# DesignBais

## DesignBais Workflow

## Release 8

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# Workflow (Business Process Management)

## Overview

A DesignBais Workflow comprises rules, steps and processes.

Once these are established into a discrete workflow a phantom process controls the running of the workflow.

An enquiry process is available to see the Status of any workflow, or workflow item.

### System

The DesignBais Workflow Module has the following components that comprise the Workflow Structure.

- Processes
- Steps within processes
- Rules within steps
- A phantom program running in the background to evaluate rules in order to ascertain the progress of a transaction
- A status enquiry so that users can see the state of any transaction within any process

A workflow can mirror any business process. An easy process to visualize is the common process of membership renewal. The following description of the workflow components uses the membership renewal process to help you understand the concepts. Consider a membership application that provides for online renewal, payment by credit card and issue of a membership card.

Let’s assume that the actual steps in the membership renewal process are:

- Members submit online renewal application or new members apply for the first time
- Payment details are sent to the payment gateway
- When payment is successful the application is approved
- Membership cards are issued

### Rules

Rules link to the underlying database files and fields. A rule is an entity that can be evaluated as either true (the result is called a *Pass*) or false (the result is called a *Fail*).

Rule definitions are held in the DBIPMRULE File.

In our membership example the first rule could be whether a Membership Application has been received. Our database will have a file and field that records applications. Typically there will be a *Date Application Received* field. This field can be used in a rule.

RULE-APPRECD: *Date Application Received* not blank.
The phantom process passes through the membership applications file and assesses if the application date on a transaction is present. As applications are received the workflow status enquiry will display applications that have been:

- Received

RULE-PAYOUTST: Credit card details provided. This rule will reference multiple fields such as *Credit Card Number, Expiry Date, CCV Code*. The rule will be set up to check that:

- *Credit Card Number* is not blank AND
- *Expiry Date* is not blank AND
- *CCV Code* is not blank.

The workflow status enquiry will display applications:

- Received
- Credit card details are not complete
- Credit card details are complete but payment outstanding

RULE-PAID: Credit card payment successful. The rule will reference a flag held in a database field that is returned by the credit card payment gateway indicating successful payment.

The workflow status enquiry will display applications:

- Received
- Credit card details are not complete
- Credit card details are complete but payment outstanding
- Received and payment successful

RULE-APPROVED: *Date Application Approved* not blank.
Membership staff review the application after successful payment and approve renewal. The field on the database could, for example, be a *Date Application Approved*. The phantom process passes through the application transactions and if there is an approved date then the transaction is ready for membership card issue.

The workflow status enquiry will display applications:

- Received
- Credit card details are not complete
- Credit card details are complete but payment outstanding
- Received and payment successful
- Application approved

RULE-ISSUED: *Date Membership Card Issued* not blank.
As cards are issued the date that the membership card is issued is entered in the database field. The phantom process moves completed application transactions to the final status based on this field having a date.

The workflow status enquiry will display applications:

- Received
- Credit card details are not complete
- Credit card details are complete but payment outstanding
- Received and payment successful
- Application approved
- Membership card issued

## Steps

Steps map to logical parts of a bigger process.

Steps are held in the DBIPMSTEP File.

Each step is a defined by a set of one or more rules. If the rule result(s) are *Pass* then the step is considered to be completed.

In our membership example the workflow steps correspond to the actual steps in the membership renewal process:

- Members submit online renewal application or new members apply for the first time
  - Step SUBMIT contains rule RULE-APPRECD
- Payment details are sent to the payment gateway
  - Step PAY contains rules RULE-APPRECD and RULE-PAYOUTST
- When payment is successful the application is approved
  - Step APPROVED contains rules RULE-PAID and RULE-APPROVED
- Membership cards are issued
  - Step ISSUED contains rule RULE-ISSUED

## Workflow Process

A workflow process is an aggregation of a number of steps.

Processes are held in the DBIPMPROC File.

In our membership example we could give the workflow process an id of RENEWALS.

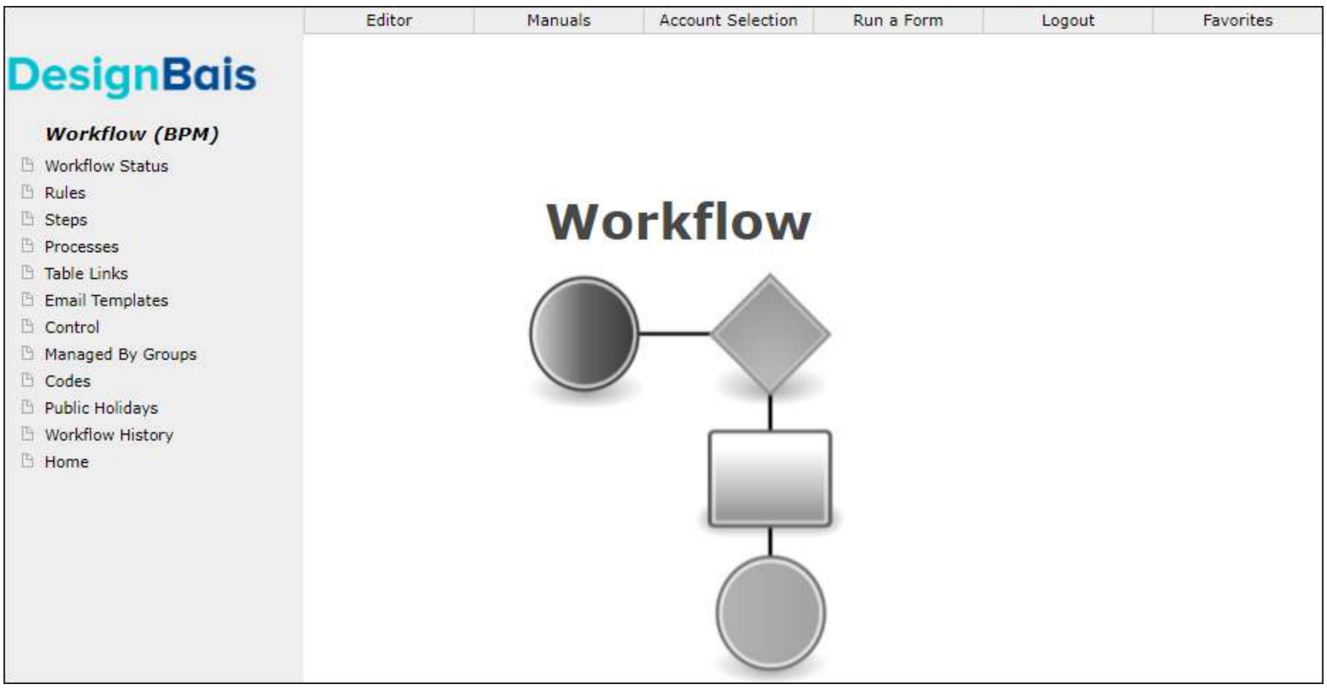
The RENEWALS process will contain the steps:

