

# TIS Technical Overview

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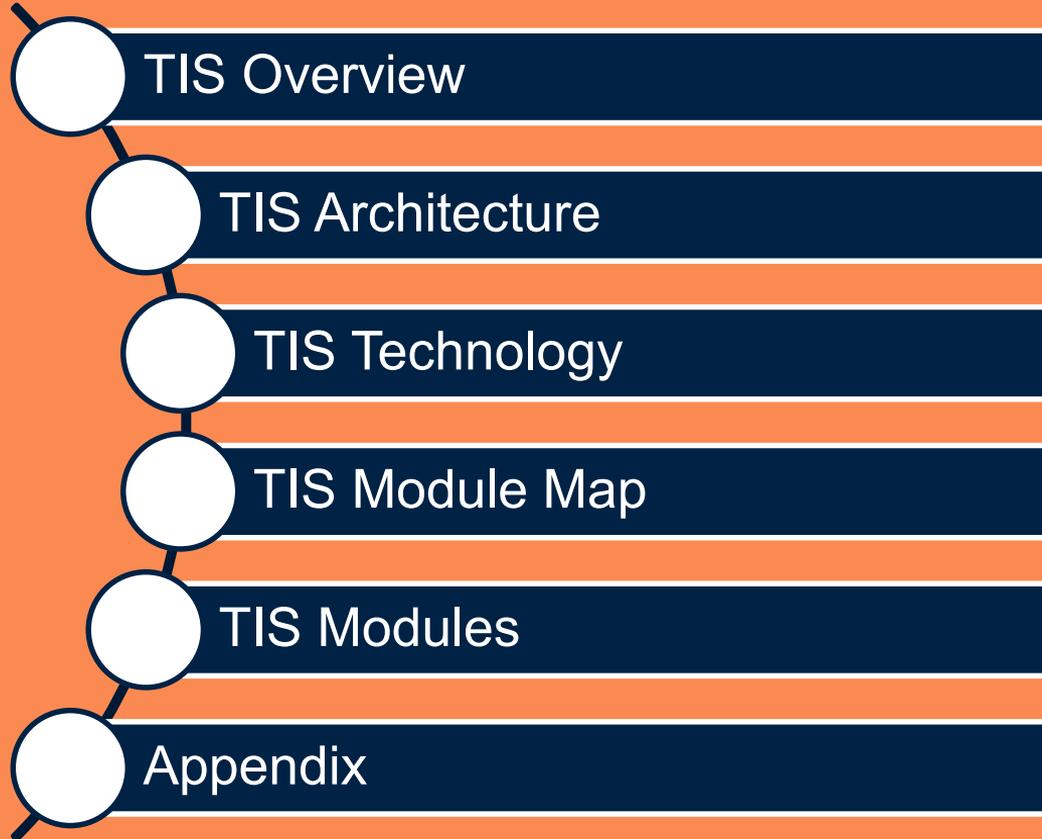


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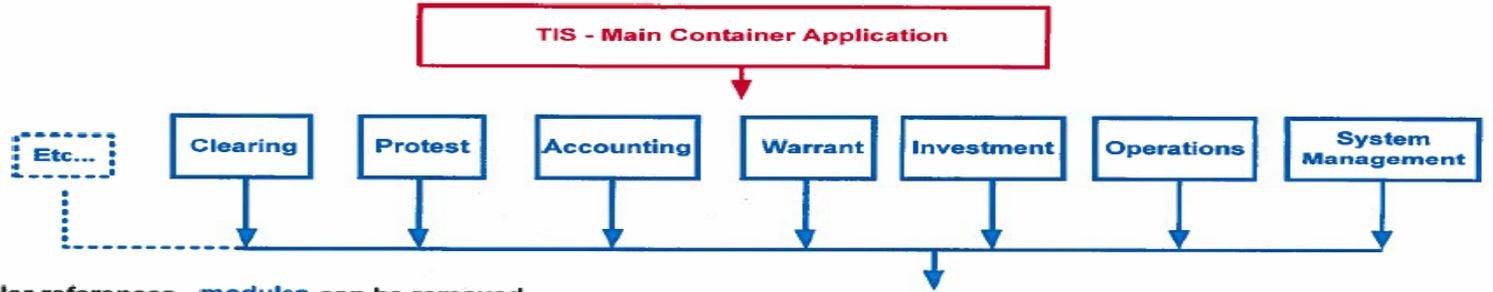




