U.S. Cellular

Credit Decisioning
CDSR (Credit Decision Software Replacement)
Primary : TransUnion
Secondary : Equifax

Operational Support Guide

<ver. 1.0>

Revision History

Version	Date	Author	Comments
1.0	10/24/2018	Mike Kovalenko	Initial Draft
1.0	1/15/2018	Tanya Golub	Added endpoints and service names
1.0	1/28/2019	M Kovalenko	Added MFT and RTI documentation
1.0	2/6/2019	M Kovalenko	Added Loopback logic and restricted content

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Section 1 - Introduction

1.1 Overview

This document is to give technical oversight information about the how to get data for the CDC Project with the new credit vendor TransUnion.

The project is to replace our current credit decisioning vendor from Experian to TransUnion. The initial phase is to perform a “swap” of Services and File Transfers, aka : like-for-like.

Our current back-up credit provided, Equifax, is not changing.

1.2 Assumptions

1.2.1 Assumption # 1

Our current back-up credit provided, Equifax, is not changing.

1.2.2 Assumption # 2

No coding changes made to data fields or formats that generate the credit request, acknowledgement or response records from TOPS. USCC and TU. will use legacy format for data layout.

1.2.3 Assumption # 3

File Transfers will remain the same as for Experian

1.2.4 Assumption # 4

The credit request and response will not need to be changed for the Web Channel: MyAccount and uscellular.com

1.2.5 Assumption # 5

The failover from TransUnion to Equifax will occur automatically and is controlled by the ESB. If connectivity is lost, unresponsive, or no reply for 30 seconds, an automatic switch to back-up credit vendor (EQ) will occur with no manual intervention. A monitoring alert will also be triggered

1.2.6 Assumptions # 6

Phase 1 : The initial implementation will be like for like
Phase 2 : Additional business fields will be added for improved credit scoring
Web Fraud module will be implemented **ThreatMetrix (Nexis/Lexis)**

