
Data Warehouses

A user guide for unique environments
in the core in which to manage your
specialized data

INTRODUCTION

True credit union pioneers know that above all else, data drives this business. Correctly using the data available to you can steer your credit union towards efficient marketing, lending, and

strategic decisions that shape the future of your business for everyone from the Board of Directors to the brand new member. While there are many options already in existence in which to explore your data; dashboards, trends, query, and reports to name a few, data warehouses allow you to use your data in ways that have not been done before on the core. Integrating a data warehouse solution will harness the power of your data and put the control at your fingertips to further position your credit union to propel forward in the marketplace by making data-wise and well informed moves towards your unique strategies.

This guide will function as your companion to all things data warehouse, including information about database administrators, the set-up of your warehouse and subsequent authority decisions, timing and functionality of your warehouses, and further information on ways you can harness the power of your data.

For more information on currently available data warehouse solutions, how to manage your current data warehouse solution, or how to best utilize your data trends and gain opportunities for strategic success, contact the **Asterisk Intelligence** team at ai@cuanswers.com.



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For an updated copy of this booklet, check out the Reference Materials page of our website:
<https://www.cuanswers.com/resources/doc/cubase-reference/>
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WHAT IS A DATA WAREHOUSE?

A data warehouse is digital storage architecture designed to hold data extracted from transaction systems, operational data stores, and external sources.

A data warehouse is the digital location of your specialized datasets that are used for curating member trends, marketing campaigns, strategic analysis, and other uses defined by credit union teams to further credit union data driven decisions.

These data warehouses, often associated with the term “data silos”, are not complex technological concepts, but merely a way to house the specific data that makes your credit union run. Below is a look at the multiple data warehouses that run the production of daily operations at CU*Answers, as well as the data warehouse options that are available for your credit union needs.

SPECIAL NOTE: ANALYTICS BOOTH

Analytics Booth is a data warehouse that resides in an Intel 3rd party warehouse. Analytics Booth is currently tracking 70+ data points across Balance, Member and Transaction data categories in order to produce easy to digest Trends and Alerts using your member data in a convenient web application built via dashboard style views over self-selected data sets.



View more information about Analytics Booth and get started with your own customizable analytics warehouse today by visiting the Asterisk Intelligence website, here <https://www.cuanswers.com/solutions/asterisk-intelligence/analytics-booth/>

SPECIAL NOTE: DEX (DATA EXCHANGE)

This special type of data warehouse provides the ability to transmit or receive various file transmissions from a vendor and applying it to your credit union’s CU*BASE files. There is a growing movement of DIY’ers looking to bring all their operational data into one central data warehouse for analysis and reporting capabilities. Anyone heading down this road knows that ETL (Extract, Transform, and Load) can be a time consuming chore. See how automated daily DEX transfers will simplify your workflow and allow you to spend less time managing and more time analyzing your data.

View more information about DEX and get started with your own data exchange package today by visiting the Asterisk Intelligence website, here <https://store.cuanswers.com/product-category/asterisk-intelligence/dex-vendor-data-exchange-asterisk-intelligence/>

WHAT ARE THE TYPES OF DATA WAREHOUSES?

There are several data warehouses that are already used in daily credit union operations (highlighted in black) and data warehouse solutions available ala carte (highlighted in orange). As a data warehouse is a repository of data tables and information, the very structure of your core is built from data warehouses.



CU*BASE Data Warehouses

	FILExx and FILExxE	QUERYxx	FILExxDW <i>*Coming soon in 2018</i>	FILExxSS
What is this warehouse?	Production and End of Month	Custom Report Definition	Data Warehouse	SnapShot
Data Included	Daily production tables. Some production tables are also saved in an EOM format.	Custom Report definitions, files generated by CU*BASE programs	Custom uploads and files, system files that CUs choose to keep for additional retention, system files for some optional programs	A full copy of FILExx collected every day at the latest possible moment of End-of-Day (EOD) processing. Creates a standardized set of your production files at a specific point in time.
Purpose	This is where the daily tables that house member and transaction data are stored	A storage warehouse for tables and custom reports	Unlimited retention of data tables and custom sets for analytics	Accessible via Query tools to research, extract, or use in custom reports
Cost	Included	Included	Priced Per Usage	FREE
Availability	24/7	24/7	24/7	24/7*
Data Uploads	NO	YES	YES	NO
Data Downloads	YES	YES	YES	NO
Data Transfers	YES – FILExx NO – FILExxE	NO	NO	YES
Query-able	YES	YES	YES	YES

Library Authority Controls	Restrict tool authority, but can't restrict changes to the files	Restrict tool authority, can also restrict authority to custom report	YES	Restrict tool authority, but can't restrict changes to the files
Retention Rules	Varied, 30-90 days average	90 Days for tables	Unlimited Retention	Once Daily Refresh
Manual Purge/Delete	NO	YES	YES	NO

**View information regarding SnapShot availability in a rollover situation on Page 8.*

YOUR CU*BASE SNAPSHOT WAREHOUSE (FILEXXSS)

Another data warehouse solution that serves an incredible purpose is the CU*Answers SnapShot warehouse (FILExxSS). This database library is a daily copy of the entire production and processing database (FILExx) from the previous day's end-of-day routine. Information stored in FILExx can change at any time, so creating a daily copy of yesterday's production database locks your static "snapshot" of the information. Now any data exchanges can be done off a consistent and *reconcilable* set of data.