- SUBMIT
- PAY
- APPROVED
- ISSUED

## DesignBais Workflow Menu

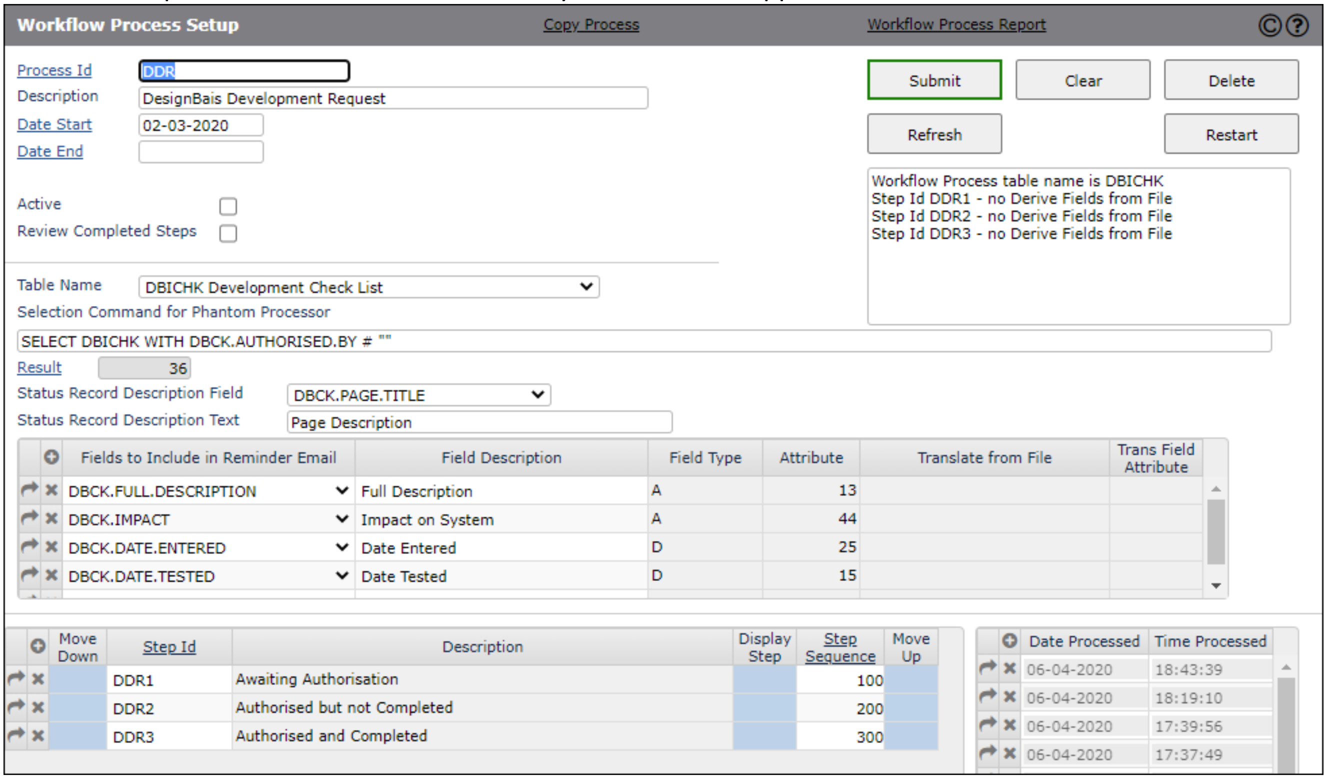
The DesignBais Workflow module provides functionality to monitor and progress transactions within a business process. Transactions are moved, using a Workflow Phantom control routine, through defined steps based on business rules. Steps can be assigned to particular managers so that only those steps relevant to that manager are visible in the status view of transactions.

The Workflow menu is located on the Development Tools side menu.



## Workflow Process Maintenance

The business process that is to be monitored by the Workflow application is defined in this form.




Fields

*Process Id* Assign a code as the Id of the business process.

*Description* A description of the business process.

*Date Start* The Workflow Process will be processed by the Workflow Phantom between and including these dates,

*Date End* providing that the Active flag is set on. Outside of this date range this Workflow will not be processed regardless of the setting of the Active flag. These dates can be left blank in which case the Active Flag is the sole control to determine if this Workflow will be processed by the Workflow Phantom.