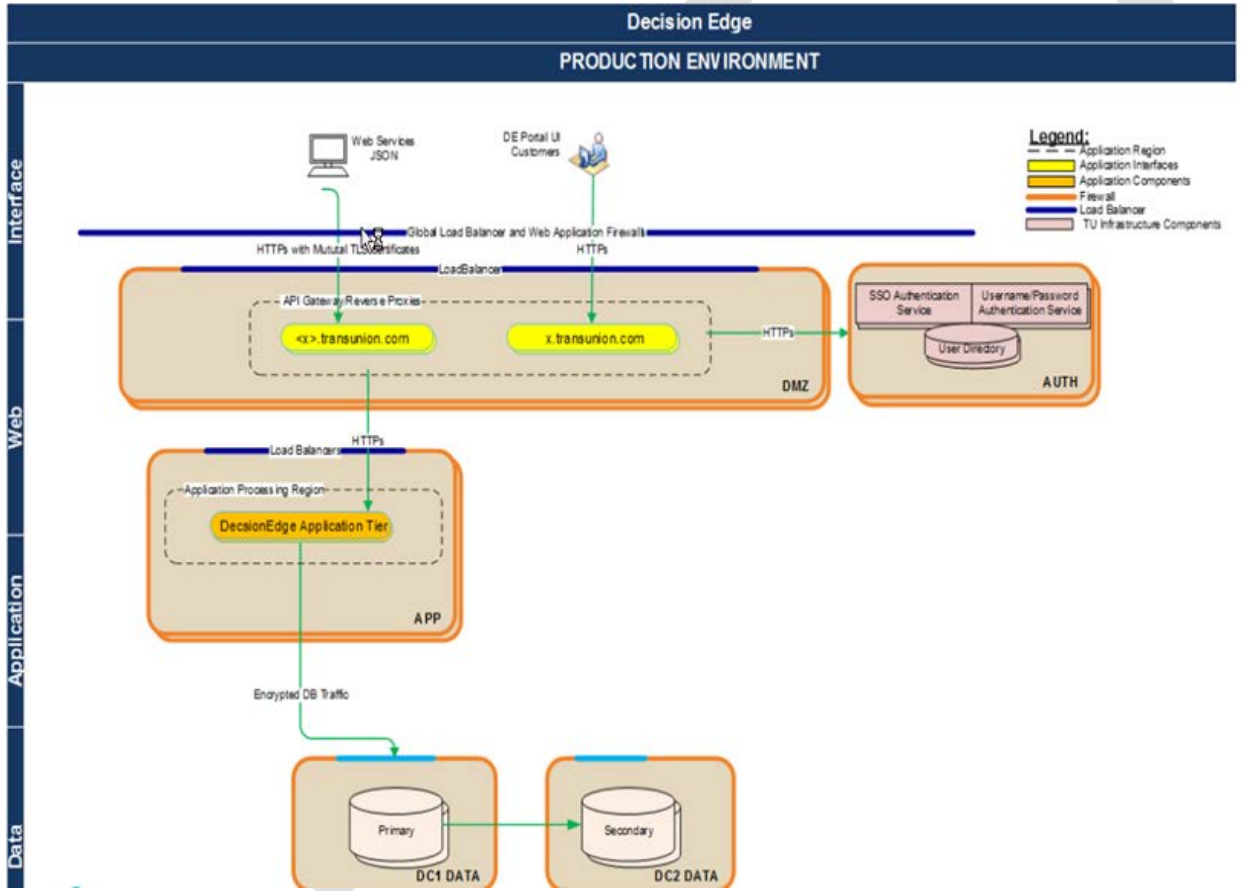
1.3 Common Used Terms

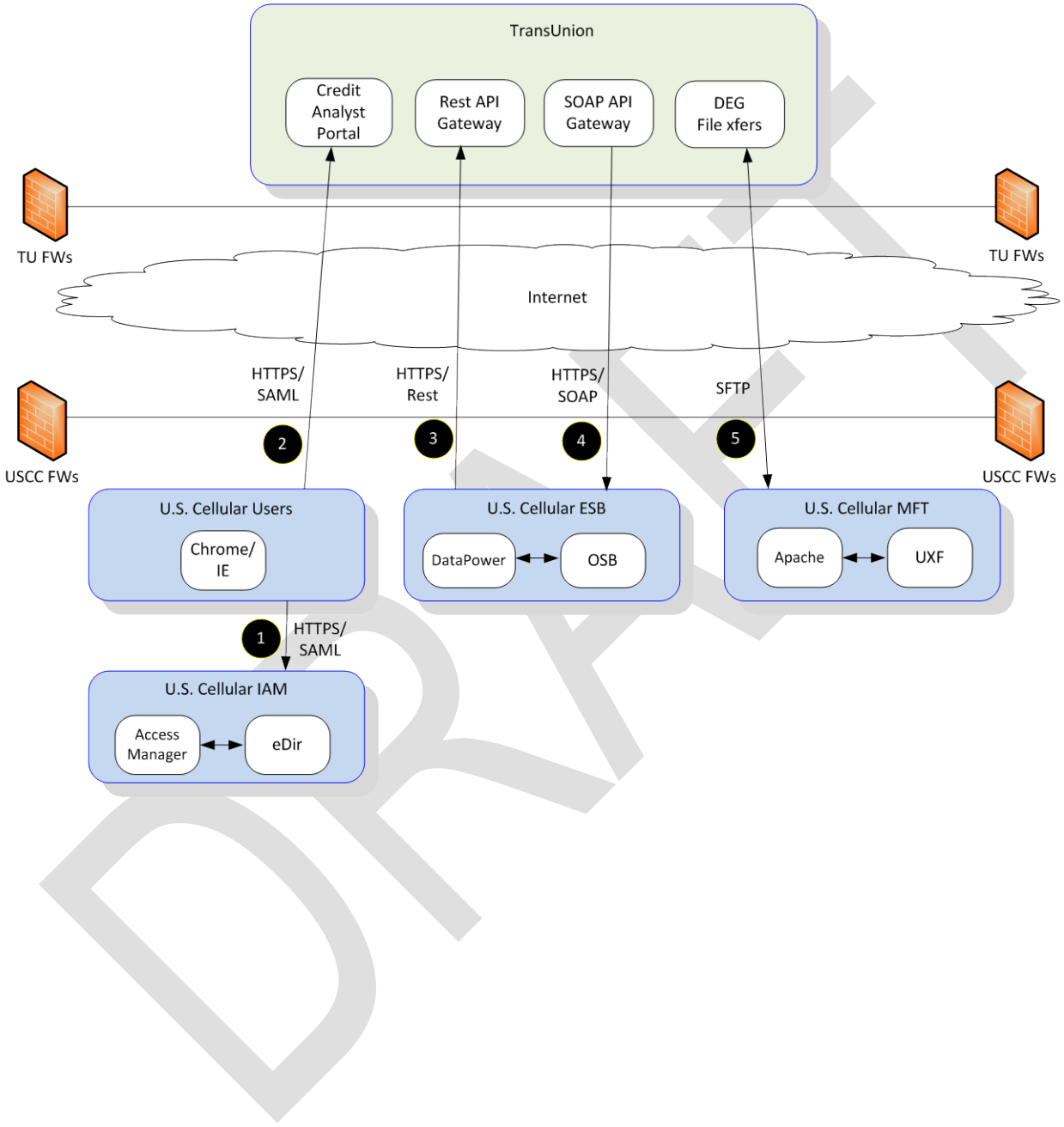
Abbreviation	Credit Vendor	Description
EX	Experian	Previous Primary Credit Vendor
EQ	Equifax	Backup Credit Vendor
TU	TransUnion	New Primary Credit Vendor
Write Off Customers File	USCC to TransUnion	sFTP file to TU
Customers Business File	USCC to TransUnion	sFTP file to TU
Customers Current File	USCC to TransUnion	sFTP file to TU
sFTP	NA	Secure File Transfer
OSB/ESB	Oracle	Oracle Service bus / Enterprise Service Bus. They are interchangeable
Pgp	Encrypting tool	Pretty Good Encryption
MFT	Managed File Transfer	Managed File Transfer
DB	Database	Database
DecisionEdge	TransUnion	TU Credit Platform Name
InterConnect	Equifax	EQ Credit Platform Name
FS	USCC	Financial Services

