Chapter 27: System Administration

SEER*DMS is a Web-based application that interacts with the registry's PostgreSQL database. The registry's information technology (IT) staff are responsible for providing ad hoc programming support to registry staff, providing on-site technical support for workstations and 3rd party software required by SEER*DMS, and maintaining some aspects of the hardware infrastructure required by the SEER*DMS appliance. The first sections of this chapter provide a broad overview of the duties of the registry system administrators and a cross-reference to more specific information related to these topics.

System Tasks are available within SEER*DMS to execute processes in batch mode. Management and IT staff should develop registry-specific policies and procedures for the use of these utilities. The System Administration page in SEER*DMS allows you to monitor system logs and review registry-specific configuration settings and algorithms.

In this chapter, you'll learn about

- Technical Skills Required to Maintain SEER*DMS
- Overview of IT Responsibilities
- SEER*DMS Technical Support
- System Tasks
    - System Tasks to Build CTCs from Non-abstract Records
    - Patient Set Edits Task
    - Identify Patients for Active Follow-up (AFUP)
    - Purge Death Certificate Records
    - Send Unlinked Records into Workflow
    - Aborting a System Task
- System Administration Page
    - Configuration
    - Environment
    - Hibernate
    - Logs
    - Memory
    - System Files
    - System Properties
    - Threads

Technical Skills Required to Maintain SEER*DMS

In addition to proficiency in navigating within the MS Windows environment, the collective skill sets of your staff should include the skills described below.

Server Management
The registry's network administrator should have the skills to manage day to day operational issues such as server startup and shutdown, backup and recoveries, etc. Instructions written specifically for your registry's system configuration are posted in the System Administration section of your registry folder on the SEER*DMS Web Portal.

Ability to Write SQL Queries
IT staff must have the ability to write and optimize SQL queries and have an understanding of the SEER*DMS database structure. If the registry has limited SQL experience, formal SQL training should be considered. The SEER*DMS Web portal contains sample SQL as well as links to SQL references (http://seer.cancer.gov/seerdms/portal). SQL for system reports is embedded in the report XML that are available on the System Administration page.

Understanding of Data Structures
In order to put the SQL to good use, the IT staff must also have a full understanding of the SEER*DMS database. This would include a mapping to the legacy system, a mapping to the data fields displayed in the SEER*DMS editors, and a complete understanding of all table relationships. Diagrams are available on the SEER*DMS Web portal and data mappings are provided in the Field Mappings section of the Help menu.

Ability to Create Reports using an External Reporting Package
The SEER*DMS application includes numerous reports that were determined to be useful to all registries and could be implemented generically. If the registry requires additional reports, the registry's IT Staff must be able to generate and maintain the reports in an external reporting package that interfaces with the PostgreSQL database.

Proficiency in an External Programming or Scripting Tool
Registry IT Staff must have the ability to restructure data files into SEER*DMS supported file formats and to create registry-specific extracts. To do this in a reliable and repeatable fashion, the IT staff must be able to write and maintain programs or scripts to perform these tasks. For example, registries often need to write ad hoc programs to create text files in the Generic Supplemental Format containing data sent by non-medical organizations. The files sent by these organizations are typically text files in non-standard formats. Any programming tool may be used for this purpose. However, many external programming tasks require connectivity to the PostgreSQL database. Therefore, the IT staff must select and learn to use a tool that can interface directly with the PostgreSQL database.

Several scripts, written in Groovy or Perl, are delivered with SEER*DMS. If the registry wishes to utilize these scripts, it is the responsibility of the IT staff to maintain, update, or re-write them as necessary.

Overview of IT Responsibilities

The following summarizes the responsibilities of the registry's IT staff. Information and instructions related to these tasks are available in the *SEER*DMS Service Level Agreement* and in various chapters of this User's Manual, as indicated below.

1. The *SEER*DMS Service Level Agreement* defines the responsibilities of registry and IMS staff related to the maintenance of the SEER*DMS appliance, database, and the system infrastructure required by SEER*DMS. The registry's responsibilities typically include the items listed below; please refer to the agreement for specifics.
    a. Maintain power and connectivity to the SEER*DMS appliance.
    b. Maintain on-site and off-site backups of the SEER*DMS servers.
    c. Incorporate SEER*DMS servers into the registry-wide disaster recovery plan.
    d. Provide on-site assistance to IMS hardware, system, and database administrators.
    e. Notify IMS of scheduled interruptions due to power shutdowns and other events.

