

STUDENT ACCOUNT PROVISIONING

Active Directory and Office 365 Account Creation: INTO-London

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Reviews & authorisation history

Change Record

Date	Author	Version	Description
20/08/2024	Andrew Gardner	3.0	Change to script scheduling time to 06:30 (from 07:00) see page 12

Authorisations

Name	Position	Requirements Sign-Off	Date
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1. Introduction

The purpose of this document is to define the functional requirements for the creation of Active Directory and Office 365 accounts for students about to start their studies at the INTO London Centre.

This solution will comprise a number of automated background processes designed to selectively extract student data from Salesforce that will lead to the creation of Active Directory (AD) and Office 365 (O365) accounts on the INTO London server estate.

The overall solution includes the following key components (each of which will be detailed in the document) including:

- Data Extraction to file and storage on the central sftp site
- Data processing – including AD and O365 account creation
- Notification to Admissions + IT Support Teams
- Email address write-back to Salesforce

See Diagram[1] for overall process flow

The processes defined here will run 365 days/year thus ensuring all student records with the correct pre-requisites are captured and processed ahead of cohorts throughout the year.

Note: The solution described here was first introduced in June 2023 for the Manchester centre and have successfully handled account creation for all new and returning students attending course at the centre.

Note: The development of this interface is for INTO London; in Salesforce the Management Information Systems (MIS) codes / Centre_MIS_Code__c = **MER & LON**

MER is a legacy code from when the centre was originally located at **Mile End Road** in London. The code has been used extensively across the INTO estate and to-date the decision has been to leave centre code unchanged as MER. Also note, when the centre relocated to its current location in Middlesex Street, the centre was then referred to as WEC or the World Education Centre – however, this is NOT reflected as such in Salesforce.

LON was recently introduced as a second code to categorise students studying at INTO London

Note also: INTO London/MER/WEC is now located at the INTO building in Middlesex Street London – this is also known as MDX. Note: MDX also houses the INTO City (University of London) operation.

2. Scope

The scope of the project is to design and develop a fully automated and seamless data integration for the purpose of student account creation for the INTO London centre.

The scope of the project will include:

- 1) Development of a robust and low maintenance interface selecting student data from Salesforce for the onward creation of Active Directory and Office 365 accounts.
- 2) Data selected to be written in agreed format to appropriate folder on the central sftp server. [File A – see diagram 1]
- 3) A separate development of a Shell Script will focus on the creation of AD and O365 accounts. *This will be similar to the script used to create accounts for the Manchester operation, but in this case accounts will be created on the INTO London server structure.*

- 4) The auto-update of Salesforce application records [File B – see diagram 1] with termtime email addresses generated through account provisioning process, such that;-
- 5) Through the data circuit outlined above this will provide support for Joining Instructions production and distribution within Salesforce.
- 6) As part of the process an automated email containing details of newly created student accounts will be sent to Academic Support, allowing for the timely provision of Brightspace accounts. A copy will also be sent to the IT Support team at the centre.