*Active* This flag must be set to on if the Workflow is to be included in the Workflow Phantom processing. Setting this flag off (leaving it unchecked) is a simple way to temporarily remove a Workflow from the Workflow Phantom processing.

*Review Completed Steps*
This flag controls whether completed workflow steps are re-processed by the workflow phantom. If set then the rules applying to a completed step are evaluated during each run of the phantom and if the data has changed a completed step may be reset to a status of incomplete.

*Table Name* The table (file) containing the transactions to be monitored by the Workflow process.

*Selection Command for Phantom Processor*
A selection command to be used by the Workflow phantom processor to select the records from the table defined in this Workflow process. Only records selected by this command will participate in the workflow. If no command is entered the selection will default to a select of the entire table.

*Status Record Description Field*
A field from the Table File that are can be selected to display when a record is viewed in the workflow status enquiry forms.

*Status Record Description Field*
The screen label of the field from the Table File selected to display when a record is viewed in the workflow status enquiry forms.

*Result* The number of records selected by the selection command. This is useful, when creating a new selection command, for checking that the command is correct.

*Fields to Include in Reminder Email*
The fields from the file specified in the Table Name above are available in the dropdown selection list. Any number of fields can be selected and the values from these fields will be included in the reminder email that is generated when a step is overdue. The field description defaults to the field property screen label. It can be modified if required. The field description is included in the email alongside the value of the field.

*Move Down* Move the highlighted step down the list.

*Step Id* The Workflow Steps that are to be a part of this Workflow process. They should be in logical sequence matching the real world sequence of steps that the transactions on this table must go through.

*Display Step* Display details of the highlighted step.

*Step Sequence* Use this field to enter the required step sequence. The system will then re-sort the steps.

*Move Up* Move the highlighted step up the list.

*Date Processed* The dates on which this Workflow was processed by the Workflow Phantom.
*Time Processed* The times at which this Workflow was processed by the Workflow Phantom.

Buttons

*Submit* Saves the currently displayed details to the DBIPMPROC table as a record with key of *Process Id*.

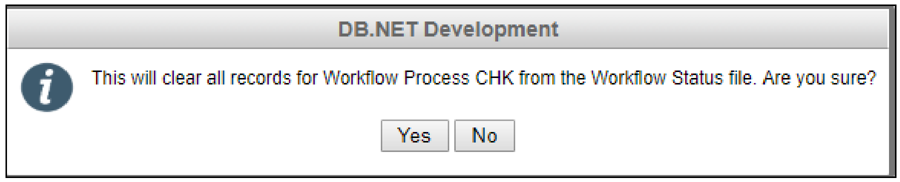
*Clear* Clears displayed details.

*Delete* Deletes the currently displayed record, after user confirmation.

*Refresh* Saves the currently displayed details in the same way as *Submit*, but then re-reads the same record.

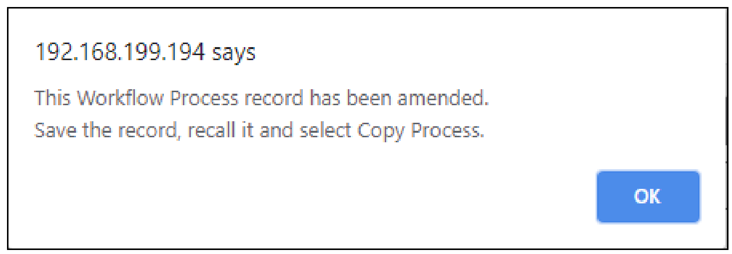
*Restart* This button is only available to developers. It allows transactions for a workflow process to be cleared, allowing the workflow phantom to regenerate them based on the current data state.

This confirmation message is displayed. The *Yes* response will clear all tracked records for this Workflow Process from the Workflow Status file DBIPMSTATUS.

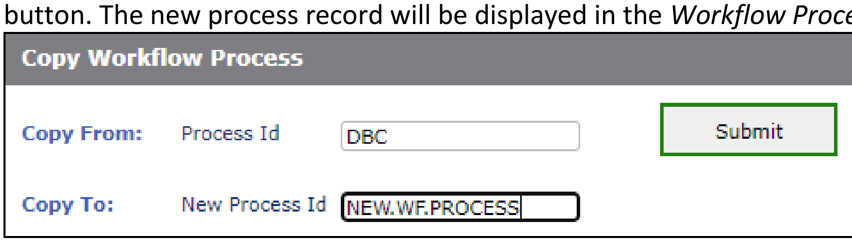



*Copy Process* Allows you to copy an existing workflow process to a new process id.

If the currently displayed record has been modified then you will be prompted to save it before it can be copied.