2. Maintain valid licenses and maintenance agreements for Linux and any other server-side software required to implement SEER*DMS at your registry. The specific list of software required is provided in the registry-specific section of the SEER*DMS Portal (http://seer.cancer.gov/seerdms/portal).
3. During the transition period, the registry is required to provide data to IMS for migration into SEER*DMS. These data need to be in well-defined file layouts; and the files must first be encrypted and then transferred using secure protocols.
4. Using the SEER*DMS system itself, registry IT staff will:
    a. Execute the System Tasks described in this chapter. These include Build CFOs, Build DCOs, Patient Set Edits, etc.
    b. Extract data from the SEER*DMS database and save the data in the format required for a data submission or for use in an analytic tool (see *Chapter 24: Creating Reports and Extracting Data*).
    c. Import data files as described in *Chapter 5: Importing Data Files*.
    d. Provide technical support to registry staff, as needed. This requires a general knowledge of the system features described throughout this manual and the registry-defined workflow detailed in the SEER*DMS Technical References.
5. Using an external reporting package such as Crystal reports, IT staff will:
    a. Create new external reports as requested by registry staff. This will require a working knowledge of SQL and the reporting software.
    b. Acquire and install the reporting software on the PCs of all registry staff who need to run external reports.
6. Using Windows tools, registry IT staff will:
    a. Configure the registry's personal computers and maintain current versions of client software required for SEER*DMS as described in *Chapter 3: Using SEER*DMS*.
    b. Provide on-site technical support for all PC and network-related issues.
    c. Write, test, and execute routines to pre-process data files that are not formatted per the registry-defined specifications for SEER*DMS import files.
    d. Write, test, and execute routines to extract data from the SEER*DMS database according to registry-specific requirements. Standard extracts for SEER, NAACCR, and other submissions are available within the SEER*DMS application.
    e. Write, test, and execute routines to process extracted data files (running edits, making data files available to staff, submitting data files to NCI and other organizations).
    f. Monitor external logs and report problems to IMS staff.
    g. Manage system disaster recovery procedures.
7. Using the SEER*DMS Data Search or an external SQL tool, registry IT staff will:
    a. Fill ad hoc requests for data, reports.
    b. Create and maintain registry-defined database tables. A schema is available on the same server as the data warehouse for registry-defined data. The registry may use this to create tables for research, linkage to SEER*DMS data warehouse tables, and other purposes. Tables in this schema cannot be linked to the SEER*DMS production database. The registry is responsible for activities related to the maintenance and use of this schema. This includes the creation of tables, populating tables with values

from SEER*DMS data warehouse tables or external sources, deletion of tables, updates to values in tables, and quality control of scripts and programs involved in these tasks.

SEER*DMS Technical Support

Critical issues that inhibit registry operations should be reported immediately to IMS staff. Non-critical issues should first be triaged by the registry's local technical support team.

The registry must appoint a local technical support team who can respond to routine issues. This team should include representatives from IT, editing, and management. The registry team will triage routine technical support issues and perform an initial investigation. If an issue cannot be resolved on site or requires a system change, provide a description of the problem and the results of the investigation to IMS. Unresolved issues and requests for new features should be submitted via the Technical Support Squish project (https://www.squishlist.com/seerdms/support).

System Tasks

Requires system permission: *system_administration* enables access to all tasks; *view_management_tasks* enables access to tasks that do not change any fields in the database

The Tasks section of the SEER*DMS System menu provides access to utilities or "tasks" that enable you to implement processes in batch mode. For example, the Build DCO system task enables you to auto-build batches of DCO cases from death certificate records as opposed to using the SEER*DMS editor to build each DCO case individually.

The majority of the System Tasks require the *system_administration* permission. Tasks that do not implement a change to any data in the database may only require the *view_management_tasks* permission.

Management and IT staff should develop registry-specific standard operating procedures (SOPs) related to the System Tasks. The SOPs should address these topics: scheduling considerations, procedures that must be completed prior to executing the task to ensure that the task is not executed on data inappropriately (e.g., that all death clearance processes are performed prior to executing the Build DCO system task), and a systematic review of data and relevant reports when the task finishes execution.