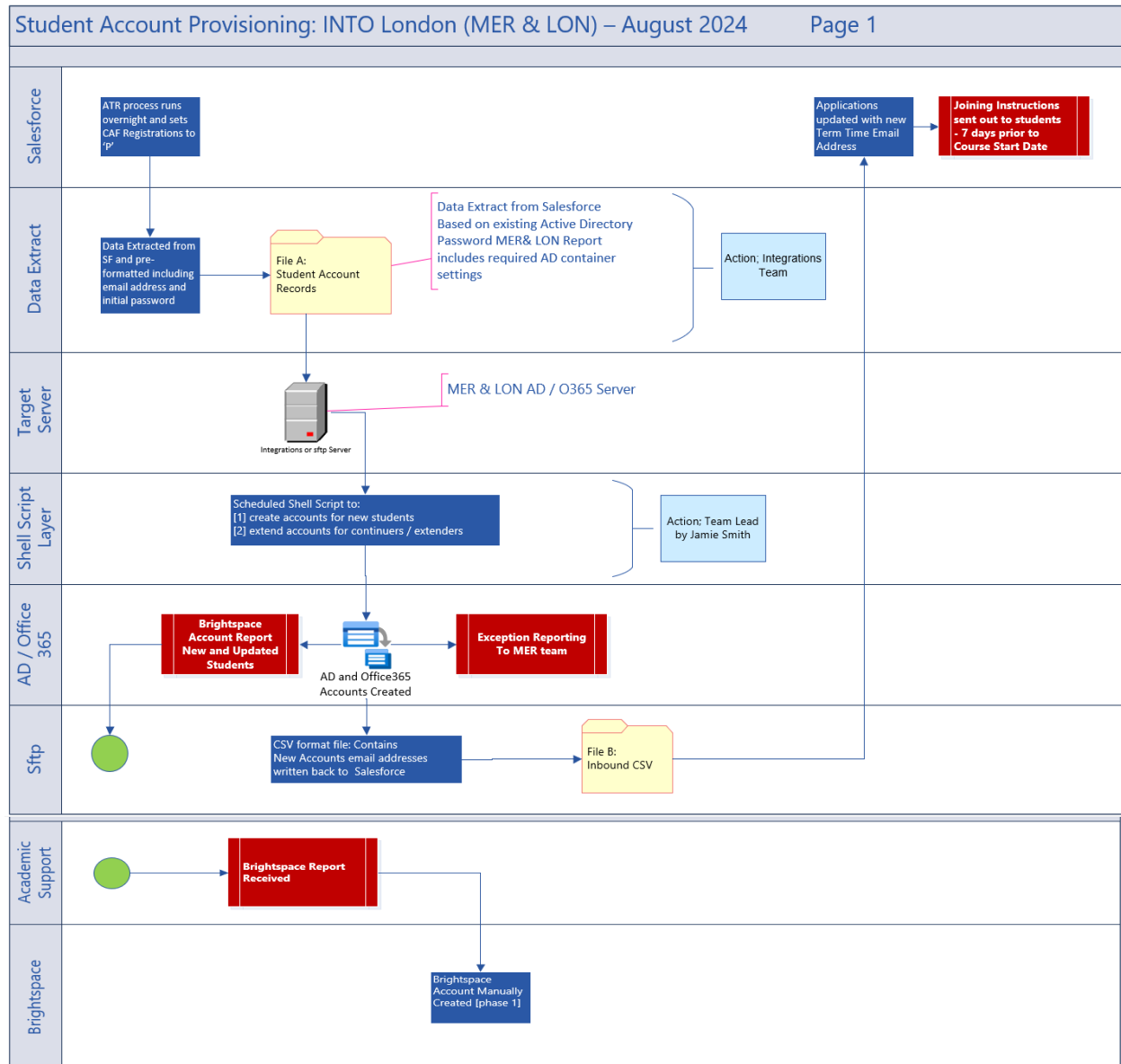


Diagram [1]: Student Account Provision - sequence

3. Overall Description

This project will see the introduction of streamlined and automated processes taking selected student data from Salesforce and using this to create Active Directory and Office 365 accounts for those students about to start their study plans at INTO London.

3.1) Functional Requirements

The following section comprises the steps involved in the design, development and delivery of the solution.

3.1.1 Data Handling and Storage

The processes and procedures for this solution will include:

- a) **Trigger Process:** The project will see the introduction of a daily scheduled routine that will interrogate Salesforce for students records who have been ATR'd (OR have a registrations status='P', 'CR', 'C') for courses starting in the **next 30 days**. *This process will also look backwards 14 days to ensure late confirming students are also selected.*

- b) **Student Selection:**

The student selection process will be based on the Runtime Selection prompts shown in the Active Directory Password V4 report.

See: [Active Directory Passwords V4 - SQL Server 2019 Reporting Services \(intoglobal.com\)](#)

See **Appendix 1:** Active Directory Password V4 – runtime selection

This section describes the runtime selections to be made by the record extraction process.

This includes the Registration Statuses, Course Start Date From/To, the centre, etc.

All records which meet the criteria are to be written out to the extract file.

See **Appendix 2:** Extract File formats for INTO London [File A]

- c) **File Storage:** The interface files will be stored on the sftp integrations server.

See Appendix 4

Note: The folder structure will include an archive folder to contain all files that have been processed. The project will not seek to deal with data retention, which will be dealt with separately.

- d) **For file naming convention** for File A – see **Appendix 3** below.

