| **File name** | IFSE data migration |
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| **Author** |  |
| **Confidentiality** | Internal |
| **Last save date** | Monday, March-01-2021 at 3:07:00 PM10:22 AM |

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# Moving data to IFSE production

We can have multiple rounds of any phase.

Timeline:

1. Phase 1 - Insert static data (exams, pools, locations) to YTM production:
   1. Create manually in production (**Preferred way**)
   2. Importing from excel Templates (Locations)
   3. Export from sandbox and import to production (Exams, Pools) – there will be some rules that need to be followed to support maintaining the relations between exams and pools fully. **(declined)**
2. Phase 2 – Relations. Connect YTM exams with Lambda Courses in Lambda production. YTM recommendation is to do this manually after static data is transferred. (**IFSE agreed**)
3. Phase 3 – Sessions and Venues:
   1. Create manually in production
   2. Import to production from excel templates (**Preferred way**)
4. Phase 4 – Students. All student profiles should be imported through Lambda using API endpoints to production. The import can be tested on the sandbox, but it is not recommended to export users from the sandbox and import them to production due to potential validation issues.
5. Phase 5 – Proctors and instructors. It can be imported either through lambda or YTM templates or manually in production.
6. Phase 6 – Exam bookings. The existing mechanism should be used. They should be imported through Lambda using the rest API

Phases 1,2,3,5 can be done incrementally over time. Phases 4 & 6 will probably have to be done on December 1. We should have several end-to-end simulations before that date.

# Environments

## Production

* The official production environment.
* The production data should be imported migrated in this environment before the go-live date.
* IFSE should use this environment to import only clean production-ready data.
* The environment is upgraded when the new version is tested and approved in the sandbox environment.

|  |  |  |
| --- | --- | --- |
| **Component** | **URL** | **Version** |
| YouTestMe App | <https://ifse.youtestme.com> | 10.2.12r |
| YouTestMe API | TBD | TBD |
| Lambda App | TBD | TBD |

## Sandbox

* The environment is used for integration, testing, and new versions delivery.
* The environment can contain testing data.
* The environment is upgraded whenever the new Lambda or YTM version is available.

|  |  |  |
| --- | --- | --- |
| **Component** | **URL** | **Version** |
| YouTestMe App | <https://demo13.youtestme.com> | 10.4.4.2s |
| YouTestMe API | <https://demo13-api.youtestme.com/service5/swaggerui/dist/index.html> | 10.4.4.2s |
| Lambda App | <https://ifse-stg.lambdastore.net/> | ??? |

## Production copy

* The environment is a copy of the production environment from some point in time.
* The environment is used for testing production data.
* The environment version has the same version as the original production environment.

|  |  |  |
| --- | --- | --- |
| **Component** | **URL** | **Version** |
| YouTestMe App | TBD | TBD |
| YouTestMe API | TBD | TBD |
| Lambda App | TBD | TBD |

# Data migration and import

## YTM’s recommendation for the production data

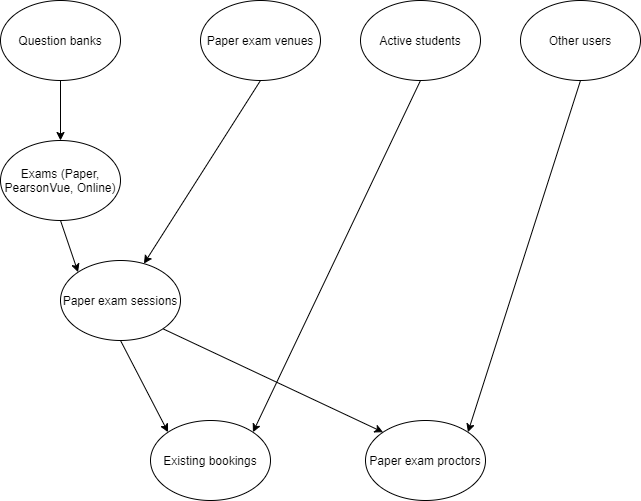
* All data from the old system should be migrated directly to production.
* Migration from the old system to the sandbox and after from the sandbox to production is a two-step process.
* Sandbox can contain massive unclean testing data not relevant for production. It can be hard to filter out the production from non-production data.
* The sandbox environment is a testing and integration environment, and potential bugs can harm the production data.
* All three parties have access to the sandbox environment. We cannot distinguish easily between the production and testing data, so someone can accidentally change or delete the production data during the testing.
* IFSE will only have access to the production environment. In the production environment, all data is considered clean production data.

