CGI Advantage® 4

Grant Lifecycle Management Run Sheets Guide

CGI

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1 Purpose of the System Administration Guide

This manual is intended to help system administrators initiate, configure, monitor, and control all processing for CGI Advantage. The manual has five parts:

- The CGI Advantage System Administration Guide contains information about the CGI Advantage system architecture, and configuration (including the embedded third party components), post-installation setup, security configuration and considerations, workflow, job framework and its usage/maintenance, and other information pertinent to administering the application.
- The CGI Advantage HRM run sheet guides describe each process of CGI Advantage HRM in detail with its input, output, parameters, sort sequence, and selection criteria.
- The CGI Advantage Financial run sheet guides describe each process of CGI Advantage Financial in detail with its input, output, parameters, sort sequence, and selection criteria.
- The CGI Advantage HRM Payroll Engine System Administration Guide describes the system control tables and utilities for CGI Advantage HRM.
- The CGI Advantage VSS System Administration Guide describes each VSS process in detail with its input, output, parameters, sort sequence, and selection criteria.

System administration tasks include setting up and maintaining application security, querying and viewing the application status through logs and reports, managing workflow, setting up and maintaining system tables, and other critical application maintenance tasks.

1.1 Common terms and glossary used

The terms "Job" and "Batch" have been used interchangeably throughout the document. Please note that the CGI Advantage technical architecture is flexible enough to support the execution of jobs/batch processes while the application is available for online usage. In other words, the jobs/batch processes are technically not required to be "offline" processes.

2 Description of Processes

This chapter describes the processes in CGI Advantage that are considered system administration processes. For each process, you see information on these topics:

- Description
- Steps to Run this Process (if applicable)
- When to Run
- Major Input
- Output
- Parameters – Batch and Custom
- Sort Sequence
- Selection Criteria
- Notes
- Problem Resolution

System Wide Batch Parameters:

System wide batch parameter fields are available with each batch program, which provide the path for the input/output directory. These parameters allow sites to easily and quickly update the path for individual batch processes.

System wide batch parameters can be defined at the System Level, Area Level, Chain Job level, Chain Level or Job level. There has to be a default value set for the system wide batch parameters at any of these levels mentioned above so that the process will generate, read or write the respective files from the given location.

System wide batch parameters are defined at the System Level on the System Level Process Parameters (BATSETUP) reference page, searching for the Catalog Label of *Batch Catalog* and then choosing the record-level action of *Edit.*

- **AMSROOT** - Root directory of the batch files (for example, C:\AMSADV30\RTFiles)
- **AMSEXPORT** - For files that are created by the program and need to remain after the job is completed (i.e. cannot be temporary files). This could include interface files that come from/go to third party sources (for example, $AMSROOT\ExportImport).
- **AMSIMPORT** - For files that are used by the program and need to remain after the job is completed (that is, cannot be temporary files). This could include interface files that come from/go to third party sources (for example, $AMSROOT\ExportImport).
- **AMSLOGS** - For batch framework log files. If the job requires its own log files, this is where it is put (for example, $AMSROOT\Logs).
- **AMSPARM** - Batch job parameter files specific to a single job instance only (for example, $AMSROOT\Parms).
- **AMSTEMP** - For temporary files, usually stamped with process ID (for example, C:\TEMP).
- **AMSSPOOL** - Batch job report files, statistic files, exception reports, and so forth. These files may be sent to an OS print queue. File name is usually date and time stamped (for example, $AMSROOT\Spool).

Note:

Assumptions while implementing system wide batch parameters: It is assumed that wherever in the Job processes system wide batch parameter variables (that is, AMSEXPORT, AMSIMPORT, AMSROOT, AMSLOGS, AMSPARM, AMSTEMP, AMSSPOOL) are declared as input parameters, care should be taken to set the overrideable flag for that variable to *true*, otherwise the process may fail.

Pivot Date/Year Validation:

Note:

Assumption for date attributes: Set the Earliest Year (EARLIEST_YEAR) and Latest Year (LATEST_YEAR) on the Application Parameter reference page. When defining the year range, attention should be given to setting a range vast enough to accommodate all system impacts (such as imported transactions). The Job input date/year must lie between the above year range; otherwise, the process will fail.

2.1 Grants Batch Processes

A federal grant is an award of financial assistance from a Federal agency to a recipient to carry out a public purpose of support or stimulation authorized by a law of the United States. Grants are not Federal assistance or loans to individuals. Grants can also be provided by foundations, corporations, small business and individuals. Most grants are made to fund a specific project (for example, increased security at an airport) and require some level of reporting. The process involves an applicant submitting a proposal to a potential funder, either on the applicant's own initiative or in response to a Request for Proposals from the funder and then tracking the details associated with a potential award through to an audit and close out of that award which includes the following processing:

- Identification: Identification about Grant Opportunities, which the organization could eventually apply for on behalf of their department or unit.
- Notification: Once the opportunities are identified, Grant Managers can automatically notify potential grant applicants (that is, Grant Users) via e-mail about that opportunity that has been entered in Advantage.
- Application: This includes tracking the status of the grant in the pre-application and application phases, documenting board approvals, and recording and meeting deadline dates within the grant application process.
- Award: Once the grantee has been awarded the grant, details are recorded about the status of the award acceptance approval process and terms of the award requirements.
- Program Management: Once the grant is awarded, Project Managers will record information about the grantor and dates for any reporting requirements back to the grantor.
- Amendment: The grantor might request/permit an adjustment be made to the award which must be tracked separately because they occur after the award is accepted.
- Close-out/Audit: Audit of the grants can be a required internal process of the organization or from the grantor. This involves recording of the dates the audits were done and audit approvers. Additionally, recording the close out of the grant triggers a different set of processes.

The processes that support Grants in Advantage Financial are listed below:

- Generate Alerts
- Notify Grant Opportunity
- Update Grant Opportunity

Descriptions of these processes are organized in this section in alphabetical order:

2.1.1   Generate Alerts

Chain or Job Name	Generate Alerts
Recommended Frequency	This job can be run by an administrator from the Job Manager page either daily or on demand.
Single Instance Required	No
Can be restarted?	No
Reports generated	No reports are generated.

Overview

The Generate Alerts batch process identifies dates established within the Grants subsystem which will trigger alerts to Grant Users of an impending or expired due date. The goal of this process is to help grant managers reduce the risk of losing funding as a result of missed grant requirements by sending email and calendar reminders to the Grant Users (For Example, grant managers, applicants, and board members).

Specifically, this batch process identifies dates established as Status dates (for example, Application Dates) or supporting information needs dates (for example, Partnering Organizations Dates) and determines whether alerts need to be sent to the Grant Users for that particular date record. Grant Users are those individuals established specifically in the Grants subsystem to receive alerts.

Alert Types

Each Grant User can specify the type of alert that they would like to receive on the Grant User (GRNTUSER) table. Grant Users can receive three different types of alerts:

- *Calendar* – This alert is similar to calendar items one could receive via MS Outlook whereby a block of time is reserved in Outlook to act as a reminder to perform action for the grant. The user can adjust the Calendar Alert using the Outlook functions for any subsequent reminders. The Calendar Alert can also have a reminder, established separately on the Grant User table for each User, to remind that individual prior to the due date of the impending date (This is similar to establishing reminders on a typical MS Outlook Calendar).

- *Detailed Email* – These alerts are typical email messages pertaining to the grant whereby unique messages can be established for each individual date record.

- *Summary Email* – These alerts are summary emails pertaining to multiple grants and/or multiple dates for a single grant which have a message for that particular run of the batch process. Summary emails can be used when a grant manager manages multiple grants and they would prefer one consolidated email each alert-day.

Users who have an Alert Type of Detailed Email or Summary Email could receive a periodic set of alerts until the Completion Date is set for a given Date record, depending upon Grant Date Code setup. Users who have an alert type of Calendar will receive an alert only once.

Normal Alerts vs. Insertion/Modification/Deletion Alerts

There are several scenarios that will trigger alerts. The most basic scenario (referred to as a Normal Alert) for sending an alert is when a new Grant Status Date record is created. In this case, alerts will be sent to Grant Users based on the information defaulted for the new Status Date record based upon how that date record was setup in the Grant Date Definition Template

Details (GRNTDET) page or added via the Grant Date Definition page prior to the initial run of Generate Alerts.

Additionally, alerts will be triggered for certain circumstances where existing information is modified or deleted, or if new Grant Users are inserted to existing Status Date records. A key distinction for triggering Insertion/Modification/Deletion alerts is that these subsequent alerts will only be sent to users who received the initial alert or if the Generate Alert process has already been run for that specific Status Date record. Any updates to Grant Status Date records prior to running the Generate Alerts batch process is still considered in a Normal state.