- e) **Extract process:** Once all records have been extracted on the day (see **Appendix 5** for event schedule), the file will be closed. The file will remain in situ until picked-up and processed by the Account Creation Shell Script

3.1.2 Shell Script production and account production – see **Appendix 10** below

- a) **Account Creation Shell Script:** A specifically developed shell script will trigger to handle ingestion of new and updated records to AD and O365. (See **Appendix 9** for outline process flow).
- b) **Error Reporting:** As part of the ingestion data and error reporting alerts will be developed to high-light issues of concern to be investigated. Distribution email addresses will be introduced for London and will include Integrations and Inf/Techhub Brighton teams.

3.1.3 Outputs and further updates

- 1) **Salesforce Update File:** Also, as part of the ingestion process an output file will record new records added to AD/O365 and will be used as the return file to Salesforce to update student applications with the newly create email addresses. (See Diagram [1]: File B)

(see **Appendix 6** for Salesforce Update file – format [File B])

2) **Brightspace Account Report**

For all accounts created or updated into AD during this run write and extract of data for onward distribution to the respective Academic Support Teams.

(see **Appendix 9** for Brightspace Account Report format)

Student details recorded in report will provide the respective teams with the required information needed to setup accounts in Brightspace *and other educational platforms* in advance of the student receiving their joining instructions.

Academic Support Team	Distribution email address
London	Check for this!!!

APPENDICIES

1. Active Directory Password V4 – runtime selection

The following screenshot shows the runtime selection fields for the Active Directory Password V4 report.

The extract process for student records should be based on this same report as the runtime criteria should provide the basis for the extract of student required by this routine.

Sits Number	sAMAccountName	userPrincipalName	givenName	sn	middleName	displayName	description	Start_Date
0128079635	INTO128079635	INTO128079635@my-info.com					International Foundation in Business, Finance and Social Sciences - June Start - 4 Terms - MER - 2023/24	24/06/2024
0128083424	INTO128083424	INTO128083424@my-info.com					Applying to Medical School Preparation - July Start - 6 Weeks - LON - 2023/24	22/07/2024
0128087413	INTO128087413	INTO128087413@my-info.com					Applying to Medical School Preparation - July Start - 6 Weeks - LON - 2023/24	22/07/2024

Screenshot [2] Active Directory Password V4 – runtime selection

The runtime selection for the scheduled running of this report will be as follows:

Runtime Selection Field	Response and Reasoning
Reg Status	Must select all statuses: P – Provisional C – Current Student CR – Conditionally Registered The report must output all students in the period (Course Start Date From/To) This is to ensure any students who are Continuers / Progressors AD and O365 have their accounts extended correctly to cover the period of their new course.
Course Start Date From	Todays date -14 days This will ensure we get everyone – even those who are late confirmers.
Course Start Date To	30 days forward
Centre	MER/LON
New Only	No
SITS No	ALL

2. Extract File formats for INTO London [File A]

Re: MIS REPORT: [Active Directory Passwords V4 - SQL Server 2019 Reporting Services \(intoglobal.com\)](#) output for INTO London (MER & LON)

The following table comprises the fields currently extract from Salesforce via the Active Directory Password v4 report. Note: the first column comprises the pre-defined AD field names allowing for the easy mapping of data to the correct target fields within AD.

API name	Content Example	Purpose	Type	Length
Sits_Number	0121234567	The Salesforce 'SITS No' – reference for the application	String	1300
sAMAccountName	INTO121234567	Combination of 'INTO' and 'SITS No' Note the leading '0' has been removed here	String	
userPrincipalName	m.smith4567@my-into.com	Contains either [1] the existing email address if it exists on students application (same as mail field below) or [2] the generated email address if student does not yet have the email address stored in Salesforce (same as SuggestedEmail below)	String	80
givenName	Mary Jane	Students First Name – see Account.FirstName	String	40
Sn	Smith	Students Surname – see Account.LastName	String	80
middleName		Students Middle Name(s) – see Account.Middle_Name__c If no value is supplied in the field output blank	String	80
displayName	Mary Jane Smith	Combination of Account.FirstName + " " + Account.LastName	Formula	
description	International Foundation in Business, Finance and Social Sciences	Product2.Course_Title__c	String	120
Start_Date	24/06/2024	Product2.start_date__c	Date	
End_Date	04/07/2025	Product2.end_date__c	Date	
accountExpires	01/11/2025	Product2.end_date__c + 90 This sets the account expiry data	Formula	
department	Account Expires:01/11/2025	Same as above but in words: 'Account Expires:' + accountExpires	Formula	
Mail	m.smith4567@my-into.com	This field will contain the email address from Opportunity.Term_Time_university_email__c If it is populated.	SF: email	80
SuggestedEmail	m.smith4567@my-into.com	See below If no value is supplied in the field output blank	String	80
Password	INTOpass!27062003	This is generated by the report/extract process Default text: 'INTOpass!' + Account.date_of_birth__c – ensure format is ddmmyyyy	Formula	
mailNickname	INTO121234567	Combination of 'INTO' and 'SITS No' Note the leading '0' has been removed here	Formula	