The System Tasks enabled in SEER*DMS vary by registry. All system tasks are listed below and are described in subsequent sections of this chapter:

- System Tasks to Build CTCs from Non-Abstract Records:
    - Build CFOs
    - Build DCOs
    - Build SHOs
- Identify Patients for Active Follow-up (AFUP)
- Pathology Keyword Statistics
- Patient Set Edits
- Purge Death Certificate Records
- Send Unlinked Records into Workflow

System Tasks to Build CTCs from Non-Abstract Records

Requires system permission: *system_administration*

There are three separate, record-specific tasks for building CTCs from reportable, unlinked records. These tasks are also called when you select one of the Build options from the Actions menu of the AFL Manager or Death Clearance Manager. However, some records may be candidates for a build task but not be associated with an AFL. For example, some death certificate records loaded before the deployment of SEER*DMS version 8 would not be available in the Death Clearance Manager.

It is recommended that you follow your registry's Death Clearance and Casefinding procedures prior to executing any of these tasks. Refer to *Chapter 17: Death Clearance* and *Chapter 21: Managing Abstracting Assignments* for further instructions.

- Build CFOs – build CTCs from casefinding, HL7 E-Path, other pathology report, or NAACCR CF record.
- Build DCOs – build CTCs from death certificate records
- Build SHOs – build CTCs from short health records

If a reportable record is not linked to any Patient Set in the database, a new Patient Set will be created. If the record is linked to a Patient Set but not to a CTC in that Patient Set, a new CTC will be created in that Patient Set. An unassigned Visual Edit Patient Set task will be added to the worklist for each newly created or modified Patient Set.

Alternatively, you may use the record menu in the SEER*DMS editor to create a CTC for each record individually.

To build CTCs from unlinked, reportable records:

1. Use reports, the Death Clearance Manager, and the AFL Manager to verify that all appropriate death clearance or casefinding procedures have been completed. Execute system reports and registry-defined reports to stratify the records by facility or other relevant factors. If necessary, use the appropriate system report to list candidate records and review the records manually. The reports below are available within the system.
    a. Frequency Reports – Use these reports if you are interested in the number of records at a particular facility that will be used to build CFO, DCO, or SHO cases. These reports show an estimate that is not as accurate as the count displayed on the screen when you set the build task's options. However, only a total count is shown in the build task.
        i. RPT-067B – Frequencies for the Build CFOs task.
        ii. RPT-068B – Frequencies for the Build DCOs task.
        iii. RPT-089B – Frequencies for the Build SHOs task
    b. Record Listings – You may use these reports if you wish to review the individual records being considered by the build tasks.
        i. RPT-067C – Candidates for the Build CFOs task.
        ii. RPT-089C – Candidates for the Build SHOs task.
2. To continue with the Build CTC task, click **System > Tasks**.
3. Based on the record-type you wish to use in the build, click the link for the appropriate Build CTC system task. Because of the demand on resources, the task links for the Build tasks will be disabled if any of the Build tasks are currently executing.

4. Set the parameters for the task:
    a. Enter a date range. Registry-specific requirements determine which database field is used for year (e.g., date of diagnosis or screening year for CFO records, date of death for DCO records, date of diagnosis for SHO records). Please refer to the documentation section of the screen to determine the date fields used for each record type in your registry's configuration.
    b. Specify whether you want the records' AFLs to be auto-closed. If set to yes, each AFL will be closed. If set to no, an AFL will only close if it meets the AFL Auto-closing Rules.
    c. If you would like to specify a particular Facility Source, enter the appropriate ID in the **Facility** field. This parameter is not available for the Build DCOs system task.
    d. You may specify the type of record considered by the Build CFO system task. The specific types of record considered by this task vary by registry. In all registries, casefinding and HL7 E-Path records may be used. NAACCR abstract records with a value of 7 for class of case may also be used in some registries. Consult registry management to determine which types of records should be used in the build.
    e. You may select records based on **Region** (this option is only available if your registry supports multiple regions).
    f. You may select records based on **Record ID**. Type or paste a list of IDs into the Record ID(s) text box.
5. Click **Recalculate** to view the number of records that will be considered by the task.
6. You may enter text related to this task in the **Comment** field. The comment for the last build of each type is stored in the database (*utility_history* table).
7. Click **Start**. SEER*DMS will begin executing the appropriate automated Build CTC task and return you to the System Tasks page.
8. After the task completes, follow the instructions below to review a report showing the results of the task.

SEER*DMS creates an unassigned Visual Edit Patient Set worklist task for each Patient Set created or modified by the build. To find the editing tasks, enter "DCO Build", "CFO Build", or "SHO Build" in the worklist's **Information** filter. To complete these editing tasks, follow your registry's guidelines for editing missing CTC data fields and resolving errors in patient data. The build task also generates a report listing each Patient Set created or modified by the build.