Why distinguish between Normal and Insertion/Modification/Deletion Alerts? The reason to distinguish these types of alerts is because different messages can be triggered for each action. For example, the system can send one message letting a user know that they have been deleted from receiving alerts for a particular Status Date record whereby a different message can be sent letting them know if a due date has been changed. In other words, the goal is to allow flexibility in the messages which are sent for each type of action.

Key Fields Used In Alert Analysis

A second key determinant as to whether an Insertion/Modification/Deletion Alert will be sent is whether the key fields of that date record have been altered (after the Generate Alerts process has already been run). The key fields for a date record are based on the combined keys of the Status Date record and the Grant User records associated with that specific date. Below are the specific key fields used to derive whether an Insertion/Modification/Deletion Alert is sent:

- Key fields for a Status Date record (for example, Application Dates, Award dates): Grant Date Code + Section

  o Due Date is added to the key above solely for Reporting Date records

- Key fields for an Grant Alert User Record: Grant User + Grant User Name + Email

Note: A Reporting Date record is established within an Award/Amendment Reporting schedule. For a Reporting Date, although Due Date is considered as a key, changes to the Due Date will be treated as a modification.

As mentioned above, the differentiation between Normal Alerts and Insertion/Modification/Deletion Alerts is so that users can specify the message sent for each action. The actual alert message text varies depending on the action taken (new record, Insertion, Deletion, or Modification), as well as by type of alert (Calendar, Detailed Email, or Summary Email). The Message ID for Normal Alerts is associated with each particular Status Date record on the Grant Date Definition Template Details (GRNTDET) page. The Message ID for the Insertion/Modification/ Deletion messages are designated on the Application Parameters (APPCTRL) page, while the actual message text is designated on Grant Messages (GRNTMSG) table. If a site wishes to disable sending Insertion/Modification/Deletion Alerts for all Grant Users, then the Message ID should be set to 0 (zero) on APPCTRL for the Alert Type. For example, in order to disable emails for Deletion Alerts sent as Detail Emails, then set the GRNT_MSG_DEL_ALRT_DETAIL parameter to 0. The remaining parameters and a description of each are identified further below in the **Steps in Running this Process** section.

Alert Scenarios

Below are some scenarios that help further outline which type of alert message is sent:

Example Action	Alert Sent	Scenario
Defaulting Status Date	Normal Alert	A user creates a new Status record (for

Example Action	Alert Sent	Scenario
Records		example, Grant Application record) whereby the Status Dates and Grant Users are defaulted. The Generate Alerts batch process is run and Normal Alerts are sent to the appropriate individuals.
Adding a New Grant User	Insertion Alert	After the Status Date record had been created and the Generate Alerts batch process was run, then one week later, a user realizes that one member is missing from the Status Date record and should be added so that they properly receive alerts. The user adds the Grant User for the one Status Date record (for example, John Smith is added) which triggers an Insertion Alert immediately (for example, the next time the Generate Alerts is run). The alert lets the user know that they have been added to receive alerts for that particular Status Date record.
Changing Due Date	Modification Alert	Two weeks later, a user updates the Due Date for one of Status Date records (for example, Application Due Date) which trigger a Modification Alert immediately (for example, the next time the Generate Alerts job is run). The alert lets the users know that the due date has changed for that particular Status Date record.
Deleting Status Date Record	Deletion Alert	Three weeks later, a user requests that they are removed from the Status Date Record because they prefer not to receive reminder alerts for that record. In turn, they are deleted from the Status Date record and receive an email confirming the Deletion immediately (for example, the next time the Generate Alerts job is run).
Changing Grant Date Code Changing Date Definition Template Changing Alert User Group Template Changing Section Code	Deletion and Normal Alerts	After the Status Date record had been created and the Generate Alerts batch process was run, then four weeks later, the user decides that they should be using a different Grant Date Code and thus changes the value. The system treats the changed record as a delete of the old Grant Date Code and an addition of a new Grant Date Code. Therefore, the Grant Users belonging to the old Grant Date Code receive a Deletion Alert the next time the process is run. The New Grant Date Code will receive a Normal Alert once it meets the Next Alert Date criteria.
Changing Email Address	Deletion and Insertion Alerts	Five weeks later, the user decides that they want their alerts sent to a different email

Example Action	Alert Sent	Scenario
Changing User Name Changing Grant User ID Note: Changing a User Name constitutes a Deletion because this is a key field.		address. In turn, the user updates the email address. The system treats the changed email address as a delete of the old email address and an insertion of a new email address. Therefore, the Grant Users belonging to the old email address receives a Deletion Alert and the new email address receives an Insertion Alert the next time the process is run.
Deleting and Re-adding Same Grant User	No Alert	On any given day, if a Grant User is deleted and then added back (prior to running Generate Alerts), then the process thinks that nothing has changed and therefore no alert is sent. In other words, if the key combination of Grant Date Code record and Grant User remains the same prior to a run of the Generate Alerts batch process, then the system treats this as no change.

Steps in Running this Process

Validating Parameters

The first step in this job is to read and validate the Batch Parameters if entered. Following are the parameters provided:

- Department

- From Address

- Grant ID

- Grant Status

- Progression Counter

- Select Block Size

Valid values for Grant Status are:

        1 = Application

        2 = Award

        3 = Amendment

        4 = Close-Out

        5 = Partnering Organization

        6 = Reporting

        7 = Program Management

        Blank = Run for all Statuses

The parameters are validated by performing a look up to the Grant Status Date (R_GRNT_DT) table. If the system does not find a single record matching the combination of parameters for Department, Grant ID, and Grant Status, then the job ends with a return code of Failed. If the system finds at least a single record then the job will continue running. The job might still end up

with a Warning if it does not meet other criteria (for example, if the Next Alert Date is not <= Current Date or Issue Alert Flag for the Date record is false).

The system also reads the parameters from the APPCTRL table and validates them to see if they are empty. If empty, then the job ends with a return code of Failed. The list below outlines the parameters that must have a proper Message ID, from the Grant Message (GRNTMSG) table, before this process is run.

Parameter Name	Parameter Short Description	Parameter Long Description
GRNT_MSG_DEL_ALRT_CAL	Delete Message for a Calendar Alert	This Message ID is used when Status Date records are deleted from a particular Status and the Grant User was set to receive Calendar Alerts.
GRNT_MSG_DEL_ALRT_DETAIL	Delete Message for Detailed Email Alert	This Message ID is used when Status Date records are deleted from a particular Status and the Grant User was set to receive Detailed Email Alerts.
GRNT_MSG_DEL_ALRT_SUMM	Delete Message for Summary Email Alert	This Message ID is used when Status Date records are deleted from a particular Status and the Grant User was set to receive Summary Email Alerts.
GRNT_MSG_DUE_ALRT	Default Due Date Message	This Message ID is used in instances where a Message ID is required by the system to trigger an alert yet no Message ID is present for a particular Status Date record. This is the catch-all Message ID and will typically not be sent.
GRNT_MSG_INS_ALRT	Insert Message for all Alert Types	This Message ID is used in instances where a Grant User is added to a Status Date record after alerts for that Status Date have already been sent. This same Message ID is used for Calendars, Summary Email and Detailed Emails.
GRNT_MSG_MOD_ALRT_CAL	Modify Message for a Calendar Alert	This Message ID is used when a Status Date record is modified (for example, Changing Due Date) and the Grant User was set to receive Calendar Alerts.
GRNT_MSG_MOD_ALRT_DETAIL	Modify Message for Detailed Email Alert	This Message ID is used when a Status Date record is modified (for example, Changing Due Date) and the Grant User was set to receive Detailed Email Alerts.
GRNT_MSG_MOD_ALRT_SU	Modify Message for	This Message ID is used when a Status Date record is modified (for

Parameter Name	Parameter Short Description	Parameter Long Description
MM	Summary Email Alert	example, Changing Due Date) and the Grant User was set to receive Summary Email Alerts.
GRNT_MSG_SUMM_ALRT	Summary Email Alert Message	This Message ID is used for all Normal Alerts where the Grant User was set to receive Summary Email Alerts.

The other parameters which the job validates are Commit Block Size, Progression Counter, and Select Block Size. The value should be a positive integer for these parameters.

Synchronizing Records

The batch process maintains a Date User Runtime table (R_GRNT_DT_USR_BAT), where every record is a combination of a Grant Date Code and Grant User record combination. The Alert User Group (R_GRNT_ALRT_USER) page stores the Grant User information associated with the Grant Date Code on a particular Status date or information needs date. For example, if a Grant Date Code (D001) has four users (A, B , C ,and D) then this table will have four records with all of the information from the Grant Date table and the Alert User Group table. This table is an intermediate table between the Grant Date Code/Grant User record and the batch process. It keeps a history of records even if the Grant Date Code record or the Grant User records are deleted.

When the batch process is initiated, the Date User Runtime table gets synced with the following information:

- New Date records and Grant User records added since the last run.

- Completion Dates for any Date records marked as Completed since the last run.

