



GENEVA BUSINESS MANAGEMENT SYSTEMS

Attendance - Labor - SFC - WFM - WMS - eCommerce - Accounting

GBMS Workflow Automation

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GBMS Workflow Automation

Description

GBMS' Workflow Automation (WFA) features provide the ability to take a paper process, a decentralized electronic process, or a combination of both, and transform them into an integrated centralized web-based process that will streamline the organization's business operations.

The goal of the WFA module is to add additional states to GBMS documents, which are definable by the end-user. The end-user can then define the transitions between those states and permissions. The transitions are assigned stored procedures so that custom validation can be used and custom actions are performed. The transitions can also optionally trigger GBMS business rule functions, such as approving an order.

GBMS' WFA has been developed to allow maintenance by both technical and non-technical users. GBMS utilizes a table-driven approach for a majority the required functionality that allows non-technical users to follow the workflow structure and be in a better position to identify and request changes. Non-technical users can also make certain changes without the need for advanced SQL experience. In fact, the very simplest workflow scenario, advancing a document from one state to another without data manipulation or automated transactions, can be setup without any SQL skills required.

In addition to the displays available via the main graphical user interface, GBMS offers an export feature that creates a workflow layout in both Microsoft® Excel and Visio formats. Users can create these documents at any time during the workflow creation in order to get an alternate visual representation of the workflow structure that can also be printed and distributed for outside input.

Basic Workflow Example

Since workflow can control almost any GBMS transaction and/or add new functions, the possibilities for configuring workflow are practically unlimited. The first of the examples provided in this document details how a very simple workflow configuration can customize the Customers document within GBMS.

A GBMS system without workflow enabled has a standard Customer maintenance screen that allows users to enter customer data and save the record. Using GBMS without workflow, users need simply flag a customer as Active in order to begin adding quotations and orders for the customer. The limited number of available states may not be sufficient for a company that needs to enforce credit checks prior to activating a customer file and allowing orders to be entered. In this scenario, workflow could be enabled for user-defined states that are tied to data entry and credit check steps. The following compares the steps required for entering an Active customer in a system without workflow automation vs. a system with a custom workflow setup.

Adding a Customer Without Workflow

- Step 1.** Add New
- Step 2.** Enter Customer Info and set status to Active
- Step 3.** Save

Adding a Customer With Sample Workflow

- Step 1.** Add New – Sends record to a Create state and enables a **Request Credit Check** button on the Workflow tab
- Step 2.** Enter Customer Info
- Step 3.** Save

- Step 4.** Request Credit Check – Clicking this button (a) retrieves customer information from database and emails it to credit department and (b) updates state to **D&B Credit Check** and enables **D&B Approved** and **D&B Declined** buttons
- Step 5.** Approve or Decline Credit – Permissions tied to the D&B Credit Check state prevent anyone other than credit department roles from performing this step. Approval moves the state to Create New Customer and enables a **Completed** button
- Step 6.** Complete – Clicking this button (a) checks specified fields to ensure that data entry is complete (b) updates the customer status to Active (c) sends an email to the customer’s account rep (d) advances the document to the next state, Customer OK

All of the buttons referred to above were automatically created when the workflow administrator created transitions for the workflow states. Transitions are the user-defined options that determine how a document moves between states. States and transitions are maintained by the workflow administrator via the Workflow Explorer tool.

Workflow Explorer

Once workflow has been enabled for a document, the Workflow Explorer screens provide the tools for setting up the workflow structure. The following screen samples illustrate the simplicity of workflow maintenance for all user levels.

Figure 1, WORKFLOW EXPLORER/DOCUMENTS – The main screen lists all documents with workflow enabled.

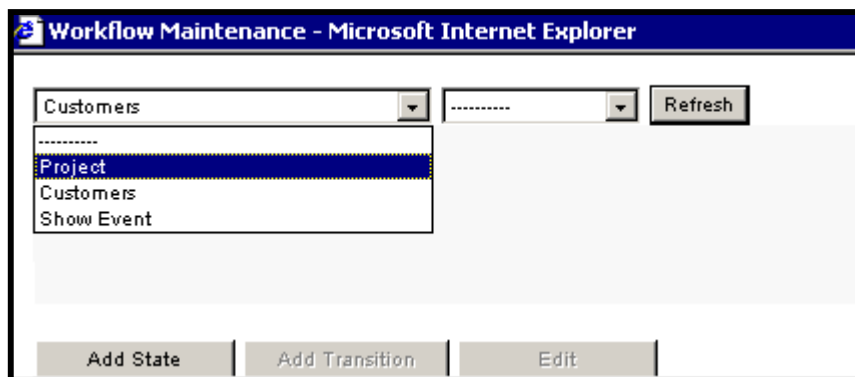


Figure 2, WORKFLOW EXPLORER/STATES – After selecting a document and page, the tree displays the list of states identified for a particular document. This example shows workflow states for the Customers document.