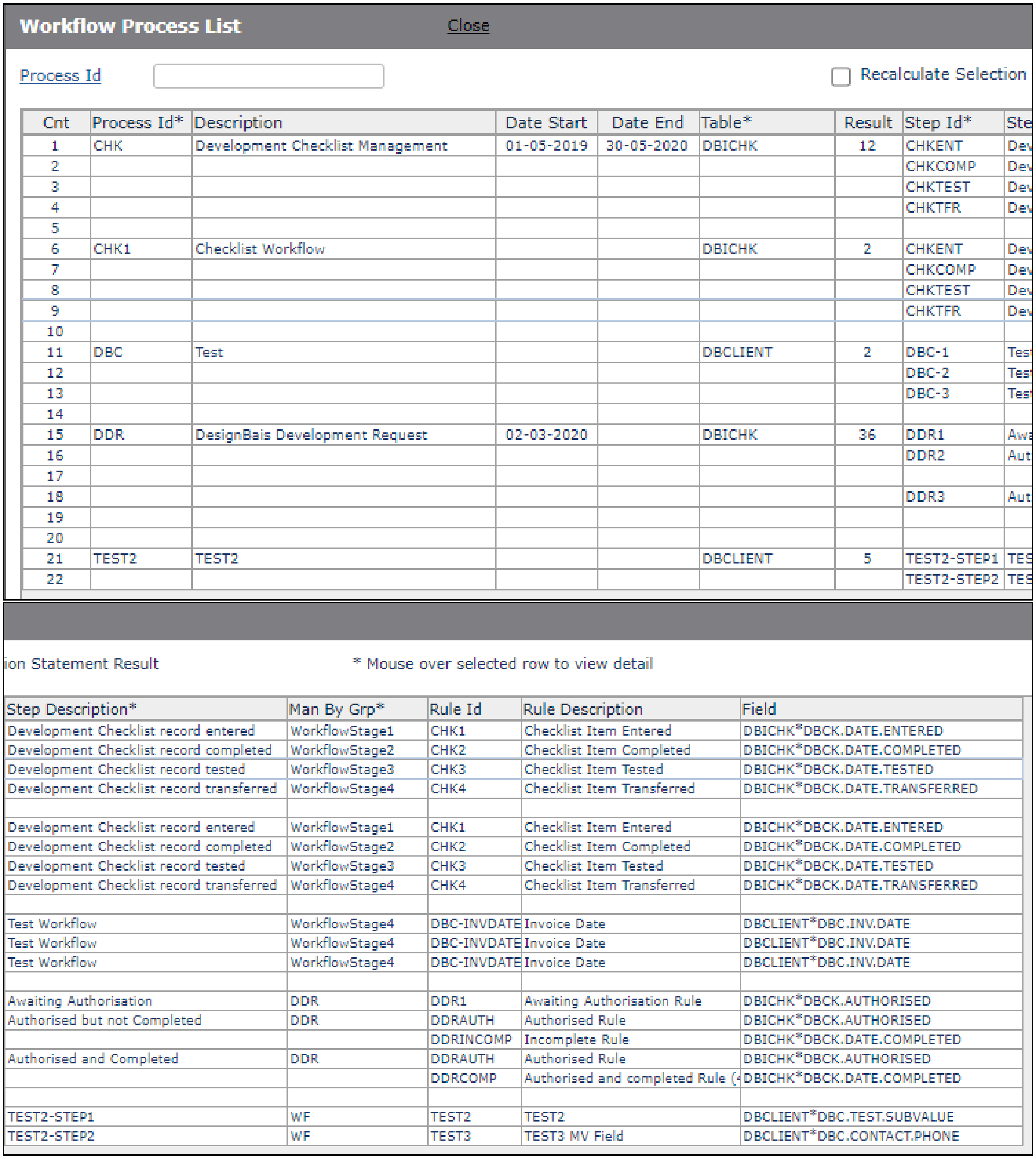



The *Copy Workflow Process* form displays. Enter the *New Process Id* and click the submit button. The new process record will be displayed in the *Workflow Process Setup* form.




*Workflow Process Report*

This button is located in the form header bar. The report can be displayed for all or selected processes. It provides a means of verifying the setup of workflow processes.