- Any online operations on the Date/Grant User record (Insertions, Modifications, or Deletions)

After the table gets synced up, it is ready for use. The system then relies on its data for all Select or Updates that occur throughout the batch process. This table also helps promote a clean restart of the batch process. One important last note is that this is not a temporary table but an intermediate table which is used throughout the life cycle of Date records. Therefore, do not purge this table.

This table has three flags which are used to mark records in the event the record was Inserted (INS_FL), Modified (MOD_FL), or Deleted (DEL_FL). The table also has a flag called Send Status (SEND_STA_FL) which is marked true once a record is processed. It means that an alert was sent for the specific record.

The table also has Record Status field (REC_STA) which is used to track alerts sent for deleted records. Once the Record Status field gets updated as Deleted, then the record is not picked up again by the process.

Sending Calendar Alerts

The second step in this job is to process the Calendar Alerts. The process selects records from Date User Runtime table where the Alert Type is Calendar. Refer to the Selection Criteria section for the specific logic used to identify records that qualify for Calendar Alerts.

Once records are selected, the system derives the actual message which needs to be sent for a Calendar Alert. The system uses the Message ID for Due Date Alert that is associated with the Status Date record during the initial time a record is selected (for example, Normal Alert). If the record was Inserted/Modified/Deleted, then the process uses the Application Parameters for Grant Messages Insert Alert Calendar, Grant Message Modification Calendar Alert and Grant Message Deletion Alert Calendar to obtain the appropriate Message ID. The system then retrieves the actual message from the Grant Message table based on the Message ID. The process obtains other calendar specific information for the Calendar Alert from the Grant User (GRNTUSER) page, such as: Start Time, End Time, Reminder Required, and Reminder.

The batch process completes the following actions when sending Calendar Alerts:

- For the Normal record, it sends a Normal Calendar request.

- For a Deletion, it sends a Calendar removal request.

- For a Modification, it sends a Calendar update request.

- Updates the SEND_STA_FL to true indicating that the alert was sent once.

- Resets the MOD_FL to false after a Modification Alert is sent.

- Resets DEL_FL to false after a Deletion Alert is sent.

- Updates the REC_STA field to Deleted to make sure that the alert is not sent again for the deleted record.

- Updates the UNID field with a unique number which uniquely identifies a Calendar Alert. Once updated the UNID field will remain same for the life cycle of that calendar record.

Note: The Next Due Date and Next Message are not calculated in the case of a Calendar Alert as the user can use the Outlook Calendar functions to change the reminder date and time. If a modification request is sent due to a change of Due Date, then that request will result in a Calendar update with the new date. Whereas if a deletion request is sent, then that will result in a Calendar removal item which the Grant User must accept to remove the item out of their Outlook Calendar.

Sending Summary Email Alerts

The third step is to process Summary Email Alerts. The process selects records from Date User Runtime table where the Alert Type is Email - Summary. In the case of Summary Email Alerts, the Date records are consolidated for users who have the same User ID and Email combination and for all selected records. Refer to the Selection Criteria section for the specific logic used to identify records that qualify for Summary Email Alerts.

Once records are selected, the system derives the actual message which needs to be sent for a Summary Email Alert. The system uses the Summary Email Alert Message ID stored on APPCTRL during the initial time a record is selected (for example, Normal Alert). If the record was Inserted/Modified/Deleted, then the process uses the Application Parameters for Grant Messages for Insert Alert Summary Email, Grant Message Modification for Summary Email Alert and Grant Message for Deletion Alert Summary Email to obtain the appropriate Message ID. The

system then retrieves the actual message from the Grant Message table based on the Message ID. The process then forms the actual message which gets sent as a Summary Email Alert.

The batch process completes the following actions when sending Summary Email Alerts:

- Resets the Modified flag to false after a Modification Alert is sent.

- Resets Deleted flag to false after a Deletion Alert is sent.

- Resets the Inserted flag to false after an Insertion Alert is sent.

- Updates the REC_STA field to Deleted to make sure that the alert is not sent again for the deleted record.

- Calculates the Next Alert Date/Next Alert Message for the given Grant Date Code.

Sending Detailed Email Alerts

The fourth step is to process Detailed Email Alerts. The process selects records from the Date User Runtime table where the Alert Type is Email - Detailed. Refer to the Selection Criteria section for the specific logic used to identify records that qualify for Detailed Email Alerts.

Once records are selected, the system derives the actual message which needs to be sent for a Detailed Email Alert. The system determines the Message ID for the detailed email Alert associated with the Status Date record during the initial time a record is selected (for example, Normal Alert). The possible types of Detailed Email Alerts are as follows:

- **Days Before Alert** - The Days Before Alert field on the Date Definition and Date Definition Template Details tables allows you to indicate the number of days prior to the Due Date when the generation of alerts should be initiated. The message selected in the Message ID for Before Alert field is sent.

- **Days Between Alert** - The Days Between Alert field on the Date Definition and Date Definition Template Details tables allows you to indicate the interval (number of days) after the message in the Message ID for Before Alert field has been generated that the message indicated in the Message ID for Between Alert field should be generated. The message will be generated on that schedule until a Completion Date is entered or the Due Date is reached. For example, if the value in the Days Between Alert field is 2, then the message selected in the Message ID for Between Alert field is generated every 2 days after the message indicated in the Message ID for Before Alert field is generated until a Completion Date is entered or the Due Date is reached.

- **Due Date** - The Message ID for Due Alert field on the Grant Date Definition and Grant Date Definition Template Details tables allows you to indicate the message that you want sent when the Due Date has been reached and a Completion Date has not been entered.

- **Days Between Past Due Alert** - The Days Between Past Due Alert field on the Grant Date Definition and Grant Date Definition Template Details tables allows you to indicate the interval (number of days) after the Due Date that the message indicated in the Message ID for Past Due Alert field should be generated. The message will be generated on that schedule until a Completion Date is entered. For example, if the value in the Days Between Past Due Alert is 2, then the message selected in the Message ID for Past Due Alert field is generated every 2 days after the Due Date, until a Completion Date is entered.

Note: The Summary Email Alerts will be sent using the same logic above but the Message ID used for Summary emails is Summary Alert Message (GRNT_MSG_SUMM_ALRT).

If the record was Inserted/Modified/Deleted, then the process uses the Application Parameters for Grant Messages Insert Alert Calendar, Grant Message Modification Calendar Alert and Grant

Message Deletion Alert Calendar to obtain the appropriate Message ID. The system then retrieves the actual message from the Grant Message table based on the Message ID. The system then forms the actual message which gets sent as a Detailed Email Alert.

The batch process completes the following actions when sending Detailed Email Alerts:

- Resets the Modified flag to false after a Modification Alert is sent.

- Resets Deleted flag to false after a Deletion Alert is sent.

- Updates the REC_STA field to Deleted to make sure that the alert is not sent again for the deleted record.

- Calculates the Next Alert Date/Next Alert Message for the given Grant Date Code.

Synchronize back to the Grant Status Date Table

This is the final step where the process updates the Next Alert Date, Next Alert Message, and Status back on the Status Date record from the Grant User Runtime table.

The following table shows the various steps that the Generate Alerts job goes through and the messages issued at each step.

Process Steps	Messages
Parameter Validation	Validating Batch Parameters
	Parameters are valid or invalid. If the parameters are invalid, any one or more of the following messages will be written to the log:
	• Department is not valid. Please enter a valid Department.
	• Combination of Grant ID, Department and Grant Status is not valid. Please enter a valid combination.
	• Invalid Grant Status values have been entered. Please check the values and run the process again.
	• Progression counter size should be greater than zero
	• Application Control parameter missing for GRNT_MSG_DUE_ALRT
	• Application Control parameter missing for GRNT_MSG_SUMM_ALRT
	• Application Control parameter missing for GRNT_MSG_DEL_ALRT_DETAIL
	• Application Control parameter missing for GRNT_MSG_MOD_ALRT_DETAIL
	• Application Control parameter missing for GRNT_MSG_DEL_ALRT_SUMM
	• Application Control parameter missing for GRNT_MSG_MOD_ALRT_SUMM
	• Application Control parameter missing for GRNT_MSG_MOD_ALRT_CAL
	• Application Control parameter missing for GRNT_MSG_DEL_ALRT_CAL
	• Application Control parameter missing for GRNT_MSG_INS_ALRT

Process Steps	Messages
	If the parameters are valid, the following message will be issued: • Batch Parameter validation completed
Synchronize Records	No messages are issued during this step.
Process Calendar Alerts	If records exist then the following messages will be written to the log: • Records found for Calendar Users. • Number of records processed: Record Count
Process Summary Email Alerts	If records exist then the following messages will be written to the log: • Records found for Summary Email Users. • Number of records processed: Record Count
Process Detail Email Alerts	If records exist then the following messages will be written to the log: • Records found for Detailed Email Users. • Number of records processed: Record Count
Synchronize back to tables	No messages are issued during this step.