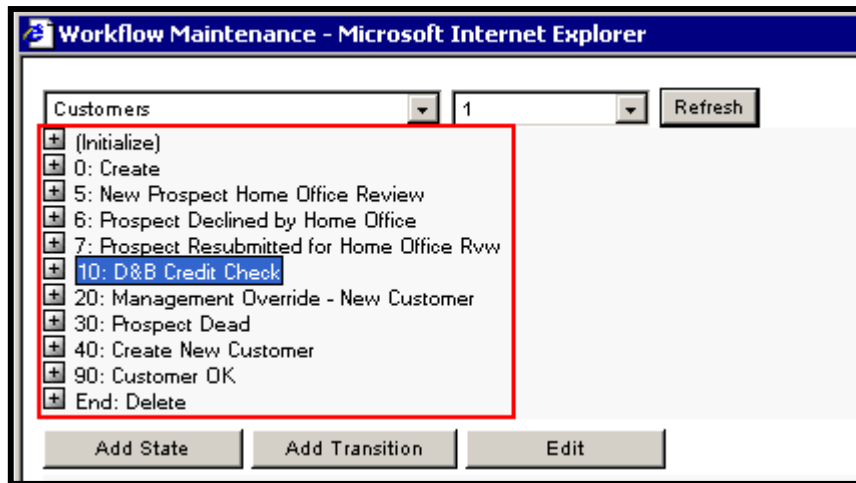


Figure 3, WORKFLOW EXPLORER/TRANSITIONS – Expanding the rows for each state shows the next level of detail in the workflow definition, 'Transitions'. Each transition corresponds to a button that is clicked within the document's Workflow tab that results in some action. From the summary screen, transitions are clearly identified with the final state they go to. A hyperlink to 'View Diagram' allows for the corresponding Visio diagram to be displayed, where the transition's relative location to the rest of the workflow can be easily studied.

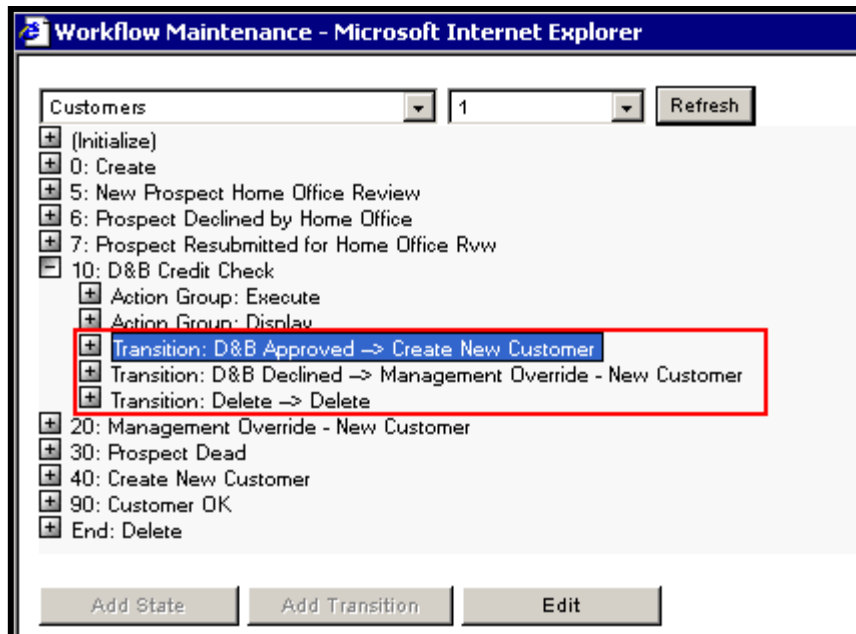


Figure 4, WORKFLOW EXPLORER/ACTION GROUPS – Expanding the state also displays the two actions groups, Validation and Execute. Each transition must pass validation before the associated execute logic is performed. If validation fails the transition is stopped and the workflow remains at its original state.