**Workflow Process List** Close

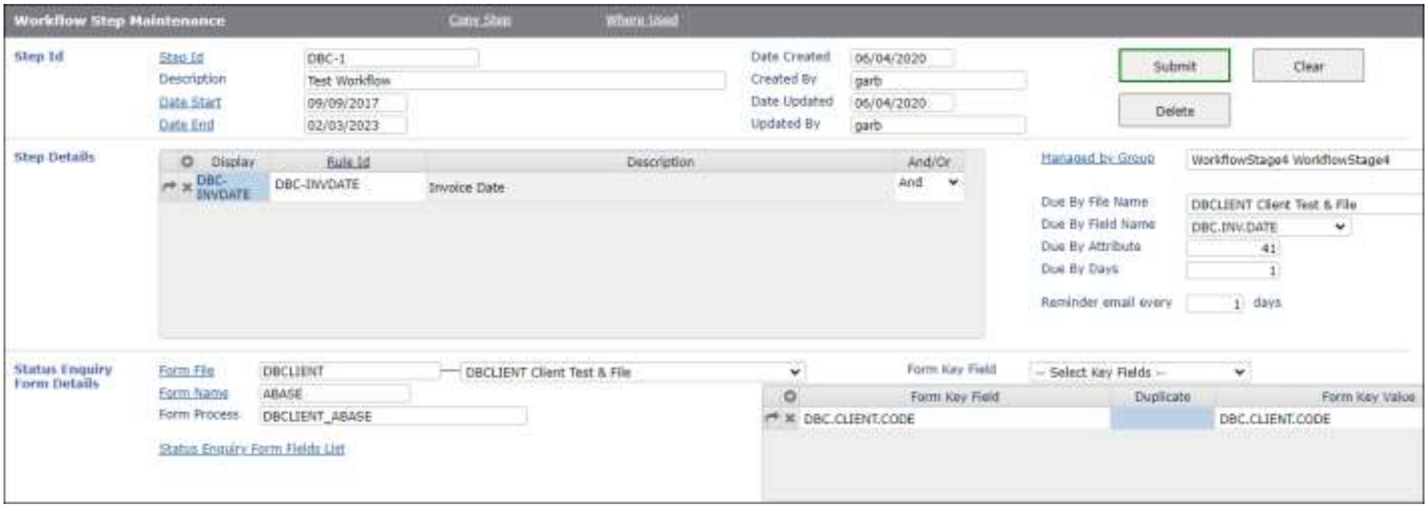
Process Id ☐ Recalculate Selection

| Cnt | Process Id* | Description | Date Start | Date End | Table* | Result | Step Id* | Ste |
|---|---|---|---|---|---|---|---|---|
| 1 | CHK | Development Checklist Management | 01-05-2019 | 30-05-2020 | DBICHK | 12 | CHKENT | Dev |
| 2 | | | | | | | CHKCOMP | Dev |
| 3 | | | | | | | CHKTEST | Dev |
| 4 | | | | | | | CHKTFR | Dev |
| 5 | | | | | | | | |
| 6 | CHK1 | Checklist Workflow | | | DBICHK | 2 | CHKENT | Dev |
| 7 | | | | | | | CHKCOMP | Dev |
| 8 | | | | | | | CHKTEST | Dev |
| 9 | | | | | | | CHKTFR | Dev |
| 10 | | | | | | | | |
| 11 | DBC | Test | | | DBCLIENT | 2 | DBC-1 | Tes |
| 12 | | | | | | | DBC-2 | Tes |
| 13 | | | | | | | DBC-3 | Tes |
| 14 | | | | | | | | |
| 15 | DDR | DesignBais Development Request | 02-03-2020 | | DBICHK | 36 | DDR1 | Aw |
| 16 | | | | | | | DDR2 | Aut |
| 17 | | | | | | | | |
| 18 | | | | | | | DDR3 | Aut |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| 21 | TEST2 | TEST2 | | | DBCLIENT | 5 | TEST2-STEP1 | TES |
| 22 | | | | | | | TEST2-STEP2 | TES |

ion Statement Result * Mouse over selected row to view detail

| Step Description* | Man By Grp* | Rule Id | Rule Description | Field |
|---|---|---|---|---|
| Development Checklist record entered | WorkflowStage1 | CHK1 | Checklist Item Entered | DBICHK*DBCK.DATE.ENTERED |
| Development Checklist record completed | WorkflowStage2 | CHK2 | Checklist Item Completed | DBICHK*DBCK.DATE.COMPLETED |
| Development Checklist record tested | WorkflowStage3 | CHK3 | Checklist Item Tested | DBICHK*DBCK.DATE.TESTED |
| Development Checklist record transferred | WorkflowStage4 | CHK4 | Checklist Item Transferred | DBICHK*DBCK.DATE.TRANSFERRED |
| | | | | |
| Development Checklist record entered | WorkflowStage1 | CHK1 | Checklist Item Entered | DBICHK*DBCK.DATE.ENTERED |
| Development Checklist record completed | WorkflowStage2 | CHK2 | Checklist Item Completed | DBICHK*DBCK.DATE.COMPLETED |
| Development Checklist record tested | WorkflowStage3 | CHK3 | Checklist Item Tested | DBICHK*DBCK.DATE.TESTED |
| Development Checklist record transferred | WorkflowStage4 | CHK4 | Checklist Item Transferred | DBICHK*DBCK.DATE.TRANSFERRED |
| | | | | |
| Test Workflow | WorkflowStage4 | DBC-INVDATE | Invoice Date | DBCLIENT*DBC.INV.DATE |
| Test Workflow | WorkflowStage4 | DBC-INVDATE | Invoice Date | DBCLIENT*DBC.INV.DATE |
| Test Workflow | WorkflowStage4 | DBC-INVDATE | Invoice Date | DBCLIENT*DBC.INV.DATE |
| | | | | |
| Awaiting Authorisation | DDR | DDR1 | Awaiting Authorisation Rule | DBICHK*DBCK.AUTHORISED |
| Authorised but not Completed | DDR | DDRAUTH | Authorised Rule | DBICHK*DBCK.AUTHORISED |
| | | DDRINCOMP | Incomplete Rule | DBICHK*DBCK.DATE.COMPLETED |
| Authorised and Completed | DDR | DDRAUTH | Authorised Rule | DBICHK*DBCK.AUTHORISED |
| | | DDRCOMP | Authorised and completed Rule (4 | DBICHK*DBCK.DATE.COMPLETED |
| | | | | |
| TEST2-STEP1 | WF | TEST2 | TEST2 | DBCLIENT*DBC.TEST.SUBVALUE |
| TEST2-STEP2 | WF | TEST3 | TEST3 MV Field | DBCLIENT*DBC.CONTACT.PHONE |

## Workflow Step Maintenance




Fields

*Step Id* The Step Id is the handle for this step. It is used to reference the step.

*Description* The description of the step.

*Date Start*
*Date End* The Workflow Step will be processed as part of a Workflow Process by the Workflow Phantom between and including these dates. Outside of this date range this Workflow Step will not be processed even though other steps defined for this Workflow Process will continue to be active. These dates can be left blank in which case the Workflow Step will be processed by the Workflow Phantom whenever the containing Workflow Process is processed.

*Step Details* The list of rules that must be passed in order for this step to be completed.

*Rule Id* Select the required rule from the dropdown selection.

*Description* The description of the rule.

*Rule Id* Clicking on a blue highlighted row in this column will open the *Workflow Rule Maintenance* form. See below for details.

*And/Or* Flag to indicate whether this rule is to be assessed in conjunction with other rules in this step. Flag is either AND or OR. The setting relates to the rule or row on which it is placed. A pass on any rule set to OR is sufficient to flag the step as passed. Unless there is a pass on at least one OR rule then failure on any rule set to AND is sufficient to flag the step as failed and all AND rules must pass for the step to pass.