Restartability

This job can be restarted for any runtime failure. The job cannot be restarted if the job ended successfully and there was a problem with the email server and for some reason the alert message was not sent. To locate the number of records updated by the batch job one can query the R_GRNT_DT_USR_BAT table and look at the BAT_JOB_PROC_ID field. This field is updated with the batch processes Job ID as the batch process runs.

Major Input

Tables

- R_GRNT_DT
- R_GRNT_ALRT_USER
- R_GRNT_DT_USR_BAT
- R_GRNT_APPL
- R_GRNT_MSG
- IN_APP_CTRL

Batch Parameters

Note: The default values listed are those delivered with the software. Actual values may vary based on your site's setup.

Parameter	Description	Default Value
DEPT	Department Optional. The Department of the Grant Status record.	No Default

Parameter	Description	Default Value
FROM_MAIL_ADDRESS	From Address Required. The from address is the email address that will appear as the From Address in the generated alert emails. Some outgoing email servers may require a valid email address to be used, while some may permit a dummy email address.	No Default
GRANT_ID	Grant ID Optional. Represents a Grant Application and all associated statuses.	No Default
Grant Status (GRANT_STA)	Grant Status Optional. Multiple values are allowed if comma-separated: 1 = Application 2 = Award 3 = Amendment 4 = Close-Out 5 = Partnering Organization 6 = Reporting 7 = Program Management	No Default
Progression Counter (PROG_CTR_SZ)	Progression Counter Size	10
Select Block Size (SELECT_BLOCK)	Select Block Size	1000

Major Output

- Calendar Alert is sent.
- Summary Email Alert is sent.
- Detailed Email Alert is sent.

If the Detailed or Summary Emails are sent, then the R_GRNT_DT table is updated with the Next Alert Date and the Next Alert Message.

Job Return Code

The following table indicates the potential return codes for Generate Alert Batch Job:

Return Code	Condition
Successful (1)	All of the Grant User records are processed successfully.
Warning (4)	Generate Alert process does not find any eligible records.
Failed (12)	Batch Parameters are invalid, the Parameters are valid but the combination is invalid or any unexpected exception.
Terminated (16)	This return code will be issued when the job is terminated by the user.
System Failure (20)	This return code will be issued when the job is terminated because of database server or network issues.

Sort Criteria/Sequence

Calendar: DT_USR_LN_NO

Detailed Email: DT_USR_LN_NO

Summary Email:

- Insert Flag - INS_FL

- Deletion Flag -DEL_FL

- Modification Flag - MOD_FL

- Grant User ID - GRNT_USER_ID

- Email Address - EMAIL_AD

- Grant Date Code - GRNT_DT_CD

- Date User Line Number - DT_USR_LN_NO

Selection Criteria

Selection of Grant Date User runtime records for Calendar Alerts is based on the following:

- Issue Alert Flag is true.

- Due Date is not empty.

- Completion Date is not provided with any date or empty.

- Grant Alert Type Id for the User in Grant User table is Calendar.

- Send status flag is false which indicates no alert has been sent so far.

- If batch parameters are provided, then the date records matching the parameters entered.

- Delete Flag is true which indicates deleted users.

- Insert Flag is true which indicates newly inserted users.

- Modify Flag is true which indicates Due date modified.

Selection of Grant Date User runtime records for Summary Email Alerts is based on the following:

- Issue Alert Flag is true.

- Completion Date is not provided with any date or empty.

- Grant Alert Type Id for the User in Grant User table is Email - Summary.

- Next Alert Date is less than or equal to Application Date.

- Due Date is not empty

- If batch parameters are provided, then the date records matching the parameters entered.

- Delete Flag is true which indicates deleted users.

- Insert Flag is true which indicates newly inserted users.

- Modify Flag is true which indicates Due date modified.

Selection of Grant Date user runtime records for Detailed Email Alert is based on the following:

- Issue Alert Flag is true.

- Due Date is not empty.

- Completion Date is not provided with any date or empty.

- Grant Alert Type Id for the User in Grant User table is Email - Detailed.

- Next Alert Date is less than or equal to Application Date.

- If batch parameters are provided, then the date records matching the parameters entered.

- Delete Flag is true which indicates deleted users.

- Insert Flag is true which indicates newly inserted users.

- Modify Flag is true which indicates Due date modified.

Problem Resolution

Step 1: Parameter Validation

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	N/A	N/A	N/A
Warning (4)	N/A	N/A	N/A.
Non Fatal Error (8)	N/A	N/A	N/A
Failed (12)	Failed because parameter validation was not successful.	Verify the parameters which have been submitted.	N/A
Failed (12)	Failed because validation of combination of valid parameter was not successful.	Verify the combination of given parameters which have been submitted.	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated. The job needs to be rescheduled.	N/A

Possible Return Codes	Condition	Recommendation	Other Instructions
Terminated (16)	Job is terminated manually by the user.	The reason for the termination needs to be investigated. The job needs to be rescheduled.	N/A
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job needs to be rescheduled.	N/A

Step 2: Processing Calendar Alerts

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	N/A	N/A	N/A
Warning (4)	The batch process does not find any eligible records.	Check if Date Records are available for Calendar Alerts based on the selection criteria.	N/A.
Non Fatal Error (8)	N/A	N/A	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	In this step the job can fail with fatal conditions only on encountering unknown exceptions. If that happens, investigate the exception reported by the process, resolve the error and restart the job.	N/A
Terminated (16)	Job is terminated manually by the user.	The reason for the termination needs to be investigated. The job needs to be restarted.	N/A
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job needs to be restarted.	N/A

Step 3: Process Summary Email Alerts

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	Successful	N/A	N/A
Warning (4)	The batch process does not find any eligible records.	Check if Date Records are available for Summary Email Alerts based on the selection criteria.	N/A.

Possible Return Codes	Condition	Recommendation	Other Instructions
Non Fatal Error (8)	N/A	N/A	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated. The job needs to be restarted.	N/A
Terminated (16)	Job is terminated manually by the user.	The reason for the termination needs to be investigated. The job needs to be restarted.	N/A
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job needs to be restarted.	N/A

Step 4: Process Detailed Email Alerts

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	Successful	N/A	N/A
Warning (4)	The batch process does not find any eligible records.	Check if Date Records are available for Detailed Email Alerts based on the selection criteria.	N/A.
Non Fatal Error (8)	N/A	N/A	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated. The job needs to be restarted.	N/A
Terminated (16)	Job is terminated manually by the user.	The reason for the termination needs to be investigated. The job needs to be restarted.	N/A
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job needs to be restarted.	N/A

2.1.2   Notify Grant Opportunity

Chain or Job Name	Notify Grant Opportunity
Recommended Frequency	This job is run on demand and is triggered in the following two ways: • Clicking on Notify link on the Grant Notification Status Folder page. • Submitting the Grant Opportunity transaction having records / lines on the Grant Notification tab. This job can also be run by an administrator when needed from the Job Manager page.
Single Instance Required	No
Can be restarted?	No
Reports generated	No reports are generated but the job internally creates a PDF transaction which contains opportunity related information. This file is emailed to the users who are on the Notification List.

Overview

This job creates a PDF transaction for a specific Grant Opportunity and this transaction is emailed to the Grant Users who are selected to be notified for this Grant Opportunity.

The email will also contain a link which will take the user to the specific Grant Opportunity record on the Grant Opportunity Status Folder. Each user will be emailed individually and the Notify User record is updated to set the Notification Sent date.

When to Run

This job is run on demand and is triggered in the following two ways:

• Clicking on the Notify link on the Grant Notification Status Folder page.

• Submitting the Grant Opportunity transaction having records / lines on the Grant Notification tab.

This job can also be run by an administrator when needed from the Job Manager page.

Steps in Running this Process

Parameter Validation:

The first step in this job is to read and validate the parameters entered.
The NOTIFGRP_SEQ_NO and GRNT_OPTY_ID parameters are the primary key attributes of the table R_GRNT_NOTIFGRP. The parameters are validated by looking up the table with these key values. If a record does not exist then the validation fails.

Selection of Records

The second step in this job is to verify if any Grant users have been selected to be notified.
This is verified by querying Grant Notification User table (R_GRNT_NOTIFUSR) with the job parameters and the Notify flag on the Grant Notification User Table (R_GRNT_NOTIFUSR) set to

true. If a record does not exist, then the job fails.

Creating Grant Opportunity PDF.

The third step is the creation of the Grant Opportunity PDF. The Grant Opportunity record is looked up by querying the Grant Opportunity table (R_GRNT_OPTY) with the job parameter GRNT_OPTY_ID. The record retrieved is used by the Advantage Report Framework to create the PDF file.

Creating Sign-on Link

The fourth step is to create the sign-on link which is added to the Notification Email. This link is used to go to a specific record in the Grant Opportunity Status Folder. The notified user needs to click on the link and login with an authentic User Name / password to go to the Grant Opportunity Status Folder. This sign-on link is formed using the Default Grant URL which is retrieved from the Application Control Parameters table.

