

Vocabulary Examples Rule Application Notes

Overview

This rule application is designed to show some good examples of using vocabulary templates in practice.

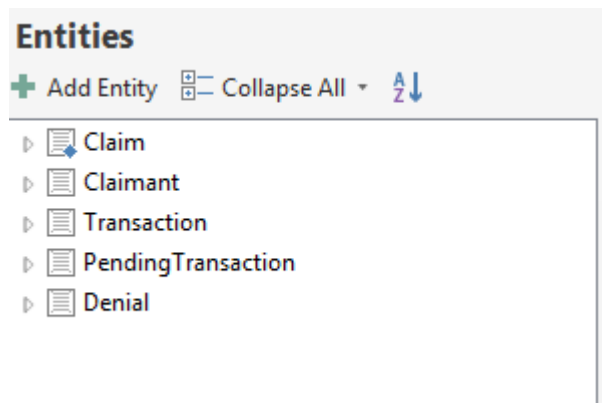
The Entity Structure

The top level entity is Claim. A Claim has transactions that have been approved, and pending transactions that need to go through a series of validation rules based on the “tier” of the claim.

Once the validation rules have been run, the pending transaction is marked as completed with the appropriate approval status code. If approved, the pending transaction is inserted into the claim transaction collection.

Validation rules that fail create a record in the Denials table with details about why that transaction failed validation.

The claim entity has a many calculated fields to summarize financial data based on the underlying transactions and financial summary formula.



Claim

Field Name	Field Type	Field Description
Claim ID	Integer	A unique identifying integer value
Claim Number	Text	A unique identifying string value
Status	Text - Value List	Tied to value list, “Claim Status List”
Claimant	Entity	See Claimant entity
Loss Date	Date	Date the claim occurred
Report Date	Date	Date the claim was reported
Claim Description	Text	A description of the claim
Close Date	Date	Date the claim was closed
Claim Tier	Text - Value List	The tier identifying which set of validations the claim must pass
Summary Formula	Text	The formula to indicate how to summarize the claim’s financial groups
Formula Not Valid	Boolean - Calculation	Calculation to determine if the financial summary formula field is valid
Total Incurred	Decimal - Calculation	Calculates the incurred total based on the financial summary formula and values of the incurred groups – uses an Expression vocabulary template, “Calculate Financial Total”
Total Reserved	Decimal - Calculation	Calculates the reserved total based on the financial summary formula and values of the reserved groups – uses an Expression vocabulary template, “Calculate Financial Total”

Total Paid	Decimal - Calculation	Calculates the paid total based on the financial summary formula and values of the paid groups – uses an Expression vocabulary template, “Calculate Financial Total”
Total Outstanding	Decimal - Calculation	Simple calculation referencing other calculated fields (Total Incurred – Total Paid)
Incurred_Group1	Decimal - Calculation	Calculates the incurred for this group. Uses an Expression vocabulary template, “Get Incurred By Financial Group”.
Incurred_Group2	Decimal - Calculation	""
Incurred_Group3	Decimal - Calculation	""
Incurred_Group4	Decimal - Calculation	""
Reserved_Group1	Decimal - Calculation	Sums the transactions on the claim for this financial group and pay type – uses an Expression vocabulary template, “Sum Transactions By Group And Pay Type”
Reserved_Group2	Decimal - Calculation	""
Reserved_Group3	Decimal - Calculation	""
Reserved_Group4	Decimal - Calculation	""
Paid_Group1	Decimal - Calculation	""
Paid_Group2	Decimal - Calculation	""
Paid_Group3	Decimal - Calculation	""
Paid_Group4	Decimal - Calculation	""
Outstanding_Group1	Decimal - Calculation	Simple calculation referencing other calculated fields (Incurred_Group1 – Paid_Group1)
Outstanding_Group2	Decimal - Calculation	Simple calculation referencing other calculated fields (Incurred_Group2 – Paid_Group2)
Outstanding_Group3	Decimal - Calculation	Simple calculation referencing other calculated fields (Incurred_Group3 – Paid_Group3)
Outstanding_Group4	Decimal - Calculation	Simple calculation referencing other calculated fields (Incurred_Group4 – Paid_Group4)
Transactions	Entity Collection	See Transaction entity
Pending Transactions	Entity Collection	See Pending Transaction entity

Claimant

Field Name	Field Type	Field Description
First Name	Text	Claimant’s first name
Middle Initial	Text	Claimant’s middle initial
Last Name	Text	Claimant’s last name
Date of Birth	Date	Claimant’s DOB
Gender	Text - Value List	Claimant’s gender. Tied to value list, “Gender List”.
Age	Integer - Calculation	Calculated by number of years between today and DOB

Transaction

Field Name	Field Type	Field Description
Transaction ID	Integer	A unique identifying integer value
Claim ID	Integer	The Claim ID of the parent claim
Transaction Category	Text	The transaction category. A 4 digit alphanumeric code. First digit identifies the pay type. Second digit identifies the financial group.
Transaction Date	Date	The date of the transaction
Amount	Decimal	The amount of the transaction

Pay Type	Text - Calculation	Payment or Reserve. Identified by the second digit of the Transaction Category field.
Group And Pay Type	Text - Calculation	One of 4 financial groups, and Payment or Reserve. Identified by the first 2 digits of the Transaction Category field.