*Managed by Group*
Select the group that will manage this step of the workflow process. Groups are set up in DesignBais User Groups. Adding a Workflow Access Level to a User Group allows that group to be assigned as a workflow Managed by Group.

*Due By File Name*

The file that holds the date field that is to be used to determine the due by date for this workflow step. The due-by date is calculated by adding the number of days in the Due-By Days field to the value in this date field. If no file or field is specified then the due by date will be calculated based on the current date (the date on which the workflow phantom run commences) plus the number of days in the Due-By Days field.

*Due By Field Name*

The date field that is to be used to determine the due by date for this workflow step. The due-by date is calculated by adding the number of days in the Due-By Days field to the value in this date field.

*Due By Attribute*

The attribute of the date field that is to be used to determine the due by date for this workflow step. The due-by date is calculated by adding the number of days in the Due-By Days field to the value in this date field.

*Due By Days* The due-by date is calculated by adding the number of days in the Due-By Days field to the value in the date field that is defined to determine the due by date for this workflow step.

*Reminder Email every 'n' days*

The number of days between email reminders. There is a global setting on the Control form which will be invoked if the value on the Step record is not set. Enter a value of zero if no reminder is to be sent.

***Status Enquiry Form Details***

This section records the details of the application form that is used to maintain or enquire on the database fields that determine the rule outcome(s) for this step.

*Form File* The file or table name of the form to be used to maintain the rule fields.

*Form Name* The name of the form on the Form File.

*Form Process* This will default to the system-derived value.

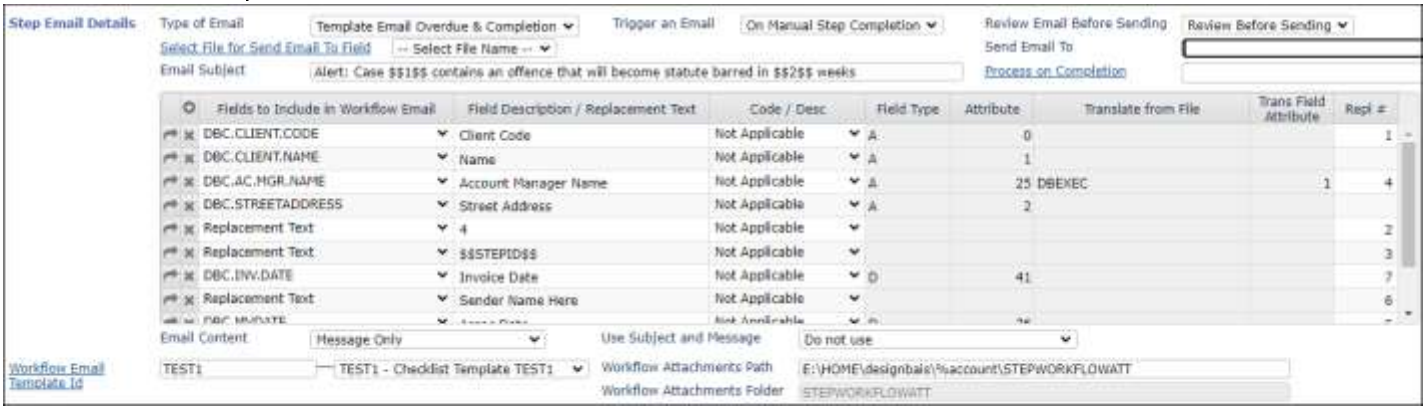
*Form Key Field* Select the *Form Key Field* from the dropdown selection. The fields entered in this grid will be used to supply the key field values to the *Status Enquiry Form* when a workflow transaction is to be viewed.

*Duplicate* Click *Duplicate* to copy the *Form Key Field* into the *Form Key Value* column. It can then be amended as required.

*Form Key Value* This is the value to be passed to the *Form Key Field*. It may be a text string or a field name. If it is a field name then the actual value will be derived at run time from the particular workflow transaction that is being maintained. If left blank the record id will be used.

***Step Email Details***

This section records the details of the email or template email to be sent when this step is completed and / or overdue.




*Type of Email*

The type of email to send when step is complete or overdue. Select from:

- No email
- Email when Overdue
- Email on Completion
- Email Overdue & Completion
- Template Email when Overdue
- Template Email on Completion
- Template Email Overdue & Completion

*Trigger an Email*

Select the option *On Manual Step Completion* if an email or template email is to be generated when a workflow step is manually completed.

*Review Email Before Sending*

Select *Review Before Sending* if email / template email is to be generated but not sent immediately by the phantom process. Emails can be viewed and amended using the Workflow Status option in the *Workflow Email Awaiting Review* window.

**Workflow Email Awaiting Review**

| Status | Date | Process | Table Name | Step | Record Id | Time |
|---|---|---|---|---|---|---|
| Review | 30-06-2020 | DBC | DBCLIENT | DBC-1 | 333 | 03:25pm |
| Review | 30-06-2020 | DBC | DBCLIENT | DBC-1 | 33 | 03:25pm |

*Select File for Send Email To field*

The *Send Email To* field stores the name of the field property, on the file named here, that holds the email address to which the step completion email is to be sent.

*Send Email To* If populated with a field name from the workflow process file, or from a linked file, and the data in the field of the record processed in the workflow contains a valid email address then the overdue and/or the completion email will be sent to this email address as well as to the email addresses on the Managed By Group record.

*Email Subject* Enter text to be used as the subject of the workflow email.

