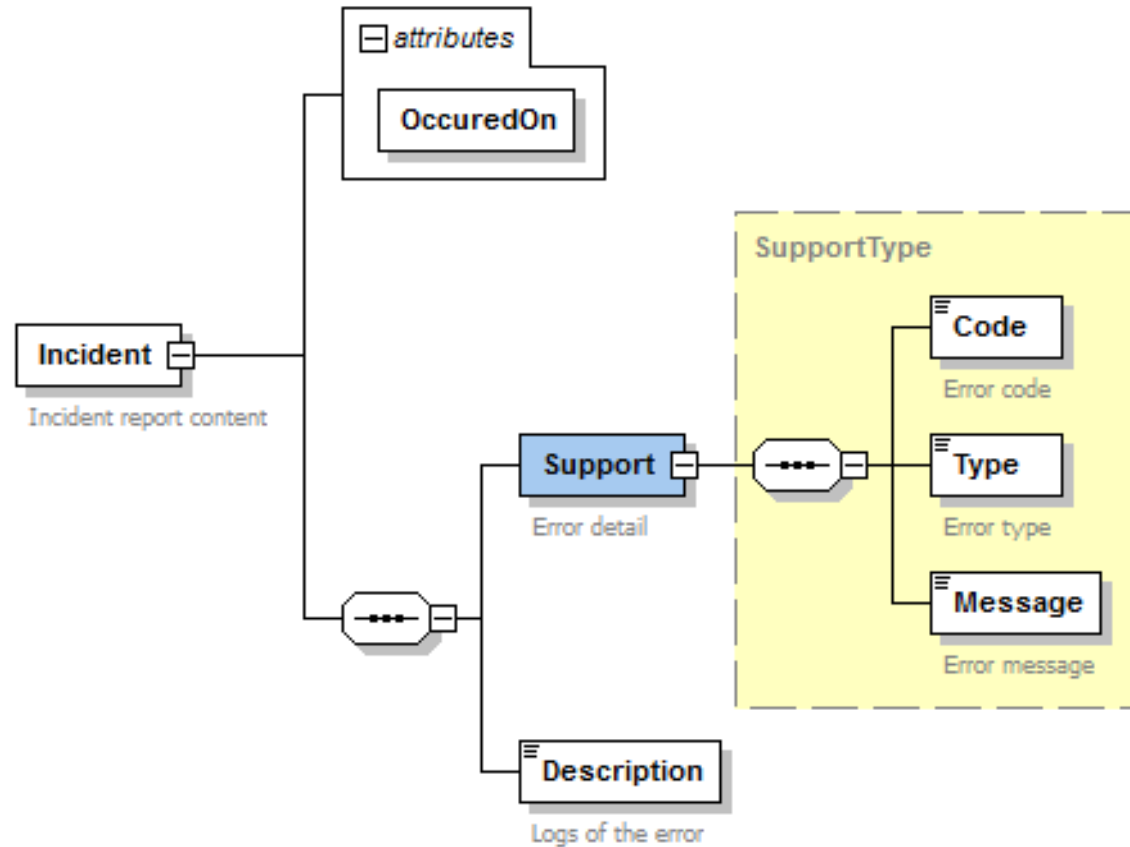
Tooling (1)