EMAIL ADDRESS CONSTRUCTION

The format of the MER/LON email address is constructed differently to that of the Manchester Centre. The key difference is that the address contains the students initial and surname, whereas in Manchester the students name does not feature.

The email address is generated at runtime by the extract process; and based on the Opportunity.Term_time_university_email__c field being blank.

There are certain considerations to be taken into account when constructing the email address, including:

- We often see students with a single names, either a first or last name. When this occurs the 'other' field may contain one of the following: '-' / '*' we will not be using this character in the email address
- If there is only a single name – do not bother with the initial and simply use the actual name [be it the first name or last name] e.g.
Jonathan1234@my-into.com
- For the email prefix – take the first letter of the first name as the initial. E.g. if first name is Mary Jane the initial will simply be 'M'
- For the suffix part of the email address, take the surname and remove all spaces and hyphens ('-') e.g.
Mohammed Al-Hilali who has a SITS No of 012123**4567** – take the last 4 characters for the suffix
The email address generated would be m.alhilali4567@my-into.com
- Using this format, there is an exceedingly low possibility of there being a duplicate email address ever being generated

***** ACTIVE DIRECTORY – GROUP MEMBERSHIPS (default for all student accounts to be handled by the Script) – Please check this with Gian *****

The following fields/values will not form part of the data extract routine for INTO London but will be added by the

memberOf	CN=LON_O365_A3SUB,OU=Application Groups, OU=Groups,DC=LON,DC=my-into,DC=Com; CN=LON_PCPG_StudyCredit, OU=PaperCut_Groups, OU=Groups,DC=LON, DC=my-into,DC=com; CN=Reftab_LON_Students,OU=Reftab, OU=Application Groups, OU=Groups,DC=LON,DC=my-into,DC=Com
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PasswordNeeverExpires	These fields from the file content as the default values will be inserted by Jamie's routine TRUE
O365Mailbox	TRUE
C	GB
Registrations_status_code__c	Note : Registrations Status was taken from the Course Applied for object (Courses)

3. Student Data Interface File [File A] - File Naming Convention

Daily Extract Files containing student data from Salesforce for upcoming cohorts will be based on the format stated below:

Centre	File Name: format to be used
INTO London	StudentAD ddmmyyyy.CSV

Where ddmmyyyy represents today's date.

4. Integrations Server:

The integrations server will allow for the storage of extracted data files from Salesforce to be used as basis for student account creation in AD and O365.

Note: Files for INTO London will be stored in separate folder structures. Each folder structure (e.g. LON) will contain a sub-folder for archive purposes, where used extract files will be moved to.

Server name	Location	Purpose
Int.intoglobal.com*	outtrayAD outtrayAD/Archive	Sftp server used for data integrations with UK centres and partners

*: The sftp server is ip access controlled and only users whose ip addresses are recorded in the 'Access Enabled' list will be permitted to login to the server

5. Daily Event Schedule

The following table comprises the schedule of daily events:

Time	Description	Confirmed / Provisional
05:00	Student Records ATR's and Registrations Status set to 'P' Same time for all centres	Confirmed / current time
06:00	Student Selection and Extraction Routine	Provisional to be confirmed
06:30	Shell Script: Student AD and Account Creation routine to execute. Also, at this time create: a) Salesforce Update File [see layout in Appendix 5] b) Brightspace Account Report [see layout Appendix 6]	Provisional to be confirmed
09:15	Move Salesforce Update File from Integrations Server to sftp server for ingestion into Salesforce. Note: to enable the Academic Support Team to create Brightspace accounts [particularly for late confirmers] moving the file at this time will allow 2hours 45mins for accounts to be created before joining instructions will be sent at 12:30. Also Note: Joining instructions are sent at: <ul style="list-style-type: none">• 09:00• 12:30• 18:00	Discuss this with team Should we worry about BS accounts being ready before JI's go out or operate on basis that JI's state this can take 2/3 days – see below

Excerpt from INTO London Joining Instructions – stating BS account creation can take up to 2 days

Please note it can take up to two working days after receiving these joining instructions for you to have full access to your course content within the Virtual Learning Environment (VLE).