The ability to have a view of all member files from the prior EOD cycle allows you to easily reconcile figures that are present within a warehouse such as Analytics Booth. Imagine a supervisor has received an alert that there was an increase of 50 closed end loan accounts yesterday. This supervisor may want to task you with diving into the details of which members are responsible for those 50 closed end loan accounts. Credit union managers, supervisors, and board members will have the capability to reference the SnapShot warehouse for reconciliation to the dollar amounts and numbers that they are seeing in their alerts. Third party data transfer senders and receivers will be able to know which records were sent based upon reviewing what was present within the SnapShot warehouse. The SnapShot warehouse is your consistent resource to reference for any prior day reconciliation and activity.

In addition, the Operations team at CU*Answers will be able to utilize FILExxSS rather than the production warehouse, which provides innumerable opportunities and failsafes for data transfer activities.

GETTING STARTED: OBTAINING SNAPSHOT

The best part of SnapShot is...Snapshot is free! To request SnapShot for your credit union, visit the Asterisk Intelligence online store at <https://store.cuanswers.com/product/snapshot-data-library/> and submit the form. Once SnapShot is turned on, everyone at the credit union has access to the SnapShot files by accessing Report Builder.

WHEN IS SNAPSHOT REFRESHED?

The SnapShot environment is refreshed immediately *after* each end-of-day/beginning-of-day (EOD/BOD) processing cycle. If there is no EOD/BOD cycle, the SnapShot will not refresh and instead retains the current set of data until there is an EOD/BOD cycle processed.

There is no dedicated EOD/BOD cycle for Sunday night. So, in a normal week, all the Saturday data inside SnapShot is retained through Monday and only refreshed after Monday's EOD/BOD cycle is processed.

A normal rotation for SnapShot data collection

Day of the Week	FILExxSS will hold...	SnapShot of EOD from
SAT	➔	FRI
SUN	➔	SAT
MON	➔	SAT
TUE	➔	MON
WED	➔	TUE
THU	➔	WED
FRI	➔	THU
SAT	➔	FRI
SUN	➔	SAT
MON	➔	SAT
TUE	➔	MON

Sunday Processing

On any average week, Sunday will not normally include an EOD/BOD processing cycle. All the Saturday data within SnapShot is normally retained through Monday until Monday's normal EOD/BOD cycle is completed.

Holiday Processing

EOD/BOD processing is important to understand in this scenario. A Federal holiday is not considered a business day so EOD/BOD cycles treat the day as if it were a Sunday. Since an EOD/BOD cycle is skipped for the holiday, the SnapShot environment is not refreshed and will retain the current copy of data until the next normal EOD/BOD cycle is processed on the next business date.

End-of-Month (EOM) Processing

The one trump card that overrules all other scenarios is EOM or EOY processing. Dividend calculations and payments must be processed when each month rolls over, even on Sundays or Holidays. If the last day or first day of any month falls on a Sunday or holiday, there will be a normal EOD/BOD processing cycle in addition to an EOM or EOY cycle.

Since an EOD/BOD cycle is run on this day, the SnapShot environment will also refresh with an EOD copy of the prior calendar date's FILExx.

WHEN ARE DATA TRANSFERS PROCESSED FROM SNAPSHOT?

Data transfers which rely on the SnapShot set of data, are initiated *after* the SnapShot warehouses have been generated. This is typically completed very early in the morning which enables any data transfers to then utilize SnapShot throughout the remainder of the business day. The earliest point data transfers could begin is following the refresh, but some specific programs may be intentionally scheduled for later points in the business day. Remember, SnapShot's structure as a static copy of FILExx allows for a wider, more flexible processing window to control when vendors are sent their data.

SNAPSHOT DATA AVAILABILITY DURING ROLLOVERS

Remember a rollover is a planned, scheduled transfer of system processing from the regular Production (PROD) box to our High-Availability (HA) box for disaster recovery testing. The standard for rollovers is to schedule the roll to HA for Sunday evening, then back to PROD on Wednesday evening of the same week.

SNAPSHOT AVAILABILITY IN A PLANNED ROLLOVER

This table explains the availability of the SnapShot library during a planned rollover, assuming no holidays or End-of-Month scenarios. The dashed lines represent that the SS box contains no data for that day.