Section 2 - Technical Architecture

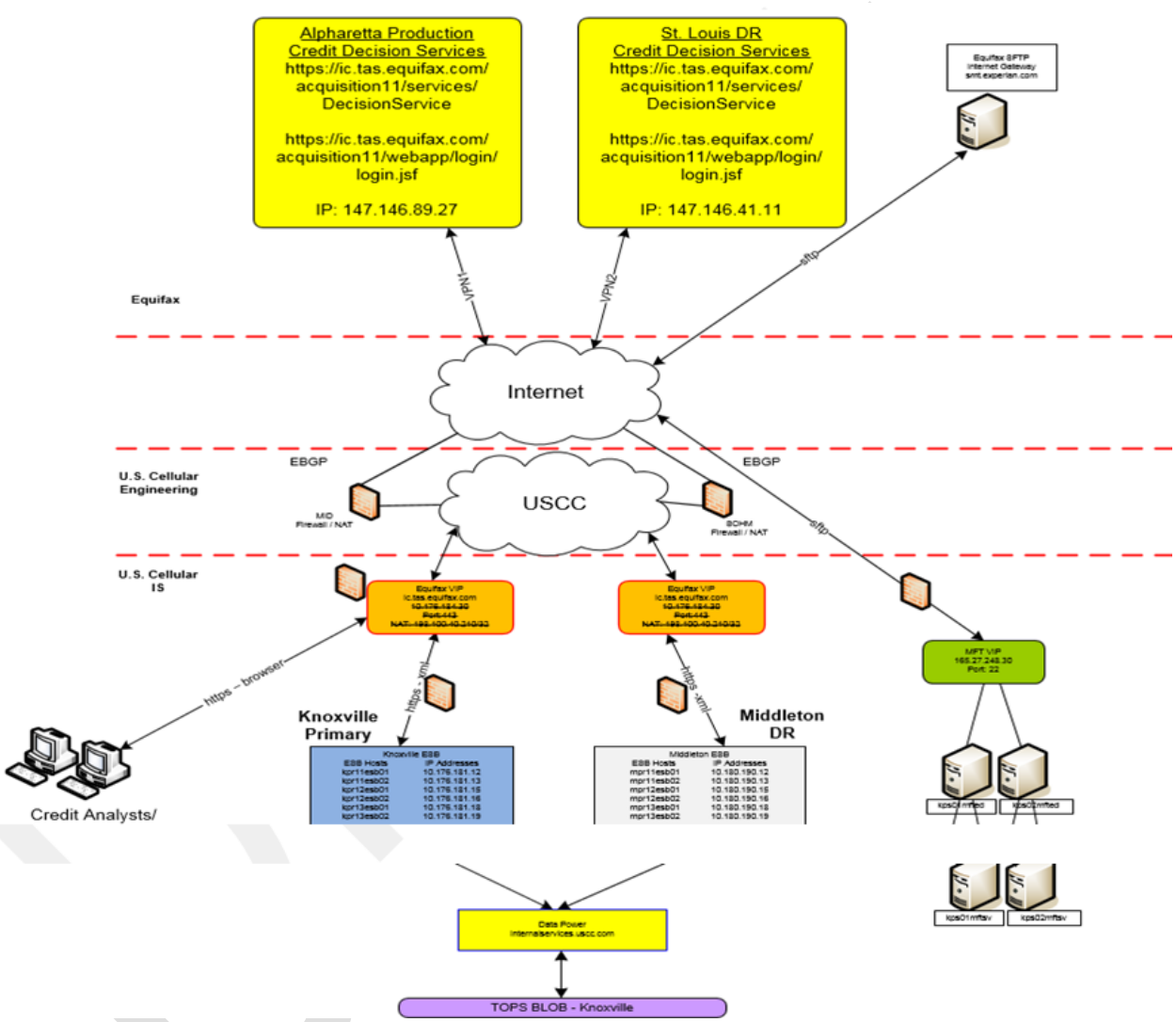
2.1 Architecture Diagram

2.1.1 TransUnion - DecisionEdge




TransUnion
Credit Analyst Portal
Rest API Gateway
SOAP API Gateway
DEG File xfers
TU FWs
TU FWs
Internet
HTTPS/ SAML
HTTPS/ Rest
HTTPS/ SOAP
SFTP
2
3
4
5
USCC FWs
USCC FWs
U.S. Cellular Users
Chrome/ IE
U.S. Cellular ESB
DataPower
OSB
U.S. Cellular MFT
Apache
UXF
1
HTTPS/ SAML
U.S. Cellular IAM
Access Manager
eDir