1. Treasurer's Information System (TIS) is a Graphical User Interface (GUI) based Windows application.
2. The main purpose of the TIS application is to facilitate Investment; Banking; General Ledger Accounting; and Governmental Fund Accounting including funds, appropriations, receipts, and paid operations to fulfill ISTO's statutory requirements.
3. TIS is an integrated data repository / application with file systems & databases as the data stores.
4. For reference, supporting documents and diagrams for TIS Architecture can be found in the appendix:
  - a) TIS Overview Map – Document Register ID # 100
  - b) TIS Map – Document Register ID # 118
  - c) TIS Module Analysis – Document Register ID # 117
  - d) TIS Architecture – Document Register ID # 99



## Treasurer's Information System - Architecture Overview



1. No circular references - **modules** can be removed without breaking the system.
2. Business Object Provider can exist on local machine, or on app server for remote access (web).
3. Works with our CSLA based framework.
4. Business object code written once. Consistent and easier to maintain. Available to every module through the provider.
5. Inter-module communication handled by provider. In certain cases, source system doesn't even have to be present.

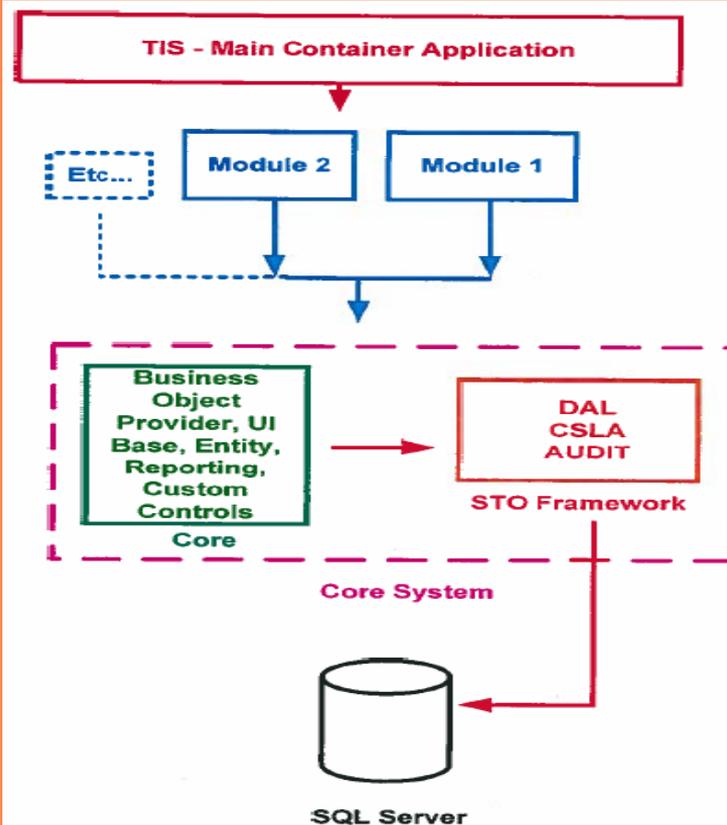


# TIS Architecture



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**Main App:**  
Simple container application used to insert system modules into

**System Modules:**  
Contain module specific UI screens.  
Contain module specific configuration and navigation instructions.  
Contain module specific code that cannot be shared outside of the module.  
Conform to a consistent interface for loading and navigation.

**Core:**  
Contains all common business objects.  
Contains all base forms, reusable UI components and code.  
Contains the Entity and Reporting subsystems.  
Contains any application defined custom controls.

**STO Framework:**  
Contains the base classes upon which all business objects are built. (CSLA)  
Contains the low-level implementation of Auditing functionality.  
Contains additional code used in database access.

**SQL Server:**  
Contains all system data stored as relational tables.  
Contains all data access and manipulation code as Stored Procedures.  
Contains an application role - TISRole - that controls access to all data.