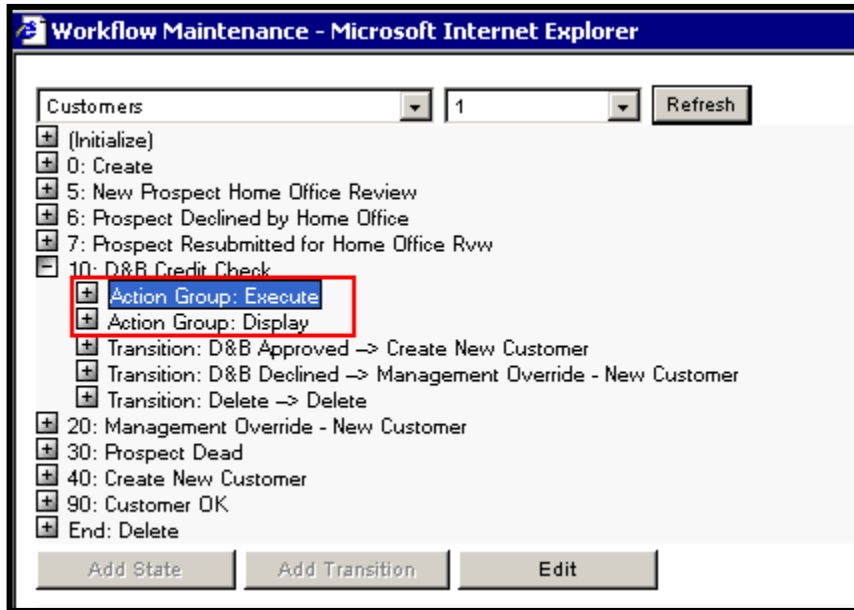
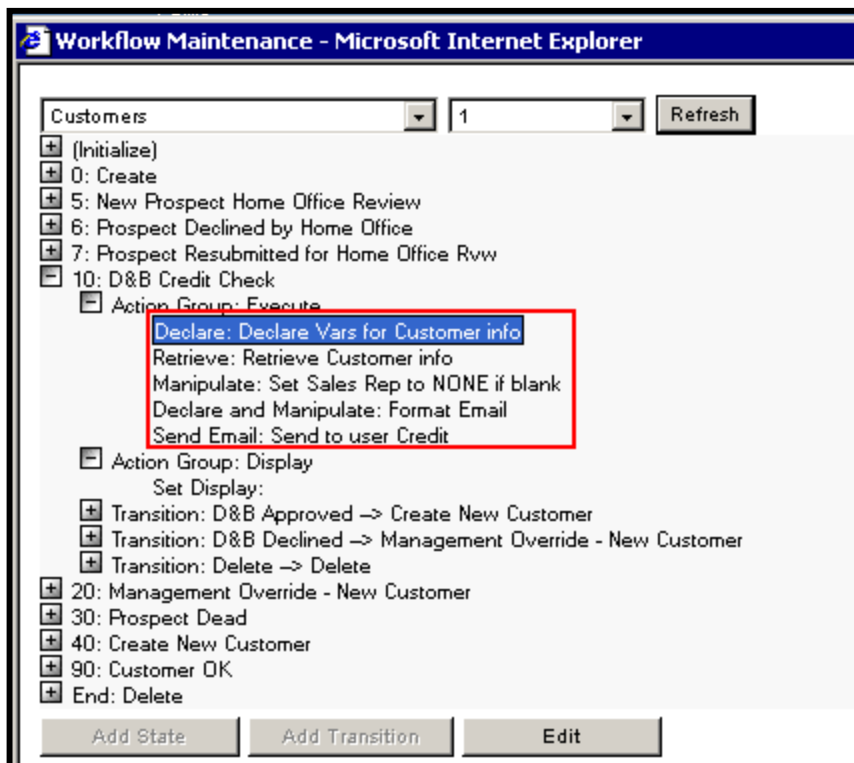


Figure 5, WORKFLOW EXPLORER/WORKFLOW ACTIONS – The final level of detail available in the main screen displays the Actions. There are a limited number of pre-defined action types available in GBMS. A series of action types provide the means to validate data and perform various desired tasks for each transition.



Workflow Action Editor

At the core of the workflow process are validations and execute actions. While the Workflow Explorer provides an intuitive means to review the details for workflow, the Workflow Action Editor (WAE) provides the detail definition tool to express the business process requirements.

The following is a list of WAE commands:

- Declare
- Retrieve
- Update
- Manipulate
- If
- Else
- End If
- Set State
- Set Display
- Set Task
- Delete Task
- Assign User
- Auto-Assign User
- Send Email
- Stored Proc
- Retrieve UDD
- Update UDD

As you can see from the following screen samples, workflow actions minimize the need for the use of custom written SQL stored procedures and reduces room for errors. The resulting actions are also much easier to automatically document and subsequently review for changes. The following figures are a sample of the user interface for configuring the commands listed above.