2.1.2 Equifax - InterConnect



2.2 Production Environments

2.2.1 Platforms

The TransUnion solution is implemented using the new OSB (oracle 12c) This is the first project using the new OSB and legacy ESB service calls will be migrated over time from old OSB (Oracle 11g) to new OSB (Oracle12c) All web service information will still be rolled-up into the ESB DB for analysis and investigation

Type	Server Name	Hardware	OS	Login	Password
OSB	See below	Oracle Service Bus	12c.	Lan ID	Lan pwd

2.2.2 Service Calls

2.2.2.1 TransUnion – DecisionEdge Platform

TU Endpoint URL for Prod in DataPower	https://api-de.transunion.com/decisioning/1.0/us/de/json

TransUnion GUI – for FS Manual Review and Overrides:

https://login.uscellular.com/idp/startSSO.ping?PartnerSpId=https%3A%2F%2Fviewdecision-uat.transunion.com

For track 1 TOPS will use endpoint /enterprise/credit/creditevaluation/v2_0 but DP will redirect to new version of service CreditEvaluaton_v3_0 /enterprise/credit/creditevaluation/v3_0

In track 2 TOPS will begin calling new v3_0 endpoint

- CreditEvaluation_v3_0.evaluateCredit
- CreditEvaluation_v3_0.setManualCredit

2.2.2.2 Equifax – InterConnect Platform

Equifax Endpoint URL for Prod:	https://extxmlservices.uscc.com/acquisition11/services/DecisionService

- CreditEvaluation_v1_0_1.evaluateCredit

2.2.3 Databases

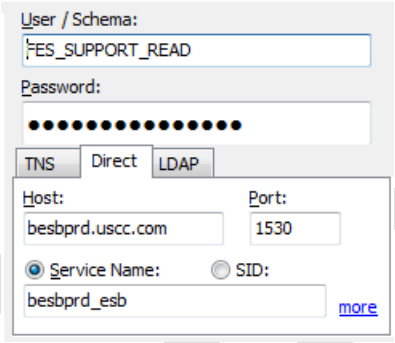
2.2.3.1 ESB/OSB Database

- It is best to use the ESB Database to search for log files as all ESB Web Logic Servers WLS instances are in one place. You can still can access and search the ESB/OSB WLS, but you need to log into each WLS independently
- **For the ESB DB, it only retains data for a rolling 30-days!**

TOAD/SQLDeveloper Connection THIS IS A READ_ONLY PROFILE

OSB - PRODUCTION

Connection Name PROD ESB DB
Username : FES_SUPPORT_READ
Password : praKetuCREbe9eS
Hostname : besbprd.uscc.com
Port: 1530
Service Name : besbprd_esb



Sample ESB SQL

ESB_evaluateCredit.txt

For use in the query above:
SQL Date Format = '01/15/2019 00:00:01' - the single quotes are needed

2.2.4 TOPS DB TABLES

TABLE NAME	DB	DESCRIPTION
TABLE_CCLASS_INST	CRMPRD	Main table for current credit for a customer. Need to use ACTIVE_CRDT2CUSTOMER value and look up customer by objid in TABLE_CUSTOMER
CREDIT_HISTORY	CSTPRD	Houses previous customer credit information
TABLE_CREDIT_REF	CRMPRD	Not readily used. Can gather necessary info from other listed tables. Use SOURCE_LOWID to match against objid in TABLE_CONTACT
ORD9_CUST_DEVICE_LIMIT	OMSPRD	Reference table to RIC/EIP limit based off of customer type/sub_type and current credit class

2.2.5 Credit Vendor Authorization Number / CAS Number

2.2.5.1 CAS Number/Authorization Number (20 characters in length)

TransUnion : 999999999YYMMDDHHMMC <C/B/S> (e.g. <CustID>1901011301C)
Equifax : 2019122164811227C (current Equifax number returned in production)
Loopback : 20191221745332911
TU WebCredit : TUYYYYMMDDHHMMSSmmmC

Letter at the End of CAS# is as follows:
B = business
C=Consumer
S=Sole Ownership
I=Loopback

2.2.5.2 Loopback

The concept of Loopback is for customers that DO NOT need to have credit run against their accounts. The logic is to check customer_type and customer_sub_type to determine if true credit needs to run, else the OSB gets the request, and if no credit needed, it returns an Approved credit, with credit class='A' and approved number of lines = approved # of lines. The CAS#/authorization number will end with a capital 'I'
These credit requests DO NOT go to the Credit vendor!