## TIS Tools

1. .Net framework 4.0
2. COBOL
  - a) COBOL runs on COBOL emulator
  - b) COBOL emulator runs on Windows 7 machine
  - c) The TIS Investment module runs in COBOL
  - d) Interest Allocation in the TIS Accounting module runs in COBOL
3. TIS database is SQL server 2008 R2
4. Web Service is IIS 7
5. Windows XP Machine for reporting

## TIS Reporting

1. Crystal Reports 2013
  - a) TIS Reports
  - b) TIS Search
2. COBOL Executables
  - a) Investments Reports
  - b) Interest Allocation Reporting
3. IT runs two jobs in Windows XP via Visual Basic 6 to generate 3 text files for month end processing
  - a) IT Manually transfers the text files to a shared drive for import into TIS
  - b) IT copy / pastes the text files from the shared drive to a windows 7 machine for import into TIS

## TIS Interfaces

1. Directly interfaces with file shares on two servers
2. Indirectly interacts with a Batch server
  - a) SQL Server Integration Services (SSIS)
  - b) Treasurer's Office Management System (TOMS) Data Transfer Services (DTS)
  - c) Agency Web Portal Internet Information Services (IIS 7)

For reference, supporting documents and diagrams for TIS Technology can be found in the appendix:

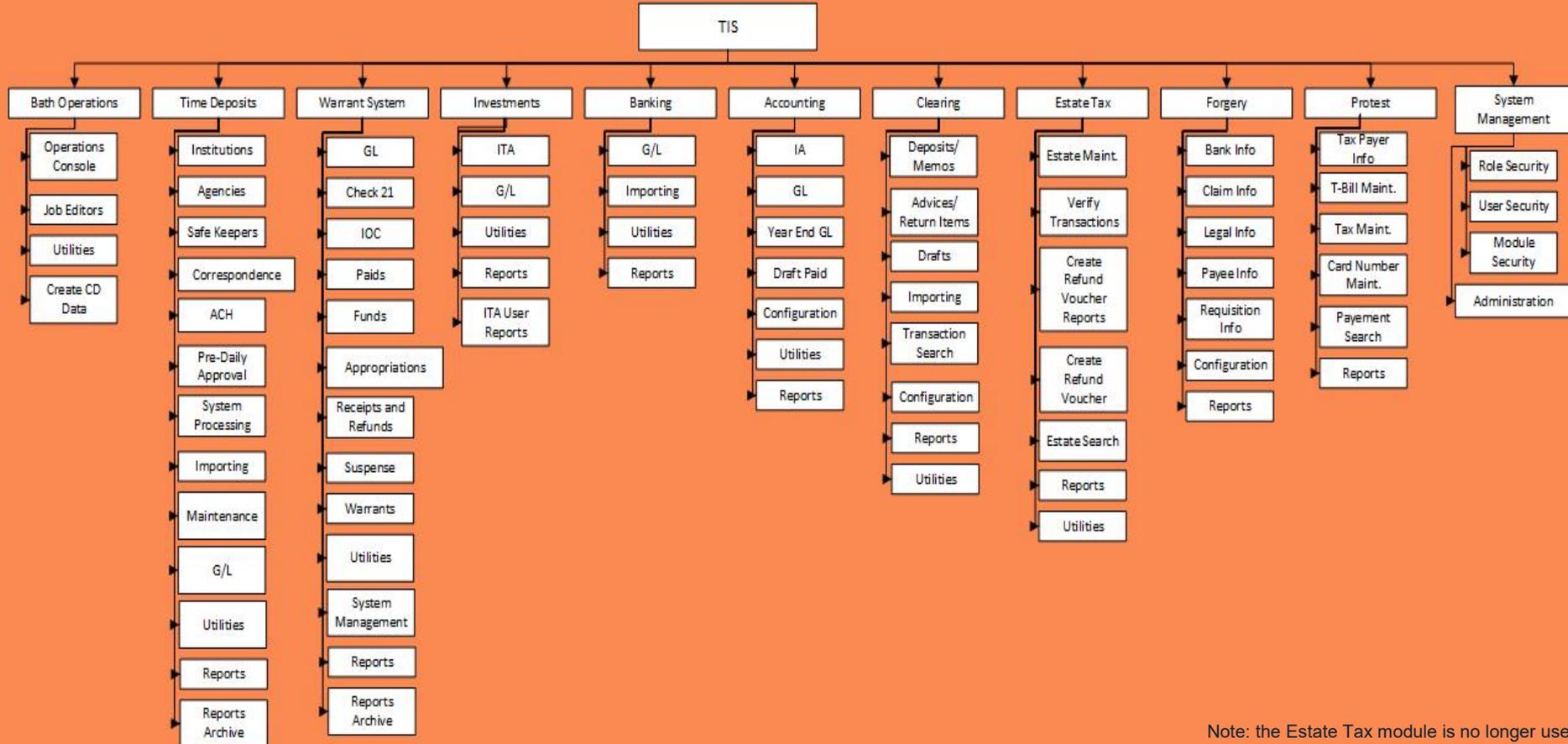
IS Data Architecture – Document Register ID # 106