Figure 6, WAE/SET DISPLAY

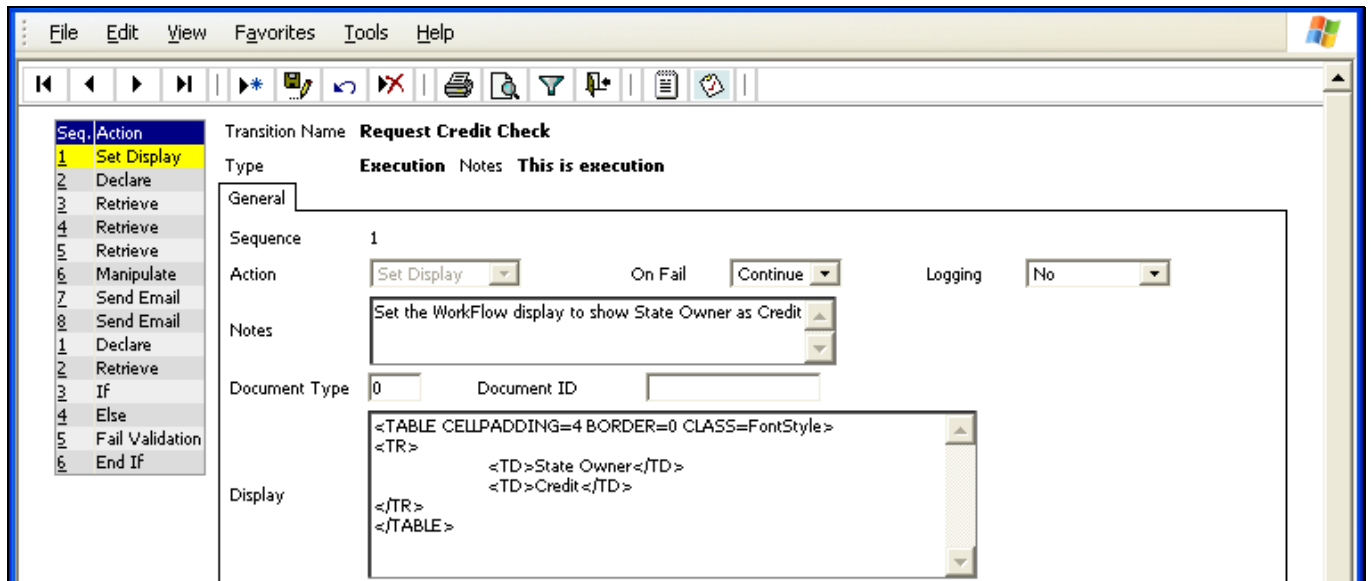


Figure 7, WAE/DECLARE– for storing values during transitions

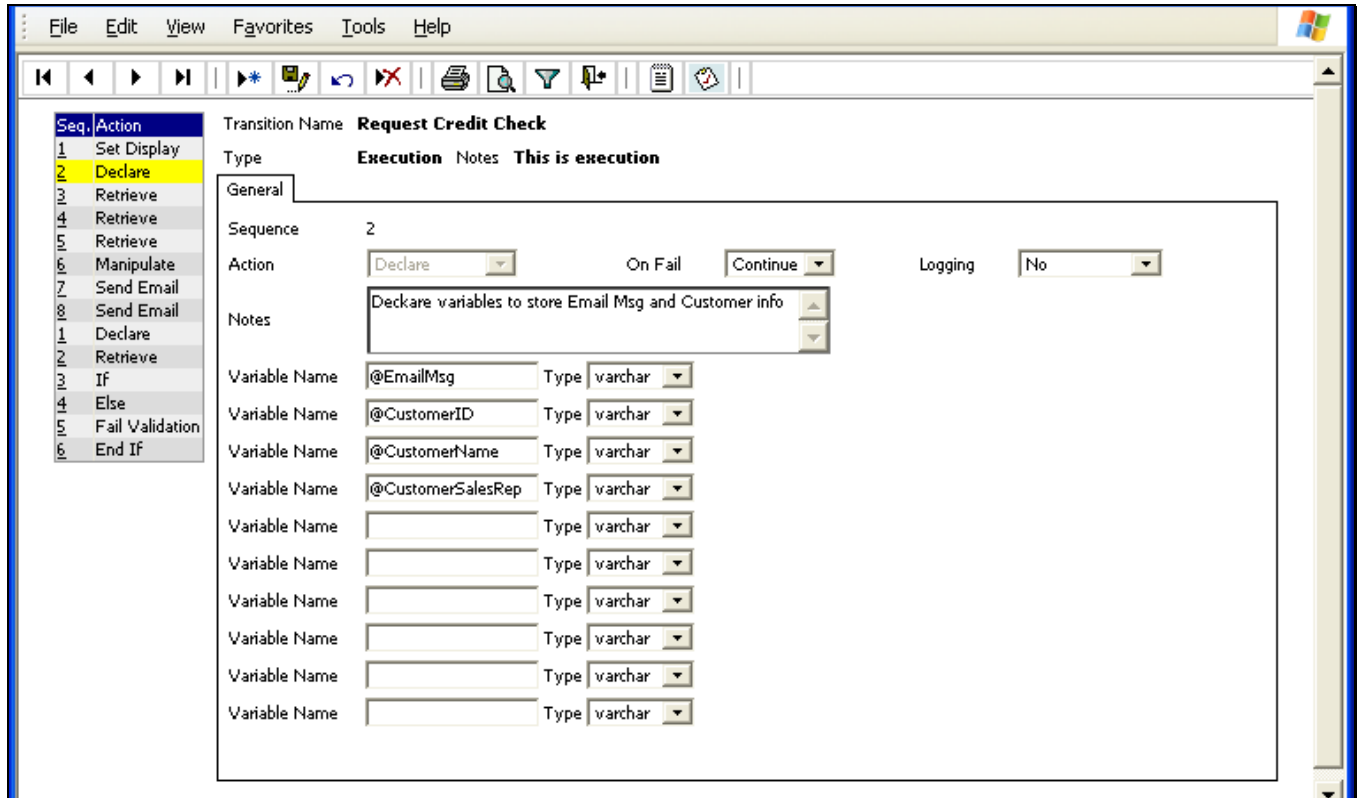


Figure 8, WAE/RETRIEVE – to get data from the database

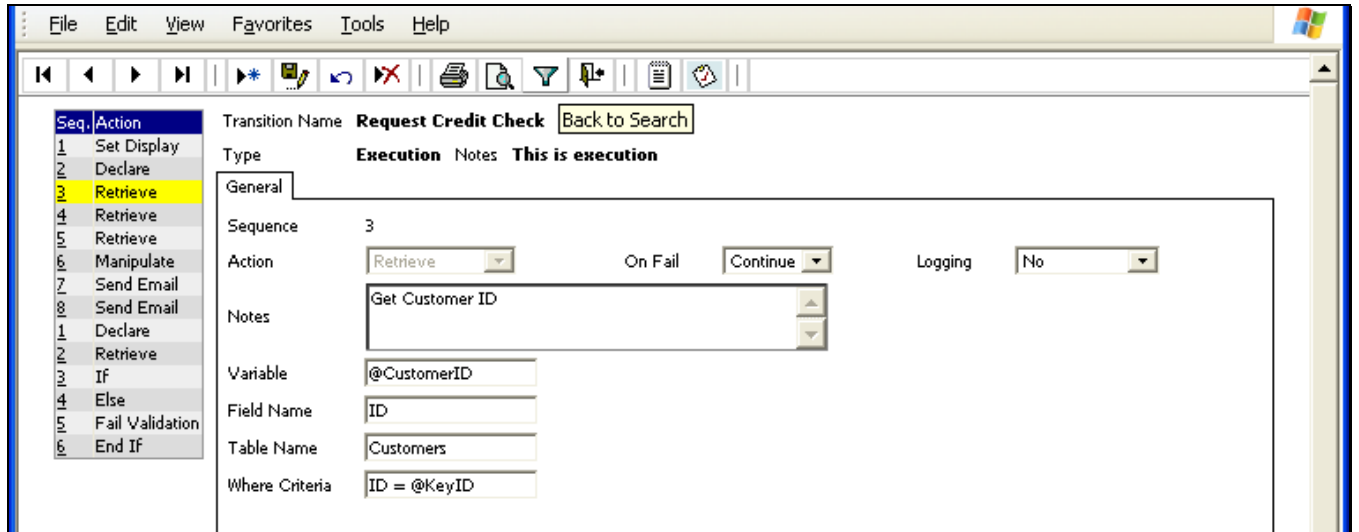


Figure 9, WAE/MANIPULATE – for parsing and changing data

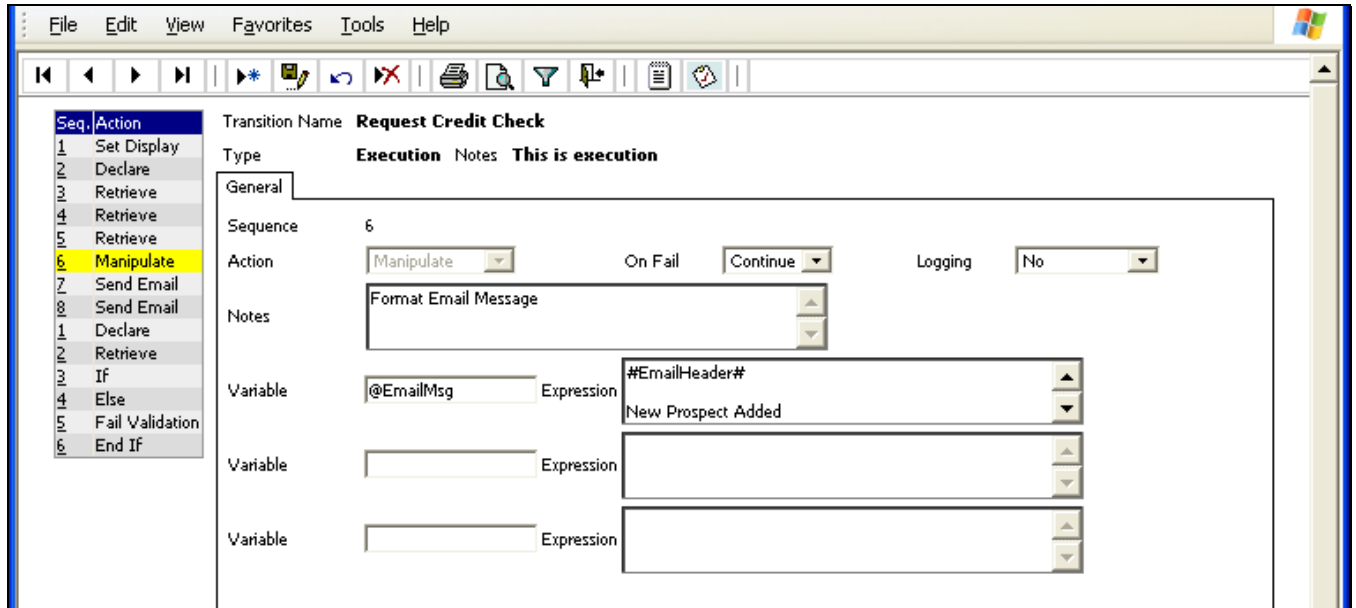


Figure 10, WAE/SEND EMAIL

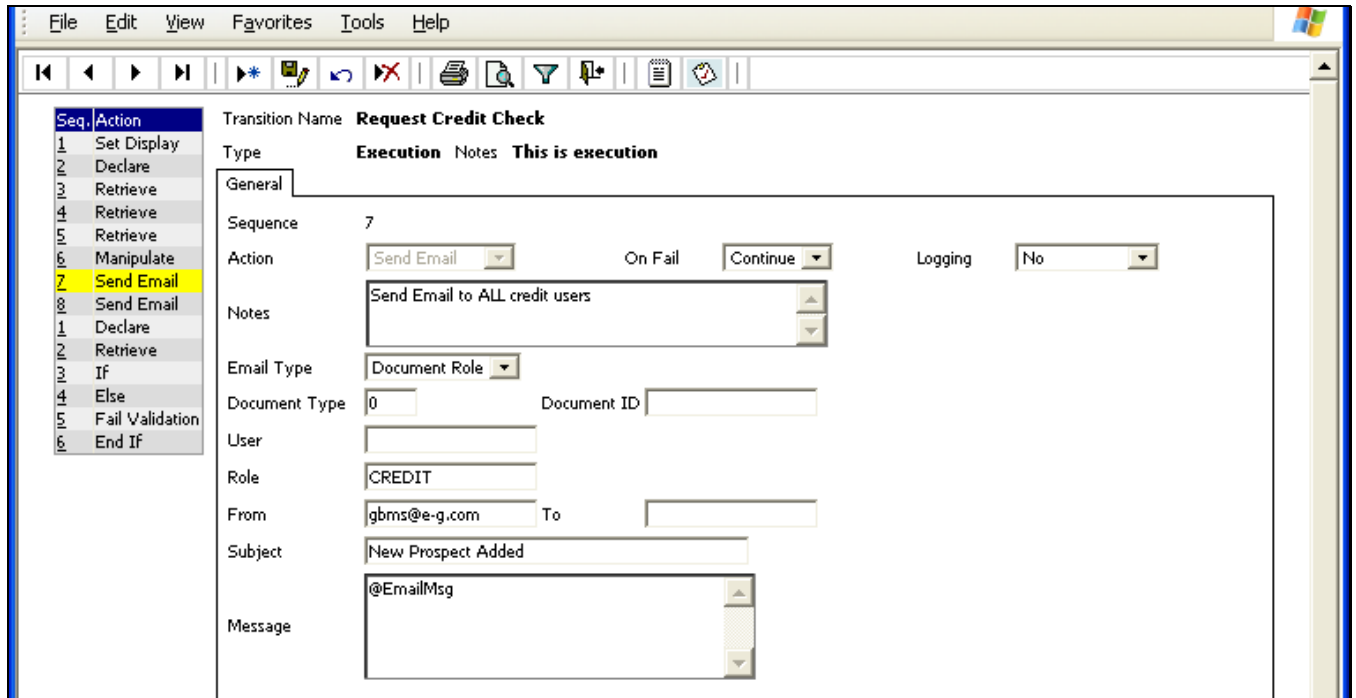


Figure 11, WAE/IF – conditional operator

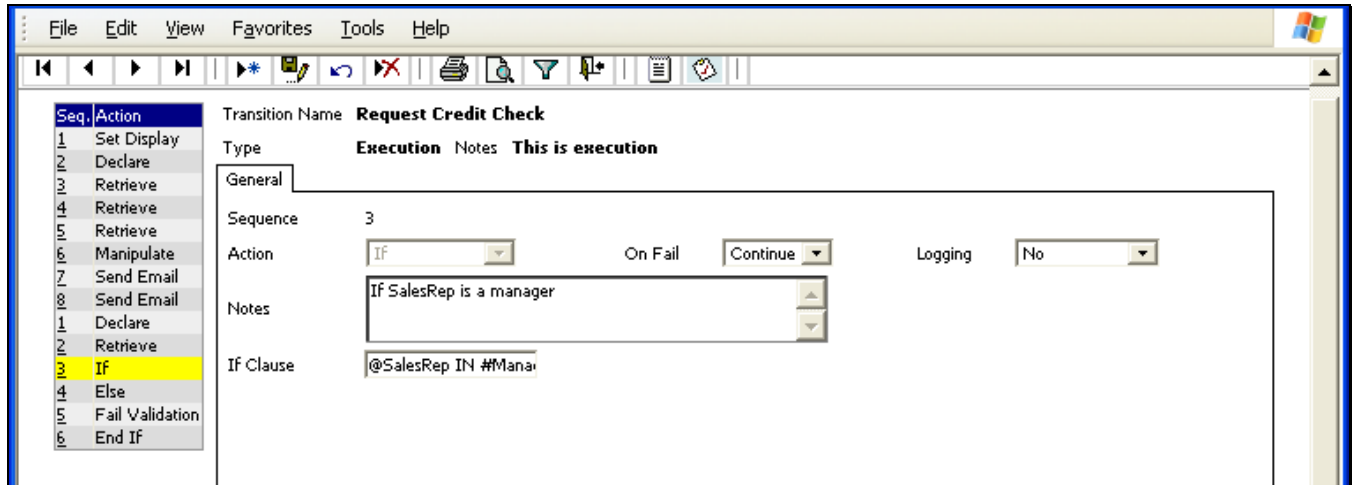
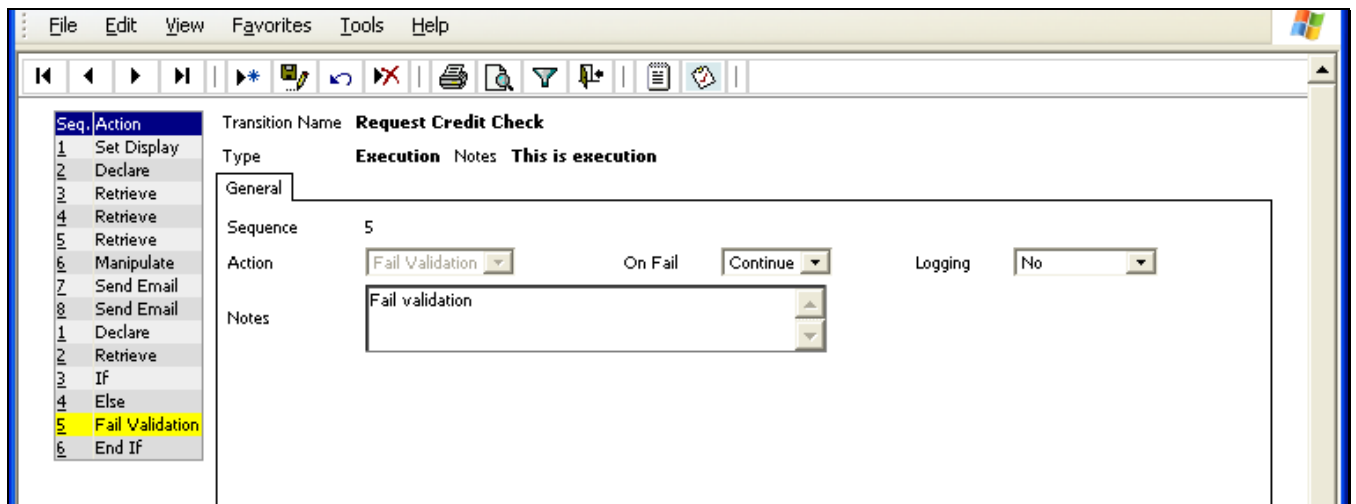


Figure 12, WAE/FAIL VALIDATION – conditional operator