USCC RUNS CREDIT FOR THESE ACCOUNT TYPES/SUB TYPES

B	MAJ	Business Major
B	REG	Business Regular
B	SOLE	Business - Sole Ownership
E	S	Exceptional
I	CRP	Individual Community Relation Program
I	LIFE	Individual - Lifeline
I	M290	Individual Maine 290
I	PPD	PPD National Retail
I	REG	Individual Regular
Q	CRP	Individual Community Relation Program - Sprint
Q	LIFE	Individual - Lifeline - Sprint
Q	M290	Individual Maine 290 - Sprint
Q	PPD	PPD National Retail - Sprint
Q	REG	Individual Regular - Sprint
V	MAJ	Business Major - Sprint
V	REG	Business Regular - Sprint
V	SOLE	Business - Sole Ownership - Sprint
Z	GEU	Google End-User
Z	GTC	Google Technical

2.2.6 Splunk

- https://splunk.uscc.com
  - Login with LAN ID and LAN pwd

- Search String for errors on credit evaluations
  - index=osblog evaluateCredit error

- Search string for manualcredit updates from TU
  - index=osblog setManualCredit

2.2.7 System Software

There is a TransUnion GUI that is utilized by the Financial Services Team to perform:

- Manual Review
- Credit Overrides
- Past Credit Investigation and scoring decisions
- **This is ONLY for use by FS; IS does not have access to see or use this UI**

2.2.8 Application Accounts

- New OSB Service ID: **svc_esb_TransUnion**
- This will be used with the new Manual Credit Review update from Transunion UI interface when FS updates a customer's credit class. TU will send an update directly to TOPS and update in realtime
- For normal evaluateCredit webservice calls the service ids will either be from the web or tops.
  - **svc_esb_AMDOCS** – for CIM/RIM and RIM-L
  - For web credit calls, the service account is currently svc_esb_Accenture**. NOTE: this will be changing with the deployment of the Web Ev project**
- There is no separate OSB Service id for Equifax, as they DO NOT make any direct call into USCC.USCC calls Equifax which provides a response in return. TU has a service id, since the manual review and credit override UI makes web service call into USCC OSB to update the customer's credit in the TOPS DB directly. There is NO need to request the credit to be rerun again
- When FS uses the Equifax UI to update Manual Review /Credit Override, there is no call back into TOPS to update the credit. The front-end associate needs to click the Run Credit again to get the updated credit value from Equifax

2.2.9 Application Directory structure

2.2.10 Application Configuration files

TU Endpoint URL for Prod:
https://api-de.transunion.com/decisioning/1.0/us/de/json

2.2.11 Application Environmental Variables

2.2.12 Trouble Shooting Guide

- Credit evaluations failing over to secondary vendor
- Credit Request "Stuck" in Pending Status
- TU sent a response, but it did not make it to ESB

- TU sent a response, which was successfully received, but it could not be forwarded to TOPS.

- TU sent a response, which was successfully received, which was successfully sent to TOPS, but it failed one of the initial validation checks there.

- TU did not send a response back

2.2.13 CDC Data Field Formats & Layouts

2.3 Test Environments

2.3.1 Platforms

Server Name	Hardware	OS	Login	Password
OSB	Oracle 12c		Lan ID	Lan PWD

OSB Domain	Oracle Schema
Look up in https://usc.intranet.teldta.com/sites/EIS/middleware/_layouts/15/start.aspx#/Middleware%20Services%20Wiki/Middleware%20Environment%20Details.aspx	

https://extrs-np.uscc.com:8403/decisioning/1.0/us/de/json (external DP)

TransUnion GUI – for FS Manual Review and Overrides:
https://login-dev.uscellular.com/idp/startSSO.ping?PartnerSpId=https%3A%2F%2Fviewdecision-uat.transunion.com

2.3.2 Databases

OSB TEST

Username: FES_SUPPORT_READ
Password: Same as Prod

Direct connection configurations:
Host: besbsqa.uscc.com
Port: 1530
Service Name: besbsqa_app

NOTE: Need to view the DB Schema names to access correct DB. All SQA,SQT,SIT envs are in the test ESB DB. e.g. - esb_e2e3 = E2E3

2.3.3 System Software

2.3.4 Application Accounts

Purpose	Login Account	Explanation

2.3.5 Application Directory structure

2.3.6 Application Configuration files

2.3.7 Application Environmental Variables

2.4 File Transfers

There is no dedicated development environment per se. The OSB can be configured to point to any environment.

2.4.1 Jobs from USCC to TransUnion

- TransUnion will push files to USCC over SFTP, port 22.
- USCC will push files to TransUnion over SFTP, port 22.
- TransUnion user account on USCC MFT Platform - SVC_MFT_TRANSUNION88
- USCC user account on TransUnion's DEG - dgzuscellular11
- Both USCC and TransUnion exchanged Public SSH Keys for logins and Public PGP Keys for file encryption and decryption.
- SANDS team also owns a PGP Key used for encrypting and decrypting the credit transaction dump file.
- MFT keeps a 14 archive of files but only for purposes of recovery. Files are purged automatically

TransUnion SFTP Address Information
datagateway.transunion.com
66.175.240.30
66.175.240.51
TransUnion also refers to this as their DEG or "Data Exchange Gateway"

USCC MFT/SFTP Information
mft.uscc.com
165.27.248.30

2.4.2 Monitoring and Notifications

Since Transunion is pushing files to USCC we will not see any failures before the file reaches our system. MFT is globally configured to reattempt a transfer 5 times after the first failure. All file transfer failures are sent to a Sentinel Monitoring server. From Sentinel SNMP Traps are collected by the Monitoring team using Nimsoft probes and alerts are generated based on criticality and sent via and/or through Pager Duty.