*Process on Completion*

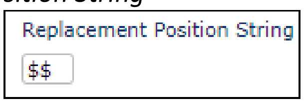
The name of a subroutine to execute on completion of the workflow step. The following variables are set:

PROCESS.PARAMETER<1,1> = Workflow Process Id
PROCESS.PARAMETER<1,2> = Workflow Step Id
PROCESS.PARAMETER<1,3> = Workflow Table Name

On return from the subroutine the developer can set:

PROCESS.PARAMETER<2> = Message - will be displayed in the phantom output record if populated.

*Replacement Position String*




Use this string to surround a sequence number (entered in the *Repl #* column in the Fields to Include in Workflow Email grid), to indicate the position of replacement strings within the email subject, email message, and other fields used in the workflow email.
The default string is $$ but this can be changed if your data contains this string.
The string ]] cannot be used as it is part of the CDATA termination string.
As a guide, if you want a field value from the list of Fields to Include in Workflow Email to be placed in your email subject then insert '$$1$$' in your email subject text like this:

"Overdue balance for Client: $$1$$".

Add the database field name of the field containing the overdue balance to the list of Fields to Include in Workflow Email. In the final column of the grid enter the number 1. This number should match the number that you have added to your email subject surrounded by the Replacement Position String sequence.

*Fields to Include in Workflow Email*

The list of fields from the Form File that are to be included in the reminder email generated when a task is overdue or completed. If this list is left blank then the list of fields defined on the Workflow Process that contains this step, if any are defined, will be used.

Available fields can be selected from the dropdown list. The first value in the list is *Replacement Text*. Select this value if you want to define a string (the replacement text) to be used in conjunction with the *Replacement Position String.* Enter the required text in the next column headed *Field Description / Replacement Text*.

*Field Description / Replacement Text*

If a field name is selected in the previous column then the field description will display here. If *Replacement Text* is selected then enter the required text here. The field description can be amended if desired. This description will display adjacent to the actual value of the field in the email.

*Code / Desc* This field only applies to fields entered in the Fields to Include column that have a valid input list. Specify the type of display required for these fields:

- Code display the code only
- Description display the valid input description only
- Both display both the code and the description, space-separated
- Both with separator display both separated by a dash “Code – Description”

*Field Type* This column displays the field type.

- A alpha field
- N numeric
- D date
- T time

*Attribute* The attribute position of the field within the database file.

*Translate from File*
*Trans Field Attribute*
If the field to include contains a correlative pointing to another file then these columns will display the filename of the file from which this field derives its value, and the attribute on the correlative file.

*Repl #* If a replacement text has been specified then enter the integer value that will be used in conjunction with the *Replacement Position String* to designate the position within the email subject or message or other field at which to place the replacement text.

*Email Content*
Specify how to format the workflow email. This flag provides a means of suppressing the email message text produced by the phantom process.

- Verbose - the email message will comprise text from the phantom process including the transaction record id, the workflow step description and date due by, as well as the list of fields to include, as well as the email message text from the workflow step record
- Message Only - the email message will only comprise the email message text from the workflow step record
- Message & Fields to Include - the email message will comprise the email message text and the list of fields to include

*Use Subject and Message*
Determines what is to be incorporated into the workflow email message. For *Type of Email* set to template, the email content will be derived from the template. For *Type of Email* set to email the following applies:

- Do not use – subject and message are not derived from the step record. The subject is set to 'Record *record.Id* on Workflow Process *process.Id* Step *step.Id* '. The email message will include only the list of *Fields to Include* and the respective values of these fields extracted from the transaction record.
- For Step Completion Email – the completion but not the overdue email will use the subject and message from the step record.
- For Step Overdue Email – the overdue but not the completion email will use the subject and message from the step record.

- For Both Overdue and Completion Email – the completion and the overdue email will use the subject and message from the step record.

*Workflow Email Template Id*

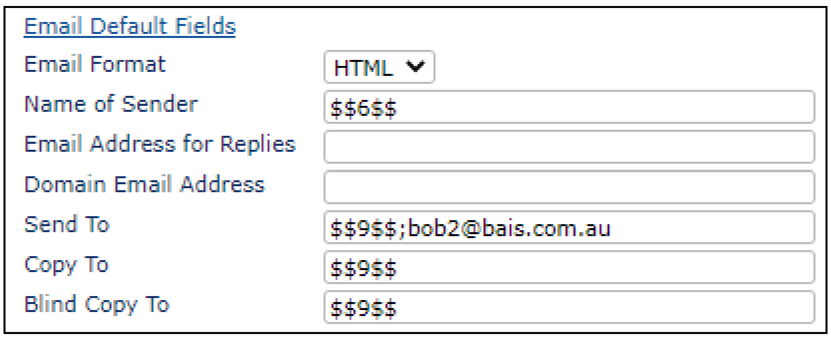
The Id of the required template can be selected from the dropdown list. This is the template to be used for sending workflow step overdue or step completion emails.

*Workflow Attachments Path*

The full to a folder into which email attachments are loaded prior to sending step overdue or step completion emails.

*Workflow Attachments Folder*

Denotes a folder into which email attachments are loaded prior to sending step overdue or step completion emails.




*Email Default Fields*

Click this link to display the following fields.

*Email Format* Select *HTML* or *TEXT* as the format of the workflow email.

*Name of Sender*

The email sender's name.

*Email Address for Replies*

Enter the email address to be used for replies to the workflow email.

*Domain Email Address*

The email address of the Domain which is used as the Email From address. This field should only be populated if the email from address is required to be different to the *Email From* address in Workflow Control.

*Send To* The list of *Send To* email addresses separated by semicolon. If blank then the email will be sent to the Managed By Group email addresses.