The link will be in the following format:

http://winadvs17/webapp/af36ow1/Advantage?openPage=openPage&Destination=pR_GRNT_OPTY_Generic&ApplName=Grants&WhereClause=GRNT_OPTY_ID='DAVID001NODOC'

Sending Email Notification

The fifth step is to look up all the grant users who have to be emailed and to send the email individually with the PDF attachment. The lists of users are looked up by querying Grant Notification User table (R_GRNT_NOTIFUSR) with the job parameters and the Notify flag set to True. The Email Address and Message ID of each user record are retrieved. If the Message ID is not present on the user record, the Default Grant Message ID is retrieved from Application Control Parameters table. This Grant Message ID is used to look up the email message details by querying the table R_GRNT_MSG. The email message text is formed incorporating the Grant Sign-On Link and the Grant Opportunity PDF is attached to the email. It also updates the Grant Notification User table (R_GRNT_NOTIFUSR) with the Sent Date and resets the Notification flag.

Sending Advantage Alert

The last step is to send Advantage Alert to the user who ran the job. If the job ended with a Successful return code, the message will be: "Grant Notification was successfully sent." If the job ended with a Warning return code, the message will be "One or more Grant Notifications were not successfully sent."

The following table shows the various steps that the Job goes through and the messages issued at each step:

Process Steps	Messages
1. Parameter Validation	• Validating Batch Parameters • Parameters are valid or invalid depending on the validation. If the parameter is invalid, the following message will be issued: "Unable to retrieve Grant Notification Record" • Batch Parameter validation completed
2. Verify Notify Flag checked	• If the selection returns 0 records, then the following message will be issued: "Could not retrieve any Grant Users to Notify".

Process Steps	Messages
for Grant users	• If the selection returns records > 0 , then the following message will be issued: "Number of Users to Notify: "Record Count"
3. Create Grant Opportunity PDF	• Creating PDF Report for Grant Opportunity ID • If the Grant Opportunity could not be retrieved the following message will be issued: "Grant Opportunity ID could not be looked up, PDF not created"
4. Email Grant Users	• If the Grant Message ID cannot be looked up on Grant Message table (R_GRNT_MSG) the following message will be issued: "Email Message could not be looked up, Email not sent"

Restartability Information

If the job fails in any of the above steps, the job cannot be restarted. The job saves the information to the database after updating each Grant Notification User table record and the email has been sent to the individual user. On rescheduling the job, it picks records as per the selection criteria of this job.

Major Input

Tables

• R_GRNT_NOTIFGRP

• R_GRNT_NOTIFUSR

• R_GRNT_MSG

• R_GRNT_OPTY

Batch Parameters

Parameter	Description	Default Value
Grant Opportunity ID (GRNT_OPTY_ID)	Grant Opportunity ID	No Default
Grant Notification Group Seq. No. (NOTIFGRP_SEQ_NO)	Grant Notification Group Seq. No.	No Default

Major Output

• Notification Email with Grant Opportunity PDF attached.

• Grant Notification User Table (R_GRNT_NOTIFUSR) is updated with the Sent Date and the Notification Flag is reset

Job Return code

The following table shows the potential job return codes for this job.

Return Code	Condition
Successful (1)	All of the Grant User records are processed successfully.
Warning (4)	One or more email messages could not be sent.
Failed (12)	The job will fail under the following conditions: • Batch Parameters are invalid. • No Grant Users to notify. • Grant Opportunity ID could not be looked up, PDF not created. • Run time exceptions for unexpected situations.
Terminated (16)	This return code is issued when the job is terminated by the user.
System Failure (20)	This return code is issued when the job is terminated because of database server or network issues.

Sort Sequence

- Grant Opportunity ID - GRNT_OPTY_ID

- Notification Group Sequence - NOTIFGRP_SEQ_NO

- Notification User Sequence - NOTIFUSR_SEQ_NO

Selection Criteria

The Notify Grant Opportunity job selects records from the R_GRNT_NOTIFUSR table with the following criteria:

- NOTIFGRP_SEQ_NO = Notification Group Sequence from Batch Parameter

- GRNT_OPTY_ID = Grant Opportunity ID from Batch Parameter

- NOTIF_FL = True

Problem Resolution:

A successful run of all the steps will result in the job returning with a Return Code of Successful (1).

What follows are the details of likely problems which can be encountered for each step and their resolution. Since the Grant users are emailed individually, an exception encountered in sending an email does not return a Failed Return Code. Instead the job continues and will end with a Return Code of Warning. The job uses the email server information configured in the Admin table R_WF_EMAIL_INFO. Please verify this configuration in case the job log reports "SendMailException" or the message "Mail exception occurred while trying to send email to user."

Step 1: Parameter Validation: Possible Return Codes	Condition	Recommendation	Other Instructions
Failed (12)	Failed because parameter validation was not successful.	The parameters are used to look up the Grant Notification record on R_GRNT_NOTIFGRP table. Verify the parameters which have been submitted.	
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated before rescheduling the job.	
Terminated (16)	Job is terminated manually by the user.	The job can be rescheduled.	
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job can be rescheduled.	

Step 2: Verify Notify Flag checked for Grant users

Possible Return Codes	Condition	Recommendation	Other Instructions
Failed (12)	Failed because job could not retrieve any Grant Users to notify.	The Notify Flag needs to be set to *True* for any Grant User to be notified.	
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated before rescheduling the job.	
Terminated (16)	Job is terminated manually by the user.	The job can be rescheduled.	
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job can be rescheduled.	

Step 3: Create Grant Opportunity PDF:

Possible Return Codes	Condition	Recommendation	Other Instructions
Failed (12)	Failed because the Grant Opportunity ID could not be looked up or the PDF file could not be created.	The Grant Opportunity ID parameter is used to look up the Grant Opportunity Record on Grant Opportunity (R_GRNT_OPTY) table. Verify the parameters which have been submitted.	
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated before rescheduling the job.	
Terminated (16)	Job is terminated manually by the user.	The job can be rescheduled.	
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job can be rescheduled.	

Step 4: Email Grant Users:

Possible Return Codes	Condition	Recommendation	Other Instructions
Warning (4)	One or more email messages could not be sent.	The reason for the emails not being sent needs to be investigated before rescheduling the job.	
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The reason for the failure needs to be investigated before rescheduling the job.	
Terminated (16)	Job is terminated manually by the user.	The job can be rescheduled.	
System Failure (20)	When the job is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated. The job can be rescheduled.	

2.1.3 Update Grant Opportunity

Job Name	Update Grant Opportunity
Recommended Frequency	Daily
Single Instance Required	Yes
Can be Restarted?	Yes
Reports Generated	No

Overview

The details of funding opportunities are available in different repositories for applicants to pursue. www.grants.gov is a repository for federal funding opportunities offering capabilities for applicants to connect and download the daily extract of opportunities. The Update Grant Opportunity process retrieves data from the daily extracts on www.grants.gov to Available Opportunity Detail (GTAOD) and Available Opportunity Summary (GTAOS) pages in Advantage, eliminating the need to manually enter the grant opportunity information in Advantage. These pages provide search capabilities and the ability to automatically generate Grant Opportunity (GTOP) transactions from the selected Available Opportunity record.

The daily zip file containing XML extract is published at https://www.grants.gov/xml-extract. The files are automatically stored at a cloud location, currently at https://prod-grants-gov-chatbot.s3.amazonaws.com/extracts/. Each file has a unique naming convention of GrantsDBExtract<YYYYMMDD>v2.zip.The process automatically downloads the zip file using the URL and file name. The process can alternatively look for a pre-downloaded Zip file at a defined local location. The process then unzips and processes the opportunity records. Once the XML extract file is decompressed, the Update Grant Opportunity process refreshes the complete list of Available Opportunities using the XML extract. The prior Available Opportunity records are purged, and the new file is loaded into Advantage, reflecting the most recent list of grant opportunities viewable on the website.

The website typically makes the zip file available in the early AM hours, Eastern Time (for example, 4:40AM ET), but it is sometimes delayed. Although www.grants.gov usually publishes an extract file on weekends, it is not necessary to process every day's file if usage of the GTAOS and GTAOD pages is low (or non-existent) over a weekend or holiday.

The Update Grant Opportunity process performs a series of steps, detailed as follows:

Downloading Funding Opportunity Zip File:

The Update Grant Opportunity process can be run to download the zip file directly.

- The Download Page URL, Download Page URL 2, Proxy IP Address, Proxy Port No (Proxy Port Number), Zip Date, and Zip File Name parameters are used to download the Grant Opportunity Zip file from the website.

- Although web users can view the grant opportunity XML extract Zip files at https://prod-grants-gov-chatbot.s3.amazonaws.com/extracts/, the default value of the Download Page URL parameter may be different because this is the actual URL at which a single file can be directly accessed instead of the URL showing the list of available files. The Update Grant Opportunity process uses this URL to download the Grants.gov Grant Opportunity Zip file.