The following recipients receive an email notification from TransUnion when they successfully process a file from USCC: Maureen.Whelan@uscellular.com; Ryan.Spillman@uscellular.com; Terrence.Radl@uscellular.com

The following recipients receive an email notification from USCC MFT on a successful outbound transfer to TransUnion: Maureen.Whelan@uscellular.com; Ryan.Spillman@uscellular.com; Terrence.Radl@uscellular.com

2.4.3 Outbound Files - USCC to TransUnion

1. **USCWriteOffCustomers_YYYYMMDDnn_N.csv.gpg**
    1. *USCC write-off file to TU – Sent Daily*
    a. Encrypted and uploaded by SAS using the SVC_MFT_SAS MFT account and placing file in transunion_write_off_mart/out
    b. MFT moves the file into the /out directory on the internal SVC_MFT_TRANSUNION88 MFT account
    c. The file is then sent to the /out directory on datagateway.transunion.com
2. **USCCustomersBusiness_YYYYMMDDnn_N.csv.gpg**
    1. *USCC Commercial/Business customer file to TU – Sent Weekly*
    a. Encrypted and uploaded by SAS using the SVC_MFT_SAS MFT account and placing file in /transunion_existing_customer_mart/out
    b. MFT moves the file into the /out directory on the internal SVC_MFT_TRANSUNION88 MFT account
    c. The file is then sent to the /out directory on datagateway.transunion.com
3. **USCCustomersCurrent_YYYYMMDDnn_N.csv.gpg**
    1. *USCC Individual customer file to TU – Sent Weekly*
    a. Encrypted and uploaded by SAS using the SVC_MFT_SAS MFT account and placing file in /transunion_existing_customer_mart/out
    b. MFT moves the file into the /out directory on the internal SVC_MFT_TRANSUNION88 MFT account
    c. The file is then sent to the /out directory on datagateway.transunion.com

2.4.4 Inbound Files - TransUnion to USCC

*Note - Not all of these date formats were confirmed, so MFT is configured using wildcards to allow for multiple date patterns but these are what were presented to me originally or what was found on the Experian account.

1. **USC.ACI.FCRA.LETTERS.YYYYMMDD.pgp**
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\files\TUDE_FCRA

2.4.5 Reports

2. usc_analyst_override_YYYY-MM-DD.csv.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption

   c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
   d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
3. manual_review_detailed_weekly_YYYY_MM_DD.csv.pgp
   a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
   b. Decrypt File and remove extra data stamp added by TransUnion during encryption
   c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
   d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
4. usc_external_data_sources_2018-08.csv.pgp
   a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
   b. Decrypt File and remove extra data stamp added by TransUnion during encryption
   c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
   d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
5. usc_user_login_YYYY-MM.csv.pgp
   a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
   b. Decrypt File and remove extra data stamp added by TransUnion during encryption
   c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
   d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
   e. File is transferred to the SAM team on their File Share - \\Chil-data1\Share\Information Services\Infrastructure\IDL\IS Security\File_import\TransUnion
6. usc_monthly_ds_YYYY-MM.csv.pgp
   a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
   b. Decrypt File and remove extra data stamp added by TransUnion during encryption
   c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
   d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
7. usc_txn_performance_YYYY-MM.csv.pgp
   a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
   b. Decrypt File and remove extra data stamp added by TransUnion during encryption

c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE

8. usc_monthly_fee_YYYY-MM.csv.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
9. manual_review_summary_monthly_YYYY_MM_DD.csv.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
10. CreditTransactionDumpYYYYMMDDHHMMSS.txt.gpg
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. A copy of the file goes to the SVC_MFT_SAS_RISK account in the /transunion_xml_data_dump
        i. SAS/SANDS team will decrypt file when its needed
    c. File is transferred to the SANDS team on their File Share - \\tnknxunica01\sas\share\nfs\prod\files\TUDE_SANDS
        i. SAS/SANDS team will decrypt file when its needed
11. VMReportingDataYYYYMMDDHHMMSS.txt.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\sas\share\nfs\prod\files\TUDE_VM
12. cm-count-YYYY-MM-DD.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE

13. wo-count-YYYY-MM-DD.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
14. bureau_alert_weekly_YYYY_MM_DD.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE
15. bureau_alert_monthly_YYYY_MM_DD.pgp
    a. TransUnion pushes the file to the /in directory on SVC_MFT_TRANSUNION88
    b. Decrypt File and remove extra data stamp added by TransUnion during encryption
    c. A copy of file goes to the SVC_MFT_SAS account in the /TransUnion_to_USCC_ad_hoc_files for the NFS Risk Management Team
    d. File is transferred to the SAS team on their File Share - \\tnknxunica01\SAS\share\nfs\prod\TUDE