DESCRIPTION OF SAMPLE SALES ORDER WORKFLOW

The following table details the states of the previous workflow diagram:

WF ID	GBMS Status	Workflow State	State Owner	Description	Workflow Transition	Workflow End State
0	New	New Order	Order Entry	Initial Order Entry		
				Submit Order <i>(Execute GBMS Submit)</i>	Submit	Verify Information
				Cancel Order	Cancel	Cancelled
				Hold Order	Hold	Hold
1	Entered	Verify Info.	Planner	Attach related documents and notes		
				Information Complete	Complete	Credit Check
				No Info Required	No Info Required	Credit Check
				Customer Canceled	Cancel	Cancelled
				Hold Order	Hold	Hold
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
2	CHold	Credit Check	Credit Mgr.	Verify Customer Credit and Establish Deposit Requirement		
				Deposit is Required	Dep. Required	Waiting For Deposit
				Deposit Not Required	Credit Verified	Approved
				Cancel Order	Cancel	Cancelled
				Edit C <i>(Execute GBMS Edit)</i>	Edit	New Order
3	Approved	Waiting For Deposit	Credit Mgr.			
				Override Deposit Requirement	Deposit Override	Verify Material
				Deposit Received	Deposit Received	Verify Material
				Cancel Order	Cancel	Cancelled
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
4	Approved	Verify Material	Planner	Availability of Material for Order Verified		
				All Material Is Available <i>(No Hold Pick for associated work orders)</i> <i>Also scheduled for automatic verification</i>	Material Ready	Credit Verify
				Override Verify Material Availability	Override	Credit Verify
				Customer Cancel Order	Cancel	Cancelled
				Material Discontinued	Matl. Cancel	Cancelled
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
5	Approved	Credit Verify	Credit Mgr.	Final Customer Credit Verification		
				Approve Credit	Approve	Plan
				Decline Credit	Declined	Cancelled