- The values of the Download Page URL and Download Page URL 2 parameters are concatenated together to form the leading part of the file access URL up to the part where the file name is appended. Two batch parameters are provided because this leading portion of

the URL may exceed 255 characters, the maximum length of the batch parameter value field. Download Page URL 2 is optional for automatic downloads if that leading URL portion can fit within the first 255 characters (Download Page URL).

- Proxy IP Address and Proxy Port No are optional parameters. If the internet security of the batch server does not allow downloading large files or proxy servers are required for internet access, then it is required to provide these parameters.

    - Proxy IP Address should be in the form of ddd.ddd.ddd.ddd where d represents a digit from 0 to 9. Each subnet of the Proxy IP Address (i.e. ddd) should be between 0 and 255.

    - If users are unfamiliar with the correct settings for these fields, they should contact their system administrator for assistance. If the batch server allows internet access without the use of a proxy server, then these parameter values are not necessary.

- The format of the Zip file name is currently "GrantsDBExtractYYYYMMDDv2.zip" where YYYYMMDD is the extract date. The process finds the Grant Opportunity Zip file name by substituting values in the Zip File Name parameter with the Zip Date parameter and appending ".zip". The default value of the Zip File Name is "GrantsDBExtract[YYYY][MM][DD]v2. If at a future date the Grants.gov site adopts a different file name structure (e.g. if the 'v2' is dropped from the file name), this default value can be modified manually.

- Zip Date parameter is an optional parameter when downloading the Zip file. If it is not provided, the application system date is formatted into YYYYMMDD format and used as the zip date. When provided, the zip date is used as the suffix of the zip file name. Zip Date should be in the format of the YYYYMMDD format.

    This parameter is useful if it is desired to automatically download and process an extract file that is **not** the current day's file. For example, if the current application system date is September 20, 2009 and it is desired to download and process the September 18, 2009 extract file, then the Zip Date parameter can be set to 20090918 to download the desired file and override the use of the application system date.

Funding Opportunity Zip File downloaded manually:

If it is not possible (due to network/internet security) or desirable to automatically download the extract file, the file can be download manually (or by other means) and placed at a local or network location visible to the Advantage batch server.

- If the grant opportunity extract Zip file is downloaded manually, then the Zip file name, along with its fully qualified path, can be provided in the Downloaded Zip File parameter. Please note that Downloaded Zip File must always reference a zipped file, not an unzipped XML file. The Update Grant Opportunity process always expects a zipped file regardless of whether it is download automatically or manually.

- If the zipped file is available on a drive (local or on network) other than the production batch server, then the file must be placed in a folder which is accessible from the production server. Following are some examples of formats for the Downloaded Zip File parameter.

    - "\\<machine name>\<path>\<Zip file name>" (for Windows-based operating systems)

    - "X:\<path>\<Zip file name>" (for Windows-based operating systems)

    - "//<machine name>/<path>/<Zip file name>" (for Unix-based operating systems).

    - "/<path>/<Zip file name>" (for Unix-based operating systems)

- If a Downloaded Zip File parameter value is provided, then the Download Page URL, Proxy IP Address, Proxy Port No, Zip Date, and Zip File Name parameters are not required.

Extracting Grant Opportunity Zip File to get XML File

This step is always performed by the Update Grant Opportunity process regardless of whether the Zip file is automatically or manually downloaded.

- Once the Grant Opportunity Zip file is found at the user-specified location or automatically downloaded from Grants.gov, the process extracts the Zip file to get the Grant Opportunity XML file.

- Grant Opportunity XML file is created at the application's Export Import directory.

   Note: When the Update Grant Opportunity process reports an error extracting the Zip file, it is often due to an incompletely downloaded file that resulted in a partial, thus corrupt, Zip file. This has been sometimes observed to occur due to issues in the way Grants.gov has posted the Zip files or due to network (or Grants.gov site) issues that caused the download to timeout before it completed.

Purging Available Grant Opportunity Records

This step is always performed by the Update Grant Opportunity process.

- The Update Grant Opportunity process deletes all records from the following tables that store grant information: Available Opportunity, Funding Instrument Type, Funding Activity Category, Eligibility Category, and CFDA Number.

Load Available Grant Opportunity Records to Database

This step is always performed by the Update Grant Opportunity process.

- The Update Grant Opportunity process reads the Grant Opportunity XML file records and adds corresponding records to the Available Opportunity, Funding Instrument Type, Funding Activity Category, Eligibility Category, and CFDA Number tables.

Restartability Information

This Update Grant Opportunity process supports restartability. The process is logically divided into the following five sub-processes. If a process fails, it can be restarted from the last executed sub-process.

- Parameter Validation

- Downloading or Finding Grant Opportunity Zip File

- Extracting Grant Opportunity Zip File

- Purging Available Opportunity Records

   - If a process fails during the purge step such that some deletions were committed, the restarted process continues purging the remaining records when restarted.

- Loading Available Grant Opportunity Records to Database

   - If a process fails during the loading step such that some loaded records are committed, the restarted process continues loading the remaining unloaded records when restarted.

Process Steps	Messages
1. Parameter Validation	- Parameter validation started. - If the parameter is invalid, the log message states the error.

Process Steps	Messages
	• Batch parameter validation completed.
2. Downloading or Finding Grant Opportunity Zip File	If the user has specified the Downloaded Zip File parameter, then the process finds the Zip file at the specified location. If the user has specified the Download Page URL and other details to download the Zip file, then it downloads the Zip file. • Downloading zip file. • Downloading zip file completed.
3. Extracting Grant Opportunity Zip File	• Extracting zip file started. • Opportunity XML file successfully extracted from zip file.
4. Purging Available Opportunity Records	• Purging Available Opportunity records started. • Deleted <insert system-calculated number> Available Opportunity records. • Purging Available Opportunity records complete.
5. Loading Grant Opportunity XML File Records to Database	• Adding Grant Opportunity XML file records to database started. • Added <insert system-calculated number> Available Opportunity records. • <insert system-calculated number> Available Opportunity records were added successfully.

Note: For any change to the URL where zip files are stored by www.grants.gov, the Download Page URL (and Download Page URL 2 where the URL exceeds 255 characters) should be updated to download the zip file automatically.

Major Input

Grants.gov (www.grants.gov) Grant Opportunity XML extract Zip file.

Parameters

Batch Parameters:

Parameter Name	Description (Caption)	Default Value
Export Location (AMSEXPORT)	The required location for input files.	$$AMSROOT$$/ExportImport
Parameter File Location (AMSPARM)	The required location for parameter files.	$$AMSROOT$$/Parms
Commit Block Size (COMMIT_BLOCK)	A performance parameter that controls the number of record updates/inserts done in a commit instance.	100
Download Page URL	The required URL with the	https://prod-grants-gov-

(DWNLD_PAGE_URL)	individual zip file to download.	chatbot.s3.amazonaws.com/extracts/
Download Page URL 2 (DWNLD_PAGE_URL_2)	Any necessary remainder of the above URL when it exceeds 255 characters.)	(blank)
Proxy IP Address (PROXY_IP_AD)	The proxy IP address that is necessary if security prevents downloading large files.	(blank)
Proxy Port Number (PROXY_PORT_NO)	The proxy port number needed if the proxy IP address option is being used.	(blank)
Zip File Prefix Date (ZIP_DT)	An optional date to specify a different date than the Application System Date (APPL_SYS_DT from APPCTRL).	(blank)
Zip File Name (ZIP_FILE_NM)	An optional parameter to specify a zipped file name to download.	GrantsDBExtract[YYYY][MM][DD]v2
Downloaded Zip File Name (ZZ_DWNLD_ZIP_FILE)	If the zipped file has been obtained and stored locally, this is a required parameter to enter the full path of the file's location and name.	(blank)

Major Output

- R_AVAL_OPTY (Available Opportunity)
- R_CFDA_NO_OP (CFDA Number)
- R_FNDG_INSM_TYP_OP (Funding Instrument Type)
- R_FNDG_ACTV_CAT_OP (Funding Activity Category)
- R_ELIG_CAT_OP (Eligibility Category)

Job Return Code

The following table shows the potential process return codes for the Update Grant Opportunity process.

Return Code	Condition
Successful (1)	All records are loaded successfully.
Warning (4)	N/A
Non-Fatal Error (8)	N/A
Failed (12)	The process fails under the following conditions: - Entered parameters are invalid.

Return Code	Condition
	• Zip file is not downloaded from the Grants.gov site or it is not found at the user-specified location. • Zip file is not successfully extracted. • All Available Opportunity records are not deleted successfully. • All Grant Opportunity records are not successfully loaded from the Synopsis XML file to the "Available Opportunity Detail" page.
Terminated (16)	This return code is issued when the process is terminated by the user.
System Failure (20)	This return code is issued when the process is terminated because of database server, application server, or network issues.