Estimated Time	Day of the Week	Action	FILExxSS (Production)	FILExxSS (HA)
	FRI	Fri EOD/Sat BOD	THU	--
	SAT	Sat EOD/Mon BOD	FRI	--
Late Evening	SUN	Roll from PROD to HA <i>X no EOD/BOD run</i>	SAT	--
	MON	Mon EOD/Tue BOD	--	--
	TUE	Tue EOD/Web BOD	--	MON
Late Evening 12am - 3am	WED	Roll from HA to PROD Wed EOD/Thu BOD	--	TUE
	THU	Thu EOD/Fri BOD	WED	--
	FRI	Fri EOD/Sat BOD	THU	--
	SAT	Sat EOD/Mon BOD	FRI	--
	SUN	X no EOD/BOD	SAT	--
	MON	Mon EOD/Tue BOD	SAT	--
	TUE	Tue EOD/Wed BOD	MON	--
	WED	Wed EOD/Thu BOD	TUE	--
	THU	Thu EOD/Fri BOD	WED	--
	FRI	Fri EOD/Sat BOD	THU	--
	SAT	Sat EOD/Mon BOD	FRI	--

PRIMARY FUNCTIONS AFFECTED BY EACH SCHEDULED ROLLOVER

There are two key points of any rollover which require attention to understand impact on data availability in SnapShot.

Data Transfers (to Vendors)

Currently, these are automated through daily operational procedures. There is no credit union action required to maintain or process.

However, the timing of any rollover does affect these automated programs due to the procedure typically falling on Sunday evenings. Remember, there is no EOD/BOD cycle normally run Sunday night into Monday morning.

Custom Queries

Any custom queries which use FILExxSS will not function on the Monday immediately following a rollover. The first moment these queries will function again is ~5:00am after Tuesday's BOD and SS refresh programs have completed. The SnapShot will hold Monday EOD data at that time.

Special Note – Know that any custom queries which use FILExxSS and are scheduled for automatic refresh via **Tool #758 Report Automation – Custom Rpts/Files**, will fail to run if their scheduled run day happens to occur on the Monday immediately following a rollover. Credit Union staff are recommended to review their daily PRUNAQ report in CU*Spy for any queries which fail to run within this timeframe.

FAQ: DATA DURING ROLLOVERS

Below is a list of potential frequently asked questions that could be published to alert our credit unions of what data is available during both a scheduled rollover and an emergency rollover.

Q: Each credit union is configured to store a set number of months of transaction history. The default transaction history retention is 12 months for savings/checking products and 48 months for all other products. Will this data be available?

This data will be present in both a scheduled rollover and an emergency rollover.

Q: Every credit union has their own warehouse of both data and query definitions within the QUERYxx library. Will all tables and query definitions be available?

Both tables and query definitions will be present in both a scheduled rollover and an emergency rollover.

Q: EOM tables exists within the FILExxE library for the last 6 months (as a default) for each credit union. Will this data be available?

This data will be present in both a scheduled rollover and an emergency rollover.

Q: Will all scheduled query definitions and scheduled report data continue to be generated?

This data will be present and will continue to be generated as defined by the credit union.

Q: Each credit union has the ability to create custom fields to be used for both membership information and sub-account information. Will this data be available?

This data will be present in both a scheduled rollover and an emergency rollover.

COMING SOON: YOUR CU*BASE DATA WAREHOUSE (FILEXXDW)

The forthcoming custom Data Warehouse (DW) solution is designed to allow capability to bring outside data right next to core data, which then supports several uses; deeper opportunities for analytics, and increased user control over data storage, retention, and management.

A CU*BASE Data Warehouse will give you the opportunities to fine tune and explore data in new ways; create a SEG profile that matches the SEG on record for your member, use Member Connect to contact interested members of an external member survey campaign, work with reports from a 3rd party email processor to create additional analytics, and store your data in a warehouse with unlimited retention (unlike QUERYxx, which only retains files for 90 days).

Once available, this data warehouse environment inside CU*BASE is built to support strategies around data collection, retention, and analysis. A CU*BASE warehouse centers on the fact that it brings all the benefits of living directly inside the CU*BASE core, such as

- Accessible by the same IBM Query tools
- Direct support from CU*Answers teams
- Native tools to support usage & authority controls

A data warehouse environment will be available upon request from Asterisk Intelligence at CU*Answers. There is a cost associated with both the set-up, and the ongoing usage of your data warehouse. The Asterisk Intelligence team will create the data warehouse environment and begin to work alongside your credit union with supporting documentation and training.

Asterisk Intelligence handles all back-end configurations to initially establish your data warehouse, and provides ongoing technical support or consulting on best practices with managing a data warehouse.

Your credit union is responsible for all internal procedures or policies, data entry, maintenance, and management of your data warehouse.

GETTING STARTED: OBTAINING A DATA WAREHOUSE

This information is a sneak peek at what will soon be announced in 2018. Watch for announcements from the Asterisk Intelligence team regarding more information on when and how you can obtain your very own Data Warehouse.