# TIS Module Map



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Note: the Estate Tax module is no longer used



## Overview

1. The Banking module is used to process transactions related to the movement of funds between the STO contractual bank accounts, and post entries to the STO General Ledger.
  - a) Banking module users have access to the Banking G/L for journal entry and approval

## Import

1. TIS fetches banking data, like bank statements, from flat/Excel files to import into TIS.
2. The Banking module allows users to import the “Daily Cash Workbook”, a large Excel file used in daily banking work.

## Tools

1. The Banking module uses SQL server 2008 R2
2. The Banking module reporting system uses Crystal Reports 2013



## Interest Allocation

1. The Accounting module facilitates the monthly Interest Allocation process for the ISTO.

- a) Interest Allocation reports are run via COBOL executables, while the module's other reports are run via Crystal Reports 2013 ( e.g. "Drafts Paid Report").

## Chart of Accounts

1. The Accounting module provides users the ability to manage the ISTO Chart of Accounts.

## General Ledger

1. All other modules' GL information is sent to Accounting for final posting.
2. Clearing and Investment GL information is posted by batch process after EOD is called for all TIS modules.
3. Along with the Daily GL, the Yearly GL is also managed in the Accounting module.



## Overview

1. The Investment module facilitates daily investment transactions that support portfolio management.
  - a) Users will add new and update current treasury portfolio investments in TIS

## COBOL

1. Investment Visual Basic 6 application is running on COBOL.
  - a) IT will run the end of the day/month/fiscal year investment processes through the Visual Basic 6 Investment application.
  - b) Consolidated investment flat files are created using Visual Basic 6 application (stored on shared drive).
  - c) IT will import those flat files into TIS database through the TIS Investment module.

## Tools

1. Investment database uses a SQL server.
2. Crystal Reports 2013 for general TIS reports.
3. Investment reports are generated via COBOL executables

## Documents

1. For reference, supporting documents and diagrams for the Investment module can be found in the appendix:
  - a) Warrant FY19E Processing – Document Register ID # 102
  - b) Old Investment System – Document Register ID # 101
  - c) TIS End of Day Process – Document Register ID # 104
  - d) IT – Investments Month End Process – Document Register ID # 103



## Overview

1. The Time Deposit module exists to support the operations and management of the Illinois State Treasurer's Office Programs, which are divided into three categories:
  - a) Enrollment.
  - b) Collateral Transactions.
  - c) Fund Transactions.

## Bloomberg Pricing

1. Pricing is updated every day via the Bloomberg Pricing Update job that is run on a batch server
  - a) pricing is applied in TIS via the TIS Job stream.

## Job Streams

1. Multiple Job streams can be kicked off manually.
  - a) start of day
  - b) end of day
  - c) end of month
  - d) etc.

## Importing

1. The Time Deposit module imports Call and IDC reports via ".txt" file.



## Overview

1. The Clearing Module exists to process deposits and non-negotiable draft transactions for state agencies, and post entries to the STO General Ledger.

## Importing

1. The TIS system fetches the data from flat files to import into the TIS database from numerous banks and state agencies.
  - a) Data is validated and mapped to tables in TIS (e.g. ACH Table)

## Non-Negotiable Drafts

1. Clearing receives non-negotiable draft requests from The Agency Web Portal.
  - a) They record the payments in TIS and through the Web Portal; agencies will be able to download draft once approved TIS.

## Excel

1. TIS Clearing users work with Microsoft Excel worksheets for some business processes
  - a) Agency Excls to allow them to order drafts
  - b) Agency reports to reflect EPay Activity



## Job Stream

1. The Batch Operations module contains multiple job streams, most notably "Daily Stream" and "Daily Stream with Weekly Drafts".