Sort Sequence

N/A

Selection Criteria

Deleting Available Opportunity Records

For every Available Opportunity record, the process searches the corresponding records from the CFDA Number, Funding Instrument Type, Funding Activity Category and Eligibility Category tables and deletes these records. Once the related records are deleted, the process deletes the Available Opportunity record.

Problem Resolution

If the process was discontinued for any reason, then the process can be restarted. The following table shows the possible return codes and recommendations for each processing step.

Step 1: Parameter Validation

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	Successful	N/A	N/A
Warning (4)	N/A	This step does not issue this return code.	N/A
Non-Fatal Error (8)	N/A	This step does not issue this return code.	N/A

Possible Return Codes	Condition	Recommendation	Other Instructions
Failed (12)	Required Parameters are not entered. **Sample Message:** Parameter value is required for either Downloaded Zip File or Download Page URL.	Schedule a new process.	
	Failed because of runtime exceptions for an unexpected situation.	The failure reason needs to be investigated before scheduling a new process	
	Failed because Downloaded Zip File parameter value is not provided with qualified path.	If the user has already downloaded the Zip file and wants to use that file to run the process then the user should provide the Zip file name along with its qualified path.	
	Failed because of Proxy IP Address is not in ddd.ddd.ddd.ddd format	Proxy IP Address should be in the form of ddd.ddd.ddd.ddd where d represents a digit from 0 to 9. Each subnet of the Proxy IP Address (i.e. ddd) should be between 0 and 255.	
Terminated (16)	Process is terminated manually by the user.	The reason for the termination needs to be investigated before scheduling a new process.	
System Failure (20)	When the process is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated before scheduling a new process.	

Step 2: Downloading Grant Opportunity Zip File or Finding it Locally - This step is performed only when the Parameter Validation step completed successfully.

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	Grant Opportunity Zip file successfully downloaded from the Grants.gov site or it is successfully found at a user specified location.	N/A	N/A
Warning (4)	N/A	This step does not issue this return code.	N/A

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Possible Return Codes	Condition	Recommendation	Other Instructions
Non-Fatal Error (8)	N/A	This step does not issue this return code.	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The failure reason needs to be investigated before scheduling a new process. Note: In case the client site has Proxy Server installed and enabled for their user then the process expects correct values in 'Proxy IP Address' and 'Proxy Port No' process parameters.	N/A
	Failed because downloaded file has the 0 KB size or file is not available at the user specified location.	Verify that the file is available at the user specified location or on the www.grants.gov site and the size of the Grant Opportunity Zip file should not be 0.	
Terminated (16)	Process is terminated manually by the user.	The reason for the termination needs to be investigated before scheduling a new process.	N/A
System Failure (20)	When the process is terminated because of database server or network issues	The reason for the System Failure needs to be investigated before scheduling a new process.	N/A

Step 3: Extracting Grant Opportunity Zip file - This step is performed only when the Grant Opportunity Zip file is successfully downloaded or successfully found at the user-specified location. Please note that failures often occur during this step when a partial or corrupt Zip file is downloaded. This can happen for various reasons but is often caused by issues on the Grants.gov website such as slowness resulting in a timing-out of the download. This kind of problem can often be quickly diagnosed by attempting to access the Zip file with a common Zip reader (Windows Explorer, WinZip, etc.) to determine if the Zip is a valid archive.

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Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	Grant Opportunity XML file successfully extracted from the Grant Opportunity Zip file.	N/A	N/A
Warning (4)	N/A	This step does not issue this return code.	N/A
Non-Fatal Error (8)	N/A	This step does not issue this return code.	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The failure reason needs to be investigated before scheduling a new process.	N/A
Terminated (16)	Process is terminated manually by the user.	The reason for the termination needs to be investigated before scheduling a new process.	N/A
System Failure (20)	When the process is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated before scheduling a new process.	N/A

Step 4: Purging Available Opportunity Records - This step is performed only when the Grant Opportunity XML file is successfully extracted from the Grant Opportunity Zip file.

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	All of the available Grant Opportunity records are successfully deleted from the Available Opportunity, Funding Instrument Type, Funding Activity Category, Eligibility Category, and CFDA Number tables.	N/A	N/A
Warning (4)	N/A	This step does not issue this return code.	N/A
Non-Fatal Error (8)	N/A	This step does not issue this return code.	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The failure reason needs to be investigated before scheduling a new process.	N/A

Possible Return Codes	Condition	Recommendation	Other Instructions
Terminated (16)	Process is terminated manually by the user.	The reason for the termination needs to be investigated before scheduling a new process.	N/A
System Failure (20)	When the process is terminated because of database server or network issues.	The reason for the System Failure needs to be investigated before scheduling a new process.	N/A

Step 5: Loading Grant Opportunity Records to Database - This step is performed only when all of the Available Opportunity records are successfully deleted from the database.

Possible Return Codes	Condition	Recommendation	Other Instructions
Successful (1)	All of the Grant Opportunity records in the XML file are successfully loaded into the Available Opportunity, Funding Instrument Type, Funding Activity Category, Eligibility Category, and CFDA Number tables.	N/A	N/A
Warning (4)	N/A	This step does not issue this return code.	N/A
Non-Fatal Error (8)	N/A	This step does not issue this return code.	N/A
Failed (12)	Failed because of runtime exceptions for an unexpected situation.	The failure reason needs to be investigated before scheduling a new process or restarting the process.	N/A
Terminated (16)	Process is terminated manually by the user.	The reason for the termination needs to be investigated before scheduling a new process.	N/A
System Failure (20)	When the process is terminated because of database server or network	The reason for the System Failure needs to be investigated before	N/A

Possible Return Codes	Condition	Recommendation	Other Instructions
	issues.	scheduling a new process.	

Troubleshooting

If the process fails due to some reason or due to power failure and the process has the return code of Failed, then it can be restarted.

2.2 Grants Report Processes

Grant Lifecycle Management contains the following report job.

- ARRA Quarterly Extract

2.2.1 ARRA Quarterly Extract

Job Name	ARRA Quarterly Extract
Recommended Frequency	Quarterly. This job should be executed to generate ARRA Recipient Report XML files (to be transmitted to federalreporting.gov) and exception reports.
Single Instance Required	Yes
Can be Restarted?	No
Reports Generated	Yes

Overview

Under the American Recovery and Reinvestment Act of 2009 (ARRA), quarterly reports should be submitted by the recipient on a quarterly basis. The award recipient must consolidate information related to the award and provide the information to the Office of Management and Budget (OMB). OMB then consolidates all of the data from all recipients and presents this information as the national results of the Recovery Act.

This report job creates ARRA Quarterly Extract files that can be used to fulfill ARRA Recipient reporting requirements. It selects records from the GLM subsystem (from the ARRA Recipient Reporting tables) and produces two types of XML files (one type of file for awards with an Award Type of "Grant" or "Loan", and another type for awards with an Award Type of "Federally Awarded Contract"). The two types of XML files produced by this job are structurally compliant with the XML Schema published by the Recovery Act Transparency Board (RATB) and posted to www.federalreporting.gov. XML Schema files and Data Dictionary information is publicly available on www.federalreporting.gov.

In compliance with www.federalreporting.gov XML reporting requirements, one award (Grant, Loan, or Federally Awarded Contract) is created per XML file. www.federalreporting.gov does not currently permit multiple awards to be reported in one file. The ARRA Quarterly Extract process can be used to generate XML files for one or more awards during a single execution, but each output XML file will always contain quarterly data for exactly one award.

The process also generates an exception report with information about missing required data. The information in the exception report can be used to correct any missing data before finally generating the XML files for transmittal to www.federalreporting.gov.

The ARRA Quarterly Extract process performs the following steps. Details are provided for each step.

Parameter Validation:

This batch job receives following batch parameters:

1. Reporting Calendar Year
2. Reporting Quarter End Date
3. Award Number
4. Award Type
5. Awarding Agency
6. Funding Agency

7. Output directory for XML file

As part of parameter validation, the following parameters are validated and appropriate error messages are logged if any of the validations fail. Further execution of batch job is stopped until all parameters pass validation. Please see below for further details on each parameter.

- **Reporting Calendar Year**: A value is required and the given value must be valid on the Fiscal Year table.
- **Reporting Quarter End Date**: A value is required and the given value should be equal to 1, 2, 3 or 4.
- **Award Type**: The field may either be blank, or set to 1, 2 or 3.
- **Funding Agency**: The parameter can either be blank, or if provided, the value must be available on the ARRA Funding Agency table.
- **Output directory for XML file**: A value is required and must be a valid directory path.

Check records in the Ongoing Award Information table:

After validating the setup parameters, the job checks if any records matching the values of the following parameters exist in the Ongoing Award Information (R_ONGOING_AWD_INFO) table. The process logs an error message if, for the given parameter, no record exists in the Ongoing Award Information table.