Pending Transaction

Field Name	Field Type	Field Description
Transaction ID	Integer	A unique identifying integer value
Claim ID	Integer	The Claim ID of the parent claim
Transaction Category	Text	The transaction category. A 4 digit alphanumeric code. First digit identifies the pay type. Second digit identifies the financial group.
Transaction Date	Date	The date of the pending transaction
Processing Status	Text - Value List	The status of the processing of the pending transaction. Pending or Completed. Tied to value list, "Processing Status List".
Approval Status	Text - Value List	The status of the validations of the pending transaction. Denied or Approved. Tied to value list, "Approval Status List".
Amount	Decimal	The amount of the transaction
Pay Type	Text - Calculation	Payment or Reserve. Identified by the second digit of the Transaction Category field.
Group And Pay Type	Text - Calculation	One of 4 financial groups, and Payment or Reserve. Identified by the first 2 digits of the Transaction Category field.
Denials	Entity Collection	See Denial entity

Denial

Field Name	Field Type	Field Description
Denial Type	Text - Value List	The type of Denial (Transaction, Incident, Claim). Tied to value list, "Denial Type List". (NOTE: This rule application only shows an example of processing denials for Transaction type entity records.)
Denial Reason	Text - Value List	The reason for the denial. Tied to value list, "Denial Reason List".
Entity ID	Integer	The unique identifier for the related entity that was denied. (e.g. Transaction ID, Incident ID, Claim ID)
Claimant	Entity	See Claimant entity

Data

List Name	List Description
Denial Reason List	A list of the possible denial reasons for Transactions, Incidents or Claims. (NOTE: This rule application only shows an example of processing denials for Transaction type entity records.)
Denial Type List	A list of possible entities that can fail validation – e.g. Transaction, Incident, Claim. (NOTE: This rule application only shows an example of processing denials for Transaction type entity records.)
Denial Tier List	A list of denial tiers for processing validations.
Processing Status List	A list of processing status codes – e.g. Pending, Completed.
Approval Status List	A list of approval status codes – e.g. Denied, Approved.
Claim Status List	A list of claim status codes – e.g. Open, Closed, Reopened.
Claim Financial Total Type List	A list of financial summary calculation types – e.g. Incurred, Reserved, Paid.
Financial Group And Pay Type List	A list of Financial Group and Pay Type combinations – e.g. Payment – Group 1, Reserve – Group 4
Gender List	A list of possible gender codes – e.g. Male, Female.

Vocabulary

Claim

Template Name	Template Type	Template Description
Calculate Financial Total	Decimal - Expression	Calculates the total for input parameter Type (Incurred, Reserved, Paid). Uses the Financial Summary Formula to determine how to summarize each Financial Group.
Execute Run Denial Rules	Execute Rule Set	Uses the input parameter of the Tier and passes that into the rule set parameter to execute the “Run Denial Rules” rule set.
Execute Tier 1 Rules	Execute Member Rule Set	Executes the “Tier1Valiations” rule set for the Pending Transactions collection for transactions where the Processing Status is “Pending”.
Execute Tier 2 Rules	Execute Member Rule Set	Executes the “Tier2Valiations” rule set for the Pending Transactions collection for transactions where the Processing Status is “Pending”.
Execute Tier 3 Rules	Execute Member Rule Set	Executes the “Tier3Valiations” rule set for the Pending Transactions collection for transactions where the Processing Status is “Pending”.
Get Incurred By Financial Group	Decimal - Expression	Calculates the incurred total for input parameter Financial Group.
Sum Transactions By Group and Pay Type	Decimal - Expression	Sums the transactions for the input parameter Financial Group and Pay Type.

Pending Transaction

Template Name	Template Type	Template Description
Display Processing Message	Fire Notification	Fires an informational message about the approval or processing status of the transaction, accepting input parameters of the Transaction ID and the Status.
Insert Approved Transaction	Add Collection Member	Inserts the input parameter pending transaction entity into the Transaction entity. Uses an expression to get the next available Transaction ID for that claim on the Transaction collection.