- a) These are the two end of day streams, the latter being run at end of month and end of the week.
- b) Investment end of day on Investment Visual Basic 6 application must be run first to import Investment data, but TIS end of day is not dependent on this.
- c) Fiscal Year End Processing is also run inside Batch Operations.

## Check 21 CDs

1. Check 21 CD data files can be created here.

- a) Check 21 “gives banks and other organizations the ability to create electronic image copies of consumers' checks, in a process known as check truncation. The images are then sent to the relevant financial institutions to be processed, where money from a consumer's account is transferred to the receiving party's account. The electronic copy of the original check is known as a substitute check (Kenton, Will. “Check Clearing for the 21st Century Act (Check 21).” Investopedia, Investopedia, 10 June 2019, [www.investopedia.com/terms/c/check\\_21.asp](http://www.investopedia.com/terms/c/check_21.asp).)”



## Overview

1. The Warrant module – Warrant Processing System (WPS) is the State Treasurer's record of accounting for all state funds.
2. Web service uses IIS 7.
3. WPS reporting system uses Crystal Reports 2013.

## IOC Import

1. Web service downloads files for Funds, Appropriations, Receipts, and Paid Warrants (FARP) process
  - a) Web service runs to download files from the IOC's Share file site, via SFTP, to a shared drive. After moving the files it then reads them in and creates import logs.
  - b) The import job checks and validates file layout to ensure it meets import standards. An error log is kept for failed imports.
2. An automated database job will import the files into the TIS database
3. Imported IOC data is processed through Job Stream inside TIS – Warrants
  - a) Files are viewable to staff via PDF copy of ".txt" files.

## Check 21 Files

1. An automated service will extract Check21 image files through the Federal Reserve Bank & Illinois National Bank (INB). The extracted Check21 will import into the Check21 DB through database procedure.
  - a) Fed Files are downloaded from Federal Reserve website daily and INB is run at 8:00 a.m. CT. If there is an issue with getting the INB file it will be rerun by IT.
  - b) Uploaded files get imported into the Check21 database
  - c) .dat files are encrypted. These are the same files that get burned to CDs at the end of the day.

## Job Stream

1. IOC files to be sent back to the IOC are generated via TIS Job Stream.
2. These files are exported when Warrants clicks "Done for the Day" in TIS.



## User Access

1. TIS user access is managed through application & data layers.
  - a) TIS application roles will be assigned in the System Management module.

## General Management

1. System Management provides other tools to administrate various components of TIS, including:
  - a) Screen Administration
  - b) Report Administration
  - c) Module Administration
  - d) Type Code Administration
  - e) User Administration
  - f) Configuration Administration

•For reference, supporting documents and diagrams for the System Management module can be found in the appendix:  
•TIS Application Security Roles – Document Register ID # 115



1. The Forgery module exists to facilitate the management of forged warrant claims for the Treasurer's office.
2. The Forgery module is the data repository system to keep and track Forgery claims.
3. Forgery claim verification and validation is done through manual steps by Fiscal Operations staff.
4. Designated users will add to and update the Forgery data repository through TIS.
5. Forgery claims supporting documents are maintained in TIS.
6. Check21 Warrant images are imported from the Warrant module and attached to each forgery claim.
7. The Forgery database uses a SQL server.
8. The Forgery reporting system uses Crystal Reports 2013.



1. The Protest module exists to track and update protested tax payments.
2. Statute and Court Orders direct distribution from the Protest Fund.
  - a) The Treasurer's Office directs the Comptroller's Office to process refund or fund transfer.
3. US Treasury Bill rates are imported weekly from Bloomberg into TIS to calculate interest to be refunded.
4. The Protest module uses a SQL server
5. Reports from the Protest module are created with Crystal Reports 2013.

# Appendix



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Document Name	Document Register ID #	RFP Attachment ID #
TIS Architecture	99	AD23
TIS Overview Map	100	AD20
Old Investment System	101	AD19
Warrant FY19E Processing	102	AD26
IT – Investments Month End Process	103	AD18
TIS End of Day Process	104	AD24
TIS Data Architecture	106	AD17
TIS Application Security Roles	115	AD21
TIS Module Analysis	117	AD25
TIS Map	118	AD22