- Award Number

- Award Type

- Awarding Agency

- Funding Agency

Generate Exception Report:

In order to prevent XML files from being rejected when uploaded to www.federalreporting.gov due to missing required values, the job will verify that all required fields are present when records are selected. If any required fields are missing, no XML file will be created and all missing required fields will be written to the ARRA Extract Exception Report. This will allow a user to correct the data for missing information and then regenerate files as required before submission to www.federalreporting.gov.

The exception report can contain one or two parts for each award. For a given award, one part of the exception report will list all mandatory missing fields. The second part of the award's exception report will contain consolidated information about data in the various ARRA Reporting tables. For example, if an award has no ARRA Activity records, the second part of the exception report will inform the user that the award has no associated Activity records (because each award must have at least one).

The following table shows the conditions checked during exception report generation and actions taken.

Table Name	Condition	Exception Report (Part 1)	Exception Report (Part 2)	XML Extract file
Ongoing Award Information (R_ONGOING_	Missing mandatory field	Missing field names will be provided along	N/A	Not generated

Table Name	Condition	Exception Report (Part 1)	Exception Report (Part 2)	XML Extract file
AWD_INFO)		with the message.		
Ongoing Award Information (R_ONGOING_ AWD_INFO)	No missing mandatory fields.	N/A	Message will be recorded.	Generated
Recipient Quarterly Award Information (R_RCPNT_QT RLY_AWD)	Missing mandatory field or invalid field values.	Field names will be provided along with an appropriate message.	N/A	Not generated
Recipient Quarterly Award Information (R_RCPNT_QT RLY_AWD)	No record for selected award	N/A	Message will be recorded.	Not generated
Sub-Recipient Quarterly Award Information (R_SRCPNT_Q TRLY_AWD)	Missing mandatory field	Missing field names will be provided along with the message.	N/A	N/A
Sub-Recipient Quarterly Award Information (R_SRCPNT_Q TRLY_AWD)	No record for selected award	N/A	Message will be recorded, but this is not an error condition.	Generated
Recipient Vendor Quarterly Information (R_RCPNT_VE ND_QTRLY)	Missing mandatory field	Missing field names will be provided along with the message	N/A	N/A
Recipient Vendor Quarterly Information (R_RCPNT_VE ND_QTRLY)	No record for selected award	N/A	Message will be recorded, but this is not an error condition.	Generated
Sub-Recipient Vendor Quarterly Information (R_SRCPNT_V END_QTRLY)	No record for selected award	N/A	Message will be recorded, but this is not an error condition.	Generated

Table Name	Condition	Exception Report (Part 1)	Exception Report (Part 2)	XML Extract file
Ongoing Award Activities (R_ONGOING_ AWD_ACTV)	Zero, or more than 10 activities (an award must have 1-10 associated ARRA Activity Codes)	N/A	Message will be recorded.	Not generated

Create ARRA Quarterly Extract XML files:

The process to create the extract XML file for any award starts after the exception report is generated and it's verified that all required pre-conditions are met for the selected award.

The following steps are performed to create the extract XML file.

- For every run of this job, a new folder (derived from the Application Control Date plus the system time) is created to store the XML file.

- The Extract XML File name is derived from Funding Agency Code, Award Number, Awarding Agency, Reporting Year, Reporting Quarter, System Date from Application Control Date, System Time and a four-digit sequence number.

- Based on the value of setup parameters (Reporting Calendar Year, Reporting Quarter End Date, Award Num, Award Type, Awarding Agency, Funding Agency), a query is formed to get the list of awards for which the extract XML file is to be generated.

- Based on the award type of each selected award, the XML schema is chosen and accordingly the root node of XML DOM (Transaction Object Model) is generated.

- For the selected award, a query is executed on the Ongoing Award Information (R_ONGOING_AWD_INFO) and Recipient Quarterly Award Information (R_RCPNT_QTRLY_AWD) tables to get the data to create the report header and the prime recipient node of the XML file.

- A query is fired on the Ongoing Award Activities (R_ONGOING_AWD_ACTV) table to get the list of activities associated with the current award.

- Based on the value of Award Type, the report header and prime recipient node are created and populated with data retrieved from the database. The prime recipient node includes the activity list.

- A query is fired on the Sub-Recipient Quarterly Award Information (R_SRCPNT_QTRLY_AWD) table to get data for generating the Sub-Recipient node.

- Based on the value of Award Type, a Sub-Recipient node is created and populated with data retrieved from the database.

- For Award Types Grant and Loan, a query is fired on the Recipient Vendor Quarterly (R_RCPNT_VEND_QTRLY) and Sub-Recipient Vendor Quarterly (R_SRCPNT_VEND_QTRLY) tables to get data for generating the Vendor node.

- For Award Types Grant and Loan, the Vendor node is created for Recipient and Sub-Recipient Vendors and populated with data retrieved from the database.

- After the completion of DOM creation, the generated DOM is stored in the XML file.

Process Steps	Messages
1. Parameter Validation	"ARRA Quarterly Extract Process Started." "Validating job parameters." "Job parameter validation failed" if any errors are encountered while validating parameters. "Reporting Calendar Year is required" if Reporting Calendar Year parameter value is not provided. "Reporting Calendar Year must be valid on the Fiscal Year table" if Reporting Calendar Year parameter value is not valid on the Fiscal Year table. "Reporting Quarter is required" if the Reporting Quarter End Date parameter value is omitted. "Reporting Quarter must be equal to 1, 2, 3 or 4" if an invalid Reporting Quarter End Date parameter value is provided. "Funding Agency … does not exist on the ARRA Funding Agency table" if any provided Funding Agency Code in the Funding Agency parameter value is not valid. "Award Type must be equal to 1, 2 or 3" if an invalid value is provided for the Award Type parameter. "Output directory for XML file is required" if the output directory parameter is omitted. "Report parameter validation complete."
2. Check records in Ongoing Award Information table	"No record found for selection criteria. No Extract file created." "No record found for selection criteria. Funding Agency: …" "No record found for selection criteria. Award Number: …" "No record found for selection criteria. Award Type: …" "No record found for selection criteria. Awarding Agency: …"
3. Generate Exception Report	"Generating Exception Report for Funding Agency …, Awarding Agency …, Award Number …, Award Type …"
4. Create ARRA Quarterly Extract XML files	"ARRA Quarterly Extract XML file generated for Funding Agency …, Awarding Agency …, Award Number …, Award Type …" "ARRA Quarterly Extract Process Completed."

Restartability Information

This ARRA Quarterly Extract process does not support restartability. If the job fails due to any reason then the user needs to create a new job by providing setup parameters.

Major Input

- Ongoing Award Information (R_ONGOING_AWD_INFO)

- Recipient Quarterly Award Information (R_RCPNT_QTRLY_AWD)

- Ongoing Award Activity (R_ONGOING_AWD_ACTV)

- Sub-Recipient Quarterly Award Information (R_SRCPNT_QTRLY_AWD)

- Recipient Vendor Quarterly (R_RCPNT_VEND_QTRLY)

- Sub-Recipient Vendor Quarterly (R_SRCPNT_VEND_QTRLY)

Parameters

Batch Parameters:

Parameter	Description	Default Value
REPT_CAL_YEAR	Reporting Calendar Year Must be in CCYY format and must be a valid value on the Fiscal Year Table.	(blank)
REPT_QTR_END_DATE	Reporting Quarter End Date. Valid values include: 1 (3/31), 2 (6/30), 3 (9/30), and 4 (12/31)	(blank)
FNDG_AGCY	Funding Agency A list of one or more Funding Agency Codes. Each must be valid on the ARRA Funding Agency table. If more than one code is provided, separate the codes with a comma.	(blank)
AWD_NO	Award Number A list of one or more Award Numbers. If more than one Award Number is provided, separate the values with a comma.	(blank)
AWD_TYP	Award Type. Valid Values: 1 (Grant), 2 (Loan), and 3 (Federally Awarded Contract).	(blank)
AWDNG_AGCY	Awarding Agency A list of one or more Awarding Agency Codes. Each must be valid on the ARRA Funding Agency table. If more than one code is provided, separate the codes with a comma.	(blank)

OUTPUT_DIR	Output directory for XML file	$$AMSEXPORT$$

Major Output

- ARRA Quarterly Extract Files for selected awards.
- Exception report

Job Return code

The following table shows the potential job return codes for the ARRA Quarterly Extract job.

Return Code	Condition
Successful (1)	XML file(s) and exception report are generated successfully.
Warning (4)	The job will end with a Warning return code when: • No records are selected for processing.
Non Fatal Error (8)	N/A
Failed (12)	The job will fail under the following conditions: • Job parameters are invalid. • Any exception thrown during run time
Terminated (16)	N/A.
System Failure (20)	This return code will be issued when the job is terminated because of database server, application server, or network issues.

Sort Sequence

N/A