6. Salesforce Update File – format [File B]

The purpose of this file is to send back to Salesforce the email address generated from this process once the Shell Script has run to create the email address in O365.

The file format required by the import routine (into Salesforce) is as follows:

Column Header	Purpose	Examples of LON
stu_code	Primary key for import into SF In this case this is the SITS No	0121234567
stu_caem	Email address created in O365 Based on 'mail' field in File A	s.jones4567@my-into.com

7. Salesforce Interface File [File B] - File Naming Convention

The file will be produced as an output from the AD/O365 account creation. Only those accounts created during the run will have their details sent back to Salesforce to update the email address against the student application record.

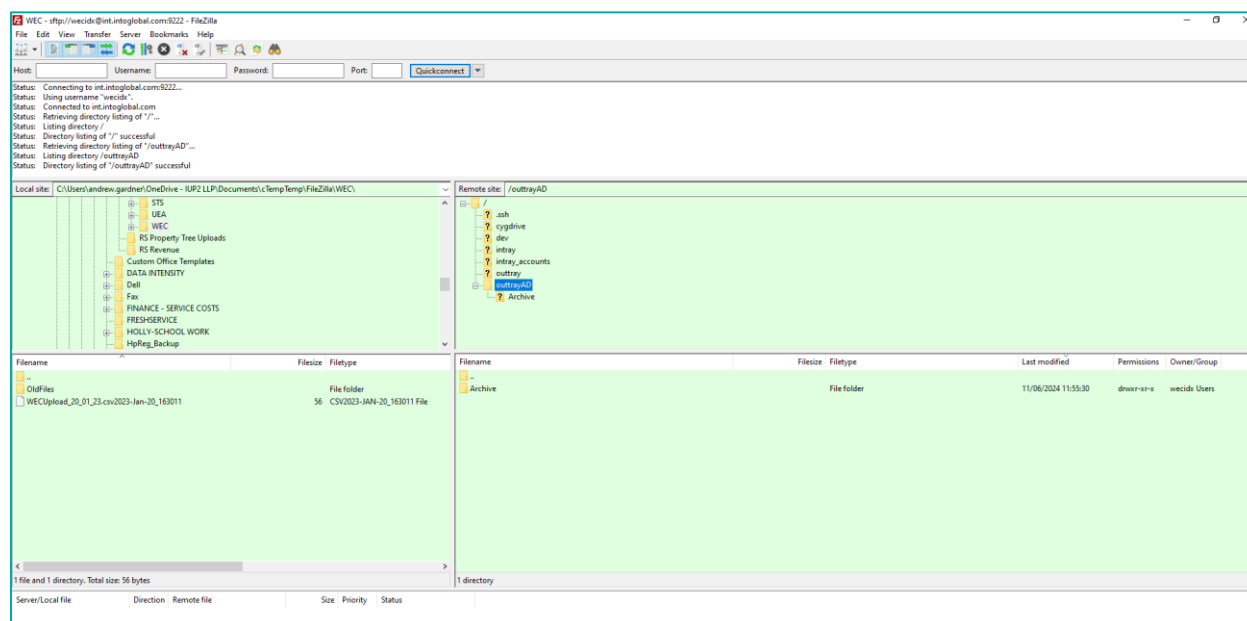
Centre	File Name: format to be used
INTO London	SalesforceUpload _ddmmyyyy.CSV

Where ddmmyyyy represents today's date.

8. sftp Server Access

For access to the sftp server please contact Andrew Gardner for credentials.

Note: the sftp server is ip access controlled. Only users who have requested access and supplied their ip address will be granted access.



Screenshot [2]: Filezilla view of sftp server – showing the London site

9. Brightspace Account Report – format

The purpose of this report will be to notify the respective Academic Support teams that the students listed here have been ATR'd and processed through the AD/0365 creation procedure and now need Brightspace accounts creating or re-enabling (for continuers and progressors) for the course associated.