WF ID	GBMS Status	Workflow State	State Owner	Description	Workflow Transition	Workflow End State
				Customer Cancel Order	Cancel	Cancelled
6	Approved	Plan	Planner	Release To Production		
				Release <i>(Move all associated work orders to Open)</i>	Release	Released
				Planner Hold	Hold	Planner Hold
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
				Customer Cancel Order	Cancel	Cancelled
7	Approved	Planner Hold	Planner	Order is on Hold by Planner		
				Release <i>(Move all associated work orders to Open)</i>	Release	Released
				Customer Cancel Order	Cancel	Cancelled
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
9	Approved	Released	Production	Order In Production		
				Order Complete <i>(Verify all Work Orders are Complete or Closed)</i> <i>Also scheduled for automatic verification</i>	Complete	Ready To Ship
				Production Hold <i>(Update all associated work order to Hold status if Work order is Open or Active)</i>	Hold	Production Hold
				Edit Order <i>(Execute GBMS Edit)</i>	Edit	New Order
				Customer Cancel Order <i>(Update all associated work order to Hold status)</i>	Cancel	Review Cancel
7	Approved	Planner Hold	Planner	Order is on Hold by Production		
				Release <i>(Move all associated work orders to Open or Active)</i>	Release	Released
				Customer Cancel Order <i>(Update all associated work order to Hold status)</i>	Cancel	Review Cancel
11	Approved	Ready To Ship	Order Entry	Order is Ready to Ship		
				Order Shipped Complete <ul style="list-style-type: none"> • Verify that order is at Closed Status • If not closed All Order Lines have 0 Open quantity • If Order Status is not closed but any of the order lines reflect QtyShipped the Workflow state goes to 'Backorder' • <i>Also scheduled for automatic verification</i> 	Complete Ship	Closed
12	Approved	Backorder	Order Entry	Order has Open lines items after a Shipment		
				Cancel All Backorders <i>(Set All Open Qty for orderliness to 0)</i>	Cancel BO	Closed

WF ID	GBMS Status	Workflow State	State Owner	Description	Workflow Transition	Workflow End State
				Order Shipped Complete <ul style="list-style-type: none"> • <i>Verify that order is at Closed Status</i> • <i>If not closed All Order Lines have 0 Open quantity</i> • <i>If Order Status is not closed but any of the order lines reflect QtyShipped the Workflow state goes to 'Backorder'</i> • <i>Also scheduled for automatic verification</i> 	Complete Ship	Closed
	Any	Cancelled	Order Entry	Order has been canceled due to various reasons		
				Close Order <i>Send email Cancel notification to Billing Contact</i>	Close	Closed
				Reopen Order	ReOpen	New
12	Any	Closed	Order Entry	Order has is Closed		
				End no transition from here		

Key Workflow Automation (WFA) Features

- Automatic documentation of existing workflow on demand in both Microsoft® Excel and Visio formats
- Reduction of the technical expertise required for changing and maintaining workflow scripts and related configurations
- GBMS allows the user to select any GBMS document to be WFA enabled. In GBMS terminology, some examples of a document are: Projects, Quotes, Sales Orders, Requisitions, Item Master, and Work Orders.
- GBMS further simplifies the activation of WFA for a document by programmatically performing the necessary steps to prepare a WFA framework. The WFA framework is then populated with scripts that are specific to the desired flow. GBMS WFA scripts are created, maintained and customized using Microsoft SQL Server stored procedures.
- Once a WFA process is defined, GBMS can provide an HTML or Microsoft Visio visual presentation of the process.
- A WFA action can be as simple or complex as necessary. A simple WFA action would notify specified users of a state change. A more complex action can evaluate data items to comply with a business rule and automatically invoke a GBMS process. Each action in a WFA process has complete access to system-wide data and the complete GBMS object, thus providing unlimited flexibility to perform any task.
- The power of the WFA engine is complimented by the fact that GBMS is implemented with a browser-based user interface. This allows the WFA process to include direct references to a specific session and record hyperlinks that are communicated to the user in an email message.