--displayBag Display the content of a bag on basis of the bag id

--displayJournal Display the content of a journal on basis of the journal id

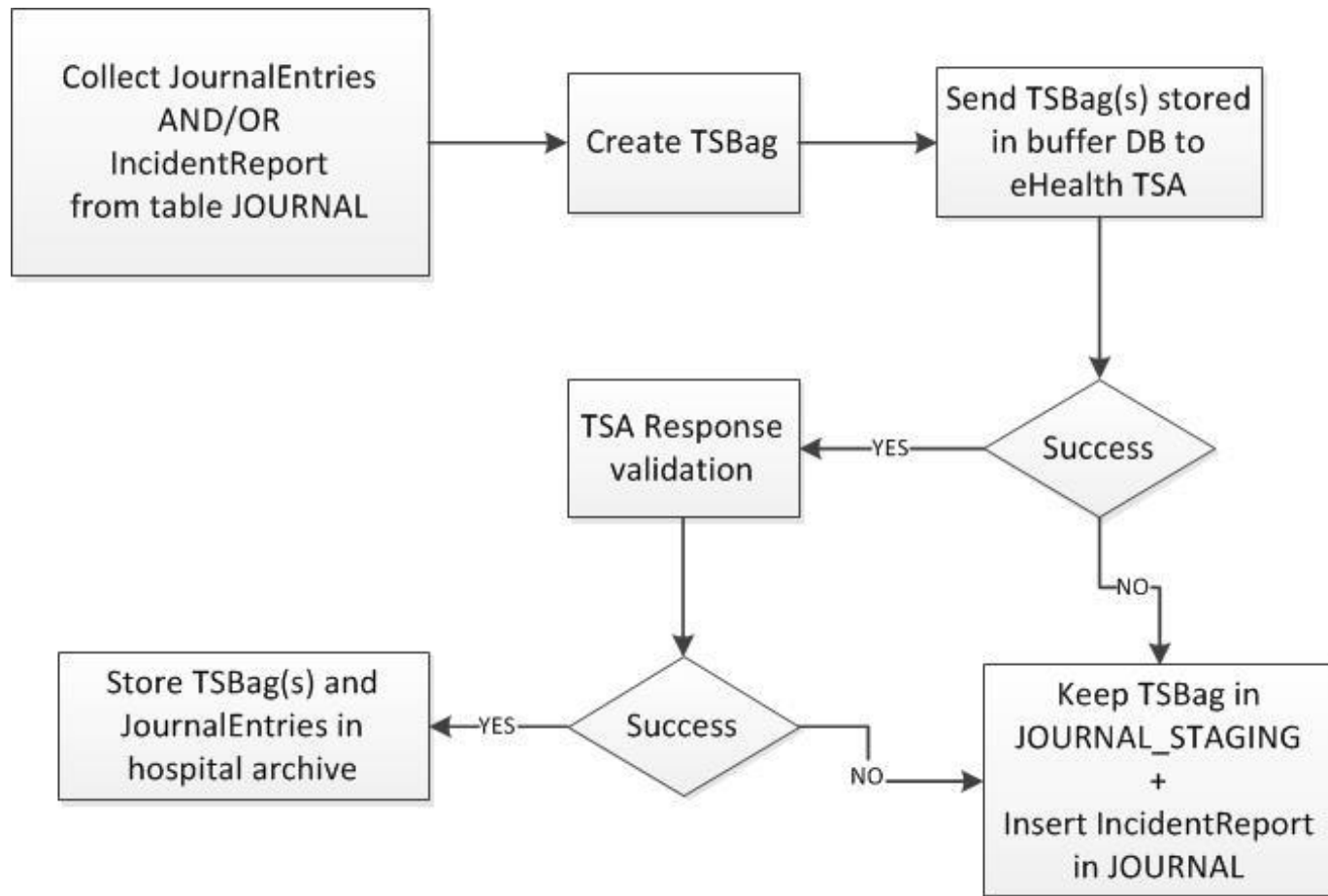
Incident reporting

- Format



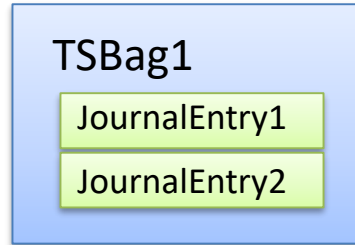
Incident reporting (1)

- Flow method --sign



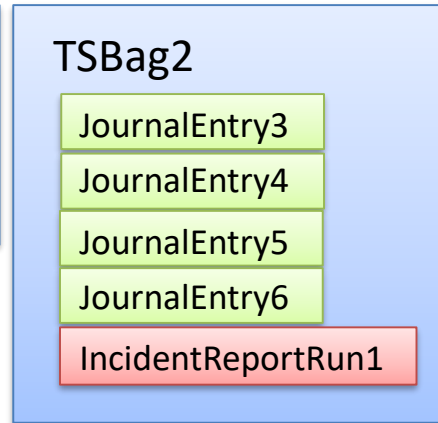
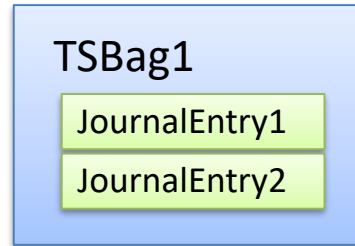
Incident reporting - example

TS Client Run 1



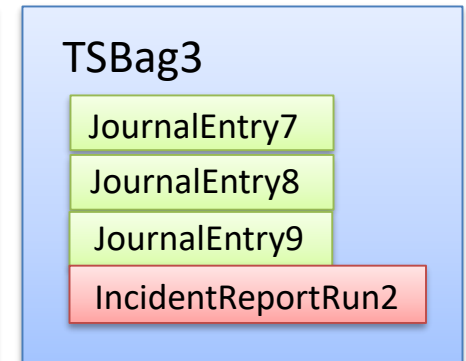
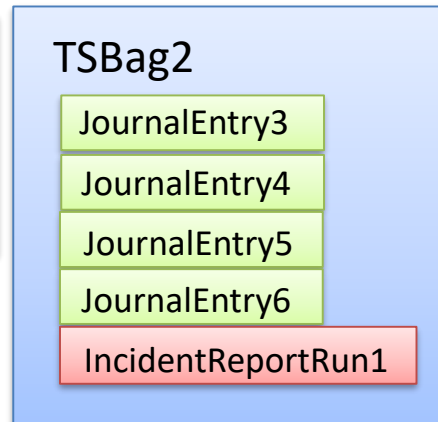
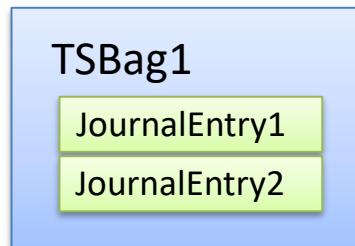
TS Client Run 2

If Run 1 = FAIL



TS Client Run 3


If Run 1 = FAIL
& Run 2 = FAIL



Demo



Planning

- Migration to TS Client V2 can start right now
- 26/06/2019 ➡ 06/09/2019:
 - Hospitals migration and testing on TS Client V2 – beta version(s)
 ONLY IN ACCEPTATION
 - Delivery of the TS Client V2 final version by eHealth
- 09/09/2019: TS Client V1 will not work anymore in ACC
- 09/09/2019 ➡ 18/10/2019:
 - Hospital migration and testing on TS Client V2 – final version in ACC
 - Hospital migration and testing on TS Client V2 – final version in PROD (ONLY if testing in acceptance is successful)
- 20/10/2019: TS Client V1 will not work anymore in PROD

Support

- Contact address: integration-support@ehealth.fgov.be
- What?
 - Access configuration to eHealth Timestamping Authority/Consultation service V2
 - Help in case of problems for TS Client installation, configuration, use, ...



THANK YOU! QUESTIONS?



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