Insert Denial Record	Add Collection Member	Inserts a denial record based on the input parameters of Denial Type, Denial Reason, Entity ID and Claimant into the Denials collection.
Pending Transaction Is Approved	Boolean – Expression	Determines if the current pending transaction is approved by ensuring that its Denials collection is empty. If empty, returns True.
Set Pending Transaction Approval Status	Assignment / Set Value	Sets the pending transaction approval status field based on the input parameter value.
Set Pending Transaction Processing Status	Assignment / Set Value	Sets the pending transaction processing status field based on the input parameter value.

Global

Template Name	Template Type	Template Description
Add List Item	Text - Expression	Concatenates 2 input parameter arguments into a comma separated list.
Append	Text - Expression	Concatenates 2 input parameter arguments.
Append Field	Assignment / Set Value	Sets the value of the input parameter field to its current value with the appended input parameter text.
Display Message	Fire Notification	Fires an informational type “Fire Notification” using the input parameter message.
Display Warning	Fire Notification	Fires a warning type “Fire Notification” using the input parameter message.
Double Quote	Text - Expression	Returns a double quote.
Half Of	Integer - Expression	Returns the rounded up input parameter number divided by 2.
In Last Century	Boolean - Expression	Returns true if the input parameter year is in the previous century.
In This Century	Boolean - Expression	Returns true if the input parameter year is in today’s century.
Increment	Assignment / Set Value	Sets the value of the input parameter field to its current value plus the input parameter value.
Just Over Half	Integer - Expression	Returns the rounded up input parameter number divided by 2, plus 1.
New Line	Text - Expression	Returns text with a carriage return added.
Next	Assignment / Set Value	Sets the value of the input parameter field to its current value plus 1.


















NOTE: These Global vocabulary templates are meant for additional reference examples, but are not used in this rule application.

Rules

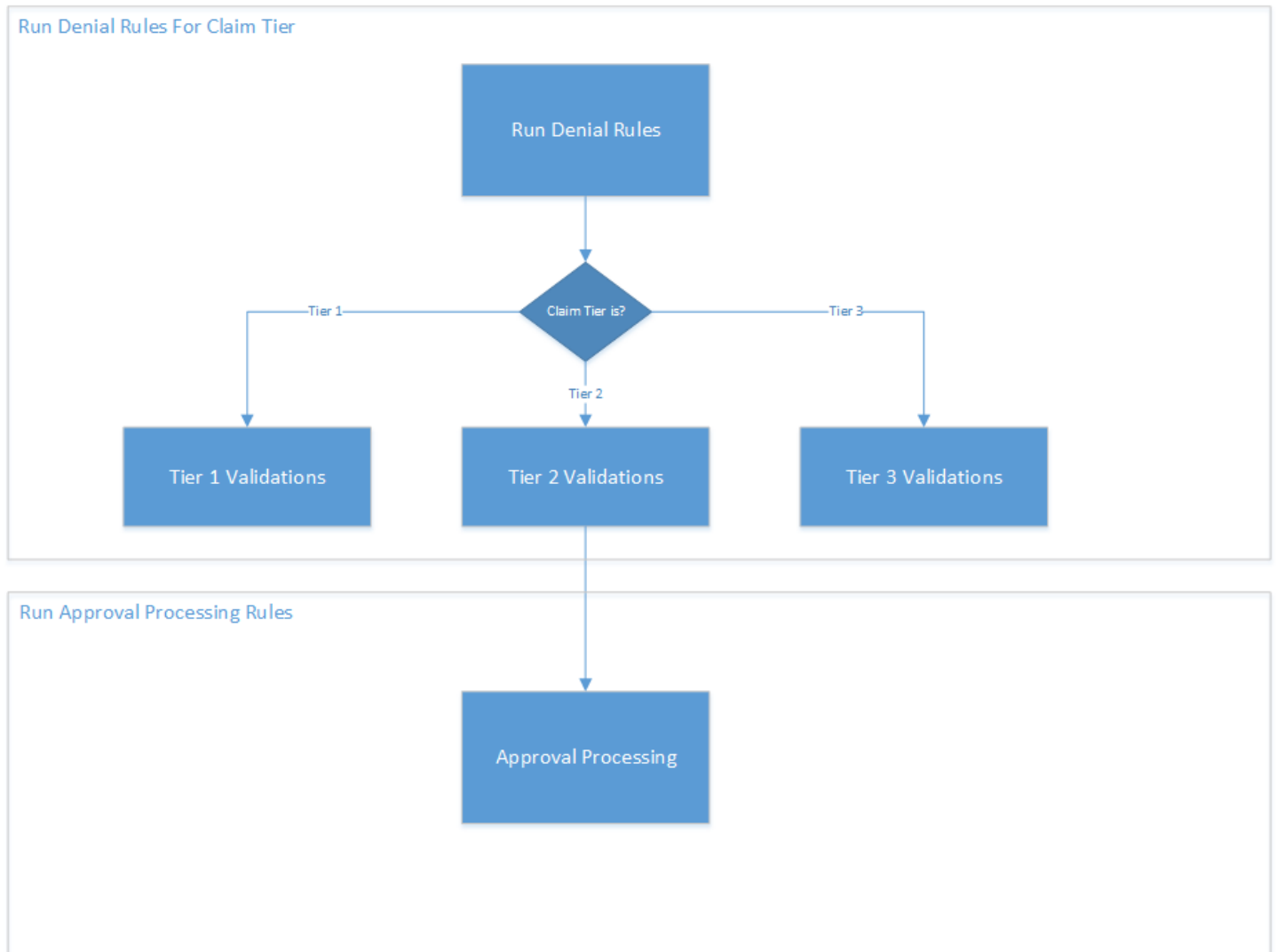
There are various rules embedded in the calculated fields on the Claim entity. The other rules are centered around the processing of Pending Transactions based on validation rules.