To review a Build Report for any of the Build CTCs System Tasks:

1. Go to the worklist and set the filters to search for Report Output tasks.
    a. Select Report Output in the **Type(s)** filter.
    b. Set the **User(s)** filter to the user who initiated the task.
    c. Enter "Build" in the **Info** filter to search for a worklist task related to any of the Build CTC System Tasks. Or you may search for a report for a specific system task by specifying "Build CFOs", "Build DCOs", or "Build SHOs" in the **Info** filter.
    d. Click **Apply**.
2. Click on the **Task ID** to open the Report Output task.
3. Click **View**. Depending on your browser settings, the report may open automatically or you may need to click **Open**. The PDF will open in an Adobe Acrobat window.
4. Use the Adobe controls to print or save this report.

Patient Set Edits Task

All edits are executed each time a patient set is opened, validated, or saved in the SEER*DMS editor. The Patient Set Edits system task enables you to re-execute the edits on patient sets in the database. You may run the edits on all patient sets or on a cohort defined by year of diagnosis. Use the Patient Set Edits task to ensure that new or modified edits are evaluated.

A polisher is a system utility that derives, calculates, or assigns data field values. Polishers are used to derive collaborative stage variables; assign census tract based on address, calculate the age at diagnosis based on date of birth and date of diagnosis, etc. When a patient set is opened, saved, or validated, a polisher will be executed if the value of a related data item changes.

Polisher classes are defined in the registry configuration files. These "classes" are categories which are used to control their execution sequence during system processes, and to determine whether a polisher is available in the Patient Set Edits system task. In the Patient Set Edits task, you have the option of executing the polishers in the "Pre-Edits" and "Post-Edits" classes (the polishers in these classes are listed on the screen when you open the Patient Set Edits system task). Typically, these should not be run when this task is executed and should only be considered during the initial transition of data to SEER*DMS. You also have the option of executing up to three additional polishers in the "Standard" and "Extra-Edits" polisher classes. In SEER*DMS, the polisher class definitions can be viewed by selecting Configuration from the System Administration page (the *system_administration* permission is required). Additional information related to polishers can be found in the *SEER*DMS Technical Reference*.

To re-execute the edits for some or all patient sets in the database:

1. Click **System > Tasks.**
2. Click the **Patient Set Edits** link.
3. To limit the edits to data by year of diagnosis, enter the **Start Year**. Patient sets with a diagnosis date during or after this year will be considered.
4. If you would like to define an end range, enter an **End Year**. If the end date is not specified, today's date will be used by default.
5. To include data with unknown year of diagnosis, set **Include Unknown Year** to *Yes*.
6. If you wish to execute polishers in the Pre-Edit and Post-Edit classes, set **Run Edit Polishers** to *Yes*. It is recommended that this option be set to *No* unless there is a specific need related to the transitioning of data into SEER*DMS.
7. To execute a polisher from the "Standard" or "Extra-Edits" classes, select a polisher from one of the **Extra Polisher** drop-down lists.
8. You may enter text related to this task in the **Comment** field. The comment for the last execution of the task is stored in the database (utility_history table).
9. Click **Start**.

The edits will be re-evaluated for each patient set in the cohort. In order to avoid creating an inordinate number of worklist tasks, a Resolve Patient Set Errors task will *not* be created for each patient set with an edit error. If the logic of a new or modified edit is implemented incorrectly, it could erroneously create an edit error for a large number of patient sets. Therefore, you must use reports rather than tasks to identify the patient sets with errors and to evaluate the error levels in the patient set data. Two system reports are available for identifying the edit errors that were triggered and the patient sets that are involved:

- *RPT-064A: Frequency of Edit Errors in the Patient Set Data*- Run this report to evaluate the error levels in the patient data. In order to verify that modifications to edits, polishers or

data did not have unexpected results, set the parameters to generate frequencies of errors for all edits in all patient set data.

- *RPT-064B: Patient Sets with Edit Errors* - Run this report to obtain a listing of Patient Sets with an error related to a particular edit.

Instructions for creating reports are provided in *Chapter 24: Creating Reports and Extracting Data*.

Identify Patients for Active Follow-up (AFUP)

Requires system permission: *view_management_tasks*

Registry-specific algorithms are used to identify patient sets for active follow-up (AFUP). These criteria are typically based on vital status, date of last contact, and whether the patient's follow-up status is monitored by the registry (e.g., non-reportable cases may not be followed by some registries).