## General rules

* The data in the production environment should be kept clean.
* Production data should be created/imported/migrated directly into the production environment.
* Data migration from the sandbox and testing environments should be avoided.
* The production data should be backed up regularly according to the agreed schedule or on-demand.
* The data migration should be divided into phases and batches and migrated data should be validated after the completion of each phase. The massive data migration in a short period is always risky, and everything that can be set before go-live should be done in advance.
* The testing of production data should be done on the copy of the production data to avoid the dirty test data on the production.
* When the production environment is ready, IFSE should create/import or migrate from the old system directly to the production environment.

## Data dependencies

The diagram below illustrated the dependencies between migration data. Dependencies must be satisfied in the migration process. For example, the question banks must be imported before exams that use those question banks.



## Migrating sandbox data to production

* The sandbox should not be used for the data that goes into production.
* IFSE should specify all the data from the sandbox environment (at the start of the data entry process) that should be migrated to production, and YTM will advise what the easiest migration way is.

## Exam questions banks migration

* All question banks that are not imported in the sandbox should be imported directly into production.
* Question banks imported in the sandbox can be exported and imported in the production or reimported using Excel templates previously used to import in the sandbox. It is important to keep the references with sandbox exams migrated to production. YouTestMe will have to adjust current import/export capabilities to preserve the exam–question bank references.
* The detailed instructions for question bank migration is sent to IFSE:

## Exams (Paper, PearsonVue, Online) migration

1. Create question pools
2. Create exam
   1. Include questions from question pools
   2. Set delivery preference to be “Paper-based” | “PearsonVue” | “Online” | “Proctoring” [TBD]
      1. “Paper-based” - Decide on the test creation methods:
         1. For pre-printed exams: manually defined exam versions
         2. For newly created exams: static test generator (generate versions in advance)
         3. Define unique names for each of your exam versions
      2. PearsonVue
         1. Create a blueprint – ad hoc generated method, specify the number of questions per question pool.
      3. Online exam / Proctoring exam
         1. Any creation method is possible – but probably will be “Ad hoc generated”
   3. Define exam code (external ID)
3. Test exam - Decide which method to use:
   1. Migrate from production to sandbox using the export test to JSON option
      1. Must know:
         1. Question pool references will be lost
         2. An end-to-end test with Lambda is possible
         3. Not supported for Ad-hoc generated blueprints (PearsonVue, Online with ad-hoc)
   2. Create an exam on sandbox and test it there
      1. Must know:
         1. Cannot be moved to production (question pool references will be lost, and the possibility of moving corrupted data is too big)
         2. An end-to-end test with Lambda is possible
         3. Have to manually re-create the same exam on production (no automated validation possibility)
   3. Create an exam on production and test it there
      1. Must know:
         1. Production usage before the go-live date and accidental changes
         2. YTM can swipe all testing data (user results, for example, from production)
         3. Cannot perform End-to-End testing with Lambda (if Lambda don’t create another environment)
         4. [Use preview test option](https://www.youtestme.com/kb/how-to-preview-a-test/) – It allows a test manager to take the dummy attempt and check the exam settings.
   4. Test on the production copy
      1. Must know:
         1. Production copy environment currently does not exists
         2. Cannot perform End-to-End testing with Lambda (if Lambda don’t create another environment)
      2. Process of DB copying:
         1. Create exam on production
         2. Notify YTM that the exam is created
         3. YTM can copy the entire DB to a new URL
         4. Certify that test is ok on the new URL
4. Test exams - minimal scenario:
   1. Paper-based
      1. Assign sample users to take the exam
      2. Create common session
      3. Export common session
      4. Find this user on a signing sheet and other CSR packages
      5. Find exam PDF – make sure the questions are in the same order on paper and application in the respective exam versions
      6. Fill in the bubble sheet
      7. Produce file from Remark
      8. Import single report file
      9. Check if the user report is populated
   2. PearsonVue
      1. [How to create an exam for PearsonVue integration](https://owncloud.youtestme.com/owncloud/s/eld8swN67Jn16Se)
      2. [How to import PearsonVue test results](https://owncloud.youtestme.com/owncloud/s/Sfgx6UCxvQZ4t6v)
      3. [How to export the PearsonVue files with simulated test results and import PearsonVue test results with exported files](https://owncloud.youtestme.com/owncloud/s/10DpPDwO3qyNW0K)
   3. Online Exam
   4. Proctored Exam
5. Test exam – end-to-end
   1. Organize exam booking in Lambda
   2. Test exam – minimal scenario
   3. Import results
      1. Online – no need for importing
      2. PearsonVue – import via SFTP
      3. Paper-Based – shared folder for picking up reports
6. Notify YTM:
   1. The exam is good – swipe up unnecessary test data from production (if tested on production), do a backup
   2. The exam is not good – ytm CSR can help with advice on how to fix it
   3. The exam is not good, and data is corrupted – revert to the previous backup state