The report will be based on the content of File A as follows:

Column Headers	Typical Content
Student Number	0121234567
Username	m.smith4567@my-into.com
First Name	Mary Jane
Surname	Smith
Course Title	International Foundation in Business, Finance and Social Sciences
Start Date	24/06/2024
End Date	04/07/2025

File Naming Convention for the Brightspace Account Report will be:

Centre	File Name: format to be used
INTO London	LON-BS-Accounts-ddmmyyyy.xlsx

10. Shell Script Process-Flow

Please contact Andrew Gardner for access to the original Visio File for the following:

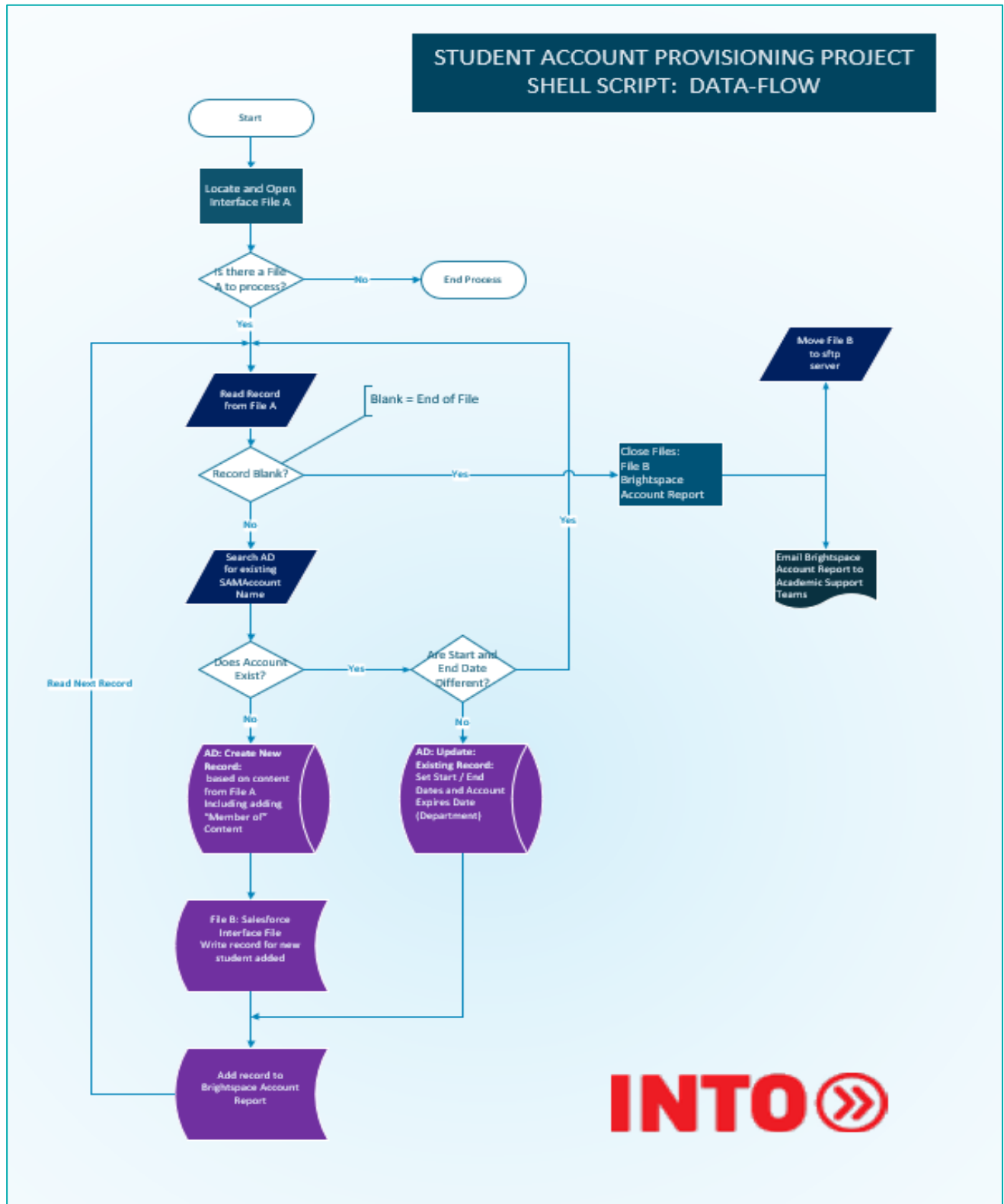


Diagram [2]: Shell Script Process-Flow – Student Account Provisioning