Section 3 - Normal Operation Procedures

3.1 Job Schedules

3.2 Startup and Shut down Procedures

3.2.1 Startup Procedure

3.2.2 Shut down Procedure

3.3 Normal Application and Data Maintenance

<Reference tables updates, configuration files updates , etc>

3.3.1 Application Maintenance- the certificates and x509 security tokens are managed by Scott McQueen's Team

1. **Certificate Renewals**
   - **a.** there are 2 certificates for TransUnion.
     - **i.** One for outgoing credit requests to TU
     - **ii.** One incoming from TU to USCC for manual reviews.

2. **Import New Certificates from TU**
   - a. N/A – the Middleware team is responsible for these certificates.
   - b. IS may need to assist in the communication to TU for x509 security token, but would only be for communication with TU as the security tokens are such should not be sent over the wire in clear text: including emails and such

3.3.2 Data Maintenance TOPS TABLE

- None needed for CRM or CUST/ABP tables
- The OMS table **ORD9_CUST_DEVICE_LIMIT** does het updated via business/FS request
  - OMS BPT table

3.4 Normal Users Window

<List the normal user's windows>

3.5 Service Level Agreements (SLA)

Attach SLA Document

3.6 Key Business Contacts

Name	Dept	Desk Phone	Cell Phone
Maureen Whelan - main contact	Business	(773) 399-8947	(708) 845-8433
Terrance Radl	Business	(608) 441-4762 x4762	(262) 993-9669
Ryan Spillman	Business	(608) 441-4816	(608) 438-4474
Steve Keup	IS		
Cindy Nangle	IS	(608) 441-4153	(608) 516-4539
Chuck Jesberg	IS	(773) 399-6849	(847) 529-8652

3.7 Project Resources

Name	Resource Area
Dale Collins	Project Manager
Chris Vincent	EPM
David Finucane	Infrastructure Architect
Igor Shturman	Solution Architect
Kevin Martin	Infrastructure Monitoring
Michael Randolph	MFT
Alex Rico	OSB
Rohit Gandhi	Middleware
Noorul Mohammed	Triage
Rohit Joshi	ETQA
Mike Kovalenko	Operations

Joel Walker	Files to TU – SANDS: WriteOff,CurrentCustomers, ConsumerCustomers

Section 4 - Monitoring

4.1 Logging and Error Reporting

4.2 Infrastructure Monitoring

Kevin Martin is the current loader of this team

All error logs and alerts should replicate the existing functionality. Below are the details provided by monitoring team

Types of monitoring

- Service calls from the ESB response times and errors
- ESB Failure messages captured in log retention (Splunk)
- Request failed over to Equifax
- Vendor gateway availability on the network
-

Triggers for alerts :

- Gateway availability
- Response time over 8 seconds - alarm.
- Response does not contain expected characters – alarm.
- Gateway does not respond at all after 30 seconds – alarm.
- Service call errors seen in the ESB
- 2 failures on any ESB in 15 seconds twice in a row (2 in the first 15 seconds, 2 in the second 15 seconds)
- Anytime a single request is redirected to Equifax, an FYI alarm is generated to IT Infra Operations for awareness.

Others

- Failover to Equifax is performed automatically within the service itself as developed by FES Integration. Every request goes to Experian first and based on the failure reason, it then sends the request to Equifax.

4.3 Application Monitoring

The application and the application server it runs within will be monitored on each server using the following URLs. The page itself will be monitored once every five minutes. The standard for the alerting is "2nd time (that would be when the page is not available two consecutive monitoring or 10 minutes) and every half hour after that".

Server	URL

Network Level alerts

1. Network(pipes town USCC and Vendor) should be up and running 24/7. Any downtime should be logged and notified
2. Timeouts, error logs(Below) should be monitored

Authentication errors
Error in credit request
HTTP Errors
XML errors

3. Networking alerts should go to National operation center DL
7.ESB service operation will be re-used (Credit Evaluation service)
8. ESB- Application type errors go to middleware
9. Alerts are communicated through text message, reports, e-mail depending on type of errors **

Section 5 - Troubleshooting Guidelines

5.1 General Troubleshooting Guidelines

Batch Job Log Files

PGP Information Equifax Public PGP Key

5.2 OSB Error Messages and Scenarios

ESB Error Messages

Error Number	Error Message	Description of Error	Resolution Path	Originating Module
USC0000001	An unexpected error occurred while processing the request.		Check ESB logs. May need to engage FES-Integration team	
USC0000002	Error in U.S. Cellular Back Office systems.		Check ESB logs. May need to engage FES-Integration team	
USC0000016	Vendor service is not available.		Check with monitoring team. Engage IM team if service down and contact Maureen Whelan and vendor	
USC0000028	Request to business service timed out.		ESB team to investigate (FES integration)	
USC0000041	Vendor returns error.		ESB team to investigate (FES integration)	
USC0000121	Equifax return duplicate request without PrimaryDecision			
USC0000410	The specified location could not be found in the system.			