The "Identify Patients for AFUP" task creates an open 'AFUP Need' for each patient set requiring active follow-up. You may use the AFUP Manager to facilitate and track communications to the patients, their physicians or other contacts. The AFUP Manager also enables you to enter follow-up data as it is received. An AFUP Need is closed when the patient's vital status and date of last contact indicate that the need has been fulfilled. Instructions for using the AFUP Manager are provided in *Chapter 16: Follow-up*.

To populate the AFUP table:

1. Click **System > Tasks**.
2. Click the **Identify Patients for AFUP** link.
3. Enter a date in DOLC Cutoff that defines whether a patient set requires active follow-up. A patient set will be considered if the patient set's value for vital status is alive and the date of last contact is prior to this date.
4. Click Recalculate to view the number of patient sets that meet the criteria. If the number of patient sets is unacceptably high based on registry policy, adjust the DOLC Cutoff and recalculate.
5. You may enter text related to this task in the **Comment** field. The comment from the last execution of the task is stored in the database (utility_history table).
6. Click **Start**. SEER*DMS will create an AFUP Need for each patient set which matches the registry's active follow-up criteria. Once the task completes, the follow-up staff may use the AFUP Manager to initiate follow-up procedures for these patients.

Purge Death Certificate Records

Requires system permission: *system_administration*

The purpose of the Purge Death Certificate Records system task is to permanently remove unused death certificate records from the system. Typically, this task would be used to delete old, non-reportable records. Consult with registry management and write a query or report to review the records prior to executing this task. Purge Death Certificate Records will delete records which meet these criteria:

- The record is a death certificate record that is not reportable.
- The record is unlinked. Linked records may have contributed to patient set data and, therefore, cannot be deleted using this task.

- The record is not the focus of a workflow task. If you need to delete a batch of records which are involved in workflow tasks then you must terminate the tasks prior to using the Purge Death Certificate Records task.
- (Optional) - The record was loaded in the import that you selected as a task parameter.

To permanently remove unlinked Death Certificate records from the database:

1. Click **System > Tasks**.
2. Click the **Purge Death Certificate Records** link.
3. Specify the Date of Death Prior To. If an Import ID is not specified, the task will delete records with a date of death (*record.date_of_last_contact*) prior to this date or a null value for *record.date_of_last_contact_yyyy*.
4. If an Import ID is specified, all records in the import will be considered by the task (the date parameter will be ignored). Records in the import that are linked or in the workflow will not be deleted.
5. You may enter text related to this task in the **Comment** field. The comment from the last execution of the task is stored in the database (utility_history table).
6. Click Recalculate to view the number of records that will be considered by the task. Determine whether this value is reasonable.
7. Click **Start**.

Send Unlinked Records into Workflow

Requires system permission: *system_administration*

Unlinked records that are not in the workflow can be resubmitted for processing. Each record enters the workflow at a point specified in the task parameter. Records that meet the following criteria will be loaded into the workflow:

- The record is unlinked.
- The record is not the focus of a workflow task.
- The record's type, reportability, date loaded, and Import ID correspond to the options set in the task.

To send unlinked records into the workflow:

1. Select **System > Tasks**.
2. Click **Send Records into Workflow.**
3. Select the **Record Type**. The task can only be run on one type of record at a time.
4. You have the option of selecting records with a specific value for **Reportability**. Leave this option blank to consider all records regardless of reportability.
5. You have the option of restricting the task to records **Loaded on or after** a specific date. Leave this option blank to consider all records regardless of date loaded.
6. If an **Import ID** is specified, all records in the import will be considered by the task (the date parameter will be ignored). Records in the import that are linked or in the workflow will not be considered.
7. Select the point at which the records will enter the workflow. Each record will be evaluated by the automated task for the point that you select. The record will then move forward to the appropriate automated or manual task. The **Entry Point** options are:

a. **Auto-coding** – the rec-coding polishers will be executed. Review the rec-coding polishers for the appropriate record type(s) to determine if this is an appropriate action. The logic for each polisher is documented on the Polishers help page.

b. **Record edits** – all record edits will be executed. The results will determine whether a manual Resolve Record Errors task is created as described in *Chapter 8: Resolving Record Errors*.

c. **Screening** – the algorithm to set the reportability flag will be re-applied. These algorithms are documented on the Screening help page.

d. **Matching** – each record will move to the automatic matching task.