*Copy To* The list of Copy To email addresses separated by semicolon.

*Blind Copy To* The list of Blind Copy To email addresses separated by semicolon.

Buttons

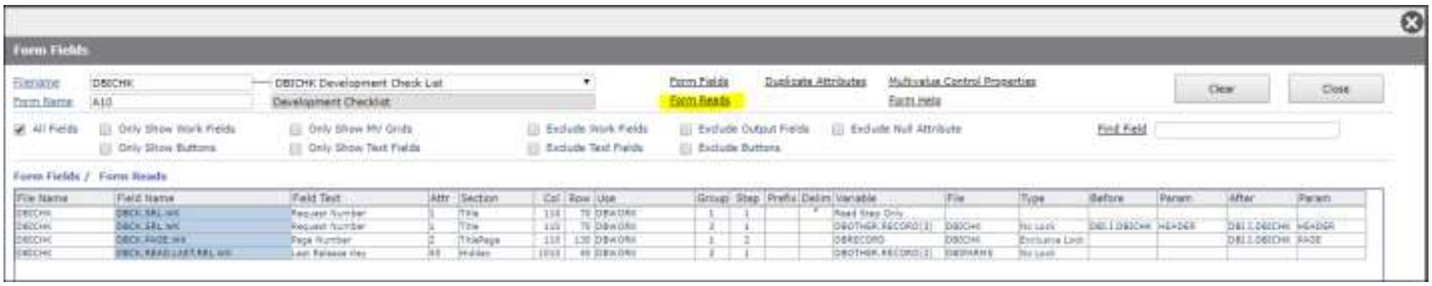
*Submit* Click to save the details currently displayed on the Workflow Step Maintenance form.

*Delete* Click to delete this step.

*Clear* Click to clear the currently displayed details from the form.

*Status Enquiry Form Fields List*

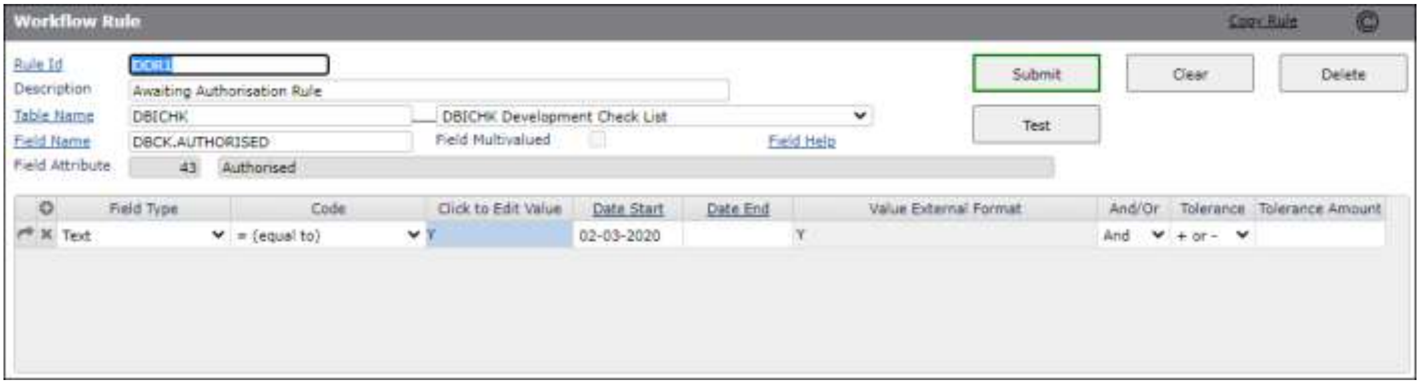
Click to display the Status Enquiry Form Details. This can assist in determining the *Form Key Fields*. Check the *Form Reads* button to display the form fields that have reads associated with them.




*Copy Step* Copy and existing step record to a new step record.

*Where Used* Displays an on-form report titled Processes Where this Step is Used which lists the workflow processes that use this workflow step.

## Workflow Rule Maintenance




**Fields**

*Rule Id* Assign an id for this rule. It must be unique.

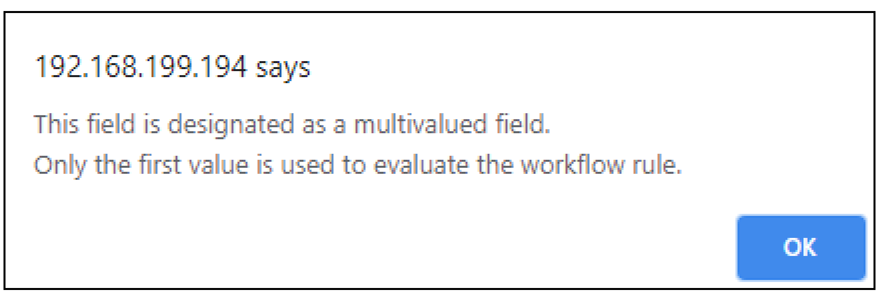
*Description* A meaningful description of the rule.

*Table Name* Enter a name of a file (table) that is known to DesignBais. There can be no underscores in the file name. You may also use the drop-down list to select a file name. Click on the File name hyperlink to invoke a search for files that are defined to DesignBais.

*Field Name* The field name of the field to which this rule will be applied. The field name combined with the Table (or File) name forms the DesignBais Field Properties key of this field.

*Field Multivalued*

When the field to which the workflow rule is linked is multivalued then the following message is displayed. The checkbox is checked.




*Field Attribute* Displays the attribute number of the Rule Field Name. The screen label from the DesignBais Field Properties file record is displayed to the right of this field.