Rules

+ Add Rule Set + Collapse All -

- ▲  Claim
 - ▲  Controller
 -  RunDenialRulesforClaimTier
 -  RunApprovalProcessingRules
 - ▲  RunDenialRules
 -  PendingTransactionDenialsbyTier
- ▲  PendingTransaction
 - ▲  Tier1Validations
 -  TransDatebeforeLossDate
 -  TransDatebeforeReportDate
 - ▲  Tier2Validations
 -  ClaimisClosed
 - ▲  Tier3Validations
 -  ReopenedClaimsRejectPaymentsfromCat4
 - ▲  ApprovalProcessing
 -  IfApproved
 -  SetTransactiontoProcessed

Visual Rule Flow



Rule Flow Detail

The Claim "Controller" rule set is "Auto Single-Pass Sequential". This controls the flow of the rule application. All other rule sets are explicit.

In the "Controller" rule set, first, it runs the appropriate validation rules based on the tier value on the claim. This uses the Execute Rule Set vocabulary template "Execute Run Denial Rules", using the claim tier value as the input parameter.

The "Run Denial Rules" rule set has a decision table. This decision table uses the condition of the incoming claim tier parameter, and determines which rule set to execute on the Pending Transaction entity **for each** pending transaction. The action for this decision table utilizes 1 of 3 Execute Member Rule Set vocabulary templates, "Execute Tier1 Rules", "Execute Tier2 Rules" and "Execute Tier3 Rules". All of these templates include a collection filter to ensure only pending transactions with a processing status of "Pending" are run.

Based on the claim tier, and the Run Denial Rules action, the appropriate tier validation rule set will be executed.

All of the Tier 1-3 Validation rule sets include different validation rules to determine if the pending transaction should be approved.

If any of the validations fail, an Add Collection Member template, “Insert Denial Record” is used to add a denial with the appropriate reason.

Then, the approval status of the pending transaction is set to “Denied” using the Assignment / Set Value vocabulary template, “Set Pending Transaction Approval Status”.

In addition, a fire notification is triggered to display the Transaction ID and the Approval Status, using the Notification vocabulary template “Display Processing Message”.

Once the tier validation rule set is complete, the processing goes back up to the Controller rule set and runs the “Approval Processing” rules.

The “Approval Processing” rule set checks to see if there are any denials for the associated pending transaction using a Boolean - Expression vocabulary template, “Pending Transaction Is Approved”.

If approved, it inserts the pending transaction into the claim transaction collection using the Add Collection Member vocabulary template, “Insert Approved Transaction” and then sets the pending transaction’s approval status to “Approved” using the Assignment / Set Value vocabulary template, “Set Pending Transaction Approval Status”. In addition, a fire notification is triggered to display the Transaction ID and the Approval Status, using the Notification vocabulary template “Display Processing Message”.

Regardless of approval status, the rule set then uses the Assignment / Set Value vocabulary template, “Set Pending Transaction Processing Status” to set the pending transaction’s processing status to “Completed”. That way, that pending transaction does not get re-processed the next time rules are run. In addition, a fire notification is triggered to display the Transaction ID and the Processing Status, using the Notification vocabulary template “Display Processing Message”.

Test Data / Entity XML Examples

ClaimTransactions.xml

- 7 transaction members
- Click “Apply Rules” and see the calculation rules on the Claim and Transaction entity execute to summarize the financial totals.

ClaimPendingTransTier1.xml

- 0 transaction members
- 2 pending transaction members
- Click “Apply Rules” and see the Tier1 denial validation rules applied to the pending transactions.
- Both transactions should fail the 2 denial rules creating 2 denial members on each pending transaction.

ClaimPendingTransTier2.xml

- 0 transaction members
- 2 pending transaction members
- Click “Apply Rules” and see the Tier2 denial validation rules applied to the pending transactions.
- Both transactions should succeed creating 2 transactions for the claim.