## Paper exam venues migration

1. YTM should deliver the “Import locations from Excel” feature by Friday 07.30.2021. on the sandbox environment.
2. YTM should post instructions and an excel template for the “Import locations from Excel” feature by Monday 08.02.2021. on the wiki page.
3. IFSE should fill the locations excel template with the existing paper exam venues. Existing exam venue ID should be mapped to YTM location external ID.
4. IFSE should import the filled template to the sandbox environment and verify the imported paper exam venues.
5. When IFSE approves the “Import locations from Excel” feature, YTM should upgrade the production environment.
6. IFSE should import the filled template to the production environment.

## Paper (common) exam sessions migration

1. Attach newly created exams to previously created common sessions automatically (YTM todo)
2. YTM should adjust existing “Import sessions from Excel” feature to enable common session import for specific exam delivery preference. (ytm todo)
3. YTM should deliver the “Import common sessions from Excel” on the sandbox environment.
4. YTM should post instructions and an excel template for the “Import common sessions from Excel” on the wiki page.
5. IFSE should import paper exam venues to sandbox environment before importing existing paper exam sessions.
6. IFSE should fill the common session excel template with the existing paper exam sessions.
7. IFSE should import the filled template to the sandbox environment and verify the imported paper exam sessions.
8. When IFSE approves the “Import common from Excel” feature, YTM should upgrade the production environment.
9. IFSE should import paper exam venues to production environment before importing existing paper exam sessions.
10. IFSE should import the filled template to the production environment.

## Active student profiles migration

1. Lambda should set up a production environment and configure the integration with the YTM production environment.
2. IFSE should import active student profiles to Lambda production.
3. Lambda should create active student profiles in YTM through the YTM API.
4. The process can be tested first in the sandbox environment.

## Other users (proctors, administrators, ~~instructors,~~ content admins) migration

1. Lambda should set up a production environment and configure the integration with the YTM production environment.
2. YTM, Lambda, and IFSE should define the role mapping between Lambda and YTM users.
3. IFSE should import other user profiles to Lambda production.
4. Lambda should create user profiles in YTM through the YTM API based on the role mapping.
5. The process can be tested first in the sandbox environment.

## Paper exam proctors for existing bookings migration

1. Profiles for proctors should be imported into YTM production (see 3.10).
2. Existing paper exam sessions should be imported into YTM production (see 3.8).
3. Assign proctors to the common sessions
   1. IFSE manually assigns proctors to the imported sessions in the YTM production (IFSE – prefers this)
   2. IFSE imports session proctors through the Excel template.   
      The functionality does not exist in YTM, can be additionally developed.
4. The process can be tested first in the sandbox environment.

## Existing student exam bookings migration

1. Active student profiles should be imported into YTM production (see 3.9).
2. Existing paper exam sessions should be imported into YTM production (see 3.8).
3. IFSE should import existing exam bookings into Lambda production.
4. Lambda should create exam bookings in YTM production through the API.
5. The process can be tested first in the sandbox environment.

# Production data backup

* IFSE, Lamba, and YTM should define the backup schedule. For example, it can be scheduled each day at multiple time frames.
* On-demand backup should be before any massive data migration or any time IFSE considers it is needed to snapshot clean production data.
* Both YTM and Lambda should be backed up at the same time.

# Testing production data

* The production data can be tested directly on the production, and later all irrelevant testing data can be deleted. It is not recommended in case of a massive volume of irrelevant testing data.
* YTM’s recommendation is to test data on the copy of the production environment. For example, after each phase of the data migration and import, the copy of the production environment is created where the IFSE team can test migrated and created data. This approach avoids the creation of irrelevant testing data directly on production.
* Sensitive user data on the production copy should be scrambled to avoid sending email notifications or to prevent other undesirable actions.

# Handling unclean production data

* A low volume of unclean data can be modified or deleted directly through the interface.
* If some massive import creates unclean data because of an error in the migration or import process, the production can be restored from backup before the actual import/migration.

# Tasklist

|  |  |
| --- | --- |
| Task | Responsible |
| Set up the production environment | YTM, Lambda |
| Define the production backup schedule | YTM, Lambda, IFSE |
| Define the production data migration phases | YTM, Lambda, IFSE |
| Set up the production copy environment | YTM, Lambda |
| Label the data that should be moved from sandbox to production | IFSE |
| Adjustments to exam and question banks to preserve references | YTM |
| Migrate data from sandbox to production | IFSE, YTM, Lambda |
| Migrate data from the old system to production | IFSE |