8. You may enter text related to this task in the **Comment** field. The comment for the last Rematch Passive Follow-up Records task is stored in the database (utility_history table).
9. Click **Recalculate** to view the number of records that will be considered by the task. Determine whether this value is reasonable.
10. Click **Start**. The records will be loaded into the workflow and matched against the database. Passive follow-up data will be auto-consolidated, if possible. Match-consolidate, Consolidate FUP, Supplemental Match tasks may be created depending on the record type and match result.

Aborting a System Task

Requires system permission: *system_administration*

You may use the worklist to stop the execution of a system task. However, all changes made by the task may not be reversed. Some system tasks that update data perform the updates in batches. Updates that were made before you click Abort Task will not be reversed. You may use reports or query audit logs, the worklist, and other data to determine what was changed. The Patient Set Edits and Build tasks (Build CFOs, Build DCOs, Build SHOs) create a report. For those tasks, the report will still be created and will list the patient sets that were modified.

To abort a System Task:

1. For system tasks, the automatic task will be assigned to you and a link will be shown in the My Tasks section of your home page. Click the Automated task link for the appropriate task type to access the worklist.
2. Click the **Task ID**.
3. Click **Abort Task**.
4. Click **OK** to confirm.

System Administration Page

Requires system permission: *system_administration*

The System Administration page allows you to monitor system logs, review the registry-specific configuration settings and algorithms implemented in SEER*DMS. System Administration also includes several tools used by the SEER*DMS development team to investigate technical support issues.

To review information provided in the System Administration page, select **System** > **Administration**. The current server log will be shown when you first enter the page. The modules are described below.

Configuration

The configuration parameters define the registry-specific customizations. For more information about a specific parameter, search the SEER*DMS Users Manual for the parameter name or refer to the SEER*DMS Technical Reference (available in the documentation section of the portal).

Database
This module is a diagnostic tool that allows the SEER*DMS development team to monitor database efficiency. Queries are executed which generate statistics. These statistics are useful in monitoring the state of database and identifying inefficient queries.

Environment
This module lists environment variables in the operating system.

Login History
The username, login date, logout date, monitor resolution, IP address, and User Agent are listed for SEER*DMS sessions. The logout date may not accurately reflect user activity. Many users close Firefox without logging out of SEER*DMS; their session will remain open until the period of inactivity exceeds the *system.session.timeout.seconds configuration* parameter. The default setting for the timeout parameter is two hours.

Review the User Agent text to verify that the users in your registry are using a current version of Firefox. SEERD*DMS users should enable the Firefox auto-update option, if permitted by local policies that govern the maintenance of software on registry PCs.

Logs
Use the Logs tool to view the server and access logs. The server logs include Info, Warning, and Error messages from the SEER*DMS application and JBoss server. The access logs provide a detailed history of user activity (IP address, username, timestamp, and the URL of the SEER*DMS page that was accessed).

Use the Logs drop-down menu to search for a log based on the log date and type listed in the filename (*local_host_access* or *server.log*). This drop-down menu also provides options for searching All Logs, All Access Logs, or All Server Logs.

The maximum number of lines displayed in the viewer is based on the value in the # Rows drop-down. If a file has more than the maximum number of lines then the last segment of the file is shown. To review early entries in a log file that exceeds 5,000 rows, download the file to your PC and use external software.

The search engine returns the most recent log entries that match the search. The number of results returned is limited by the # Rows drop-down.

Memory
The memory module shows current memory allocation, memory usage, and memory pool status indicators.

Sessions
The Sessions module shows the username, overall length of time, length of time since the last activity, IP address, and User Agent for each active session. A session is active until the user logs out or the period of inactivity exceeds the *system.session.timeout.seconds configuration* parameter.

Statistics
The statistics module summarizes the execution time of various activities (execution of edits and automated workflow tasks, for example). This module is used by SEER*DMS technical support staff to investigate issues related to system responsiveness. The workflow section shows statistics for automated tasks based on the workflow history table. Entries for automated tasks are purged from the workflow history after 30 days.

System Files
This provides access to XML files containing the registry-specific implementation of the Edits, Importer, Lookups, Matching, Reports, Screening, Translator, and Workflow. Select a specific file from the Files drop-down list. These files are particularly useful for accessing and reviewing importer algorithms, matching criteria, and report SQLAdd text

System Properties
The system properties are the Java JDK settings. This viewer is included as a resource for the SEER*DMS development team.

Threads
This viewer shows the concurrent system processes that are executing or waiting.

Workflow History
This workflow history module is a log of completed workflow tasks. Automated tasks are shown in gray and manual tasks are shown in black.