USC0000412	Market value is invalid or missing from the application.		TOPS data/ ESB	
USC0000413	First name value is required for the consumer.		TOPS data	
USC0000414	The Consumer SSN provided is invalid.		TOPS data	
USC0000415	The Consumer date of birth provided is invalid.		TOPS data	
USC0000416	The Consumer address type value is required, but was not provided.		TOPS data	
USC0000417	The Federal Tax Id was expected for this application, but was not provided		TOPS data	

5.3 Utility Queries and Tools

soapUI
Splunk
Oracle DB

Section 6 - Contact Information and Related Documents

6.1 Contact Information Escalation Information

TransUnion

Client Support Contacts and Escalation Flow

Post Implementation Support and Scheduled Maintenance Window

24x7 Post Implementation Support Contact

For outage situations and other significant issues affecting production environments:

- Contact the TransUnion Global Technology Support Center via the phone number below
- The 24x7 on-call staff will provide immediate response or escalation to the appropriate TransUnion technology team

Additionally, support is available via email for other requests or lower impacting issues. Please include the customer name, preferred contact method, subscriber code, and connectivity method where applicable.

If additional escalations are needed, the matrix below can be utilized for production issues:

Support Contact	First Level Escalation	Management Escalation	Leadership Escalation
Global Technology Support Center 24x7 Ops Center clientsupport@transunion.com 800-813-5604 option 2 then 3 (USA) 800-565-2280 option 3 (Canada)	**24x7 Shift Lead** Cell: 404-601-6289	**Scott Lamb** Sr. Manager, Global Service Desk Scott.Lamb@transunion.com Office: 404-601-6362 Cell: 678-640-6337	**Benjamin Lincks** Director Global Technology Benjamin.Lincks@transunion.com Office: 404-601-6248 Cell: 404-476-1539

Scheduled Maintenance Window

The regularly scheduled period of time that TransUnion reserves for maintenance and system changes and that may result in TransUnion's systems being unavailable for online processing is 2:00AM to 5:30AM CST / CDT Sundays

6.2 Incident management

Major Incident Management

Overview, Responsibilities, Tools, and Other Information

The goal of Major Incident Management is to restore normal service operation as quickly as possible and minimize the adverse impact on business operations. Responsibilities include:

- 24x7x265 onsite and on-call support team
- Monitor incident queues – indicators of issues with potential impact to service availability
- Prioritize incidents utilizing predefined Impact/Urgency matrix ensuring appropriate levels of support engagement and communication are applied
- Initiate, manage, drive all bridge calls through service restoration with the resolution team
- Manage internal communications
- Provide warm handover to Problem Management at resolution

Tooling and other information:

- ServiceNow – ITSM platform
- Crisis Connect – Paging and escalation tool used for timely engagement of required technical and support teams
- Auto Bridge Process – Thresholds predefined within monitoring and alerting environment resulting in automatic engagement of incident response teams via bridge calls within seconds of threshold breach

6.3 Problem Management

Problem Management

Overview as Related to Major Incident Management

Goal of Problem Management is to minimize the adverse impact of incidents that are caused by errors within the IT ecosystem, and to prevent reoccurrence of incidents related to these errors. In order to achieve this, Problem Management seeks to identify the root cause of incidents & initiate actions to improve or correct the situation in an effort to reduce the risk to our customers and business

- Problem investigations are initiated immediately following service disruptions
  - Major Incident Bridge calls transition to root cause investigation

- Enterprise Quality Review
  - Committee of 60+ technology leaders and support personnel (including GTIC)
  - Meet 3 days per week to review all Major Incidents and collectively define and document actions related to:
    - Root Cause Analysis
    - Monitoring & Alerting Improvements
    - Impact Analysis
    - Hardware, Software, and other IT Infrastructure Improvements
    - Improvements to IT/Operations Processes & Controls
    - Support Related Knowledge and Training Opportunities

6.4 Communication

Global Technology Incident Communications (GTIC)

Outage Communications and RCAs

- Focal point for incident communications to TransUnion's B2B customers during active service disruptions
  - Provides proactive incident notifications (initial, update, resolved)
  - Distributed to customer representatives who have "opted in" – provided to TransUnion account owner
  - Fulfills Root Cause Analysis requests post outage for Severity 1 and Severity 2 incidents

- Support to account owners during Monthly Scorecard Reviews and/or Quarterly Business Reviews (where applicable)
  - Post Incident Review / RCA Discussions
  - Items affecting availability

6.5 Related Documents

- **USCC Project Documents : DD, IA, Requirements, SA Docs,**
https://usc.intranet.teldta.com/sites/EPR/IR0545/_layouts/15/start.aspx#/Documents/Forms/DocumentsByType.aspx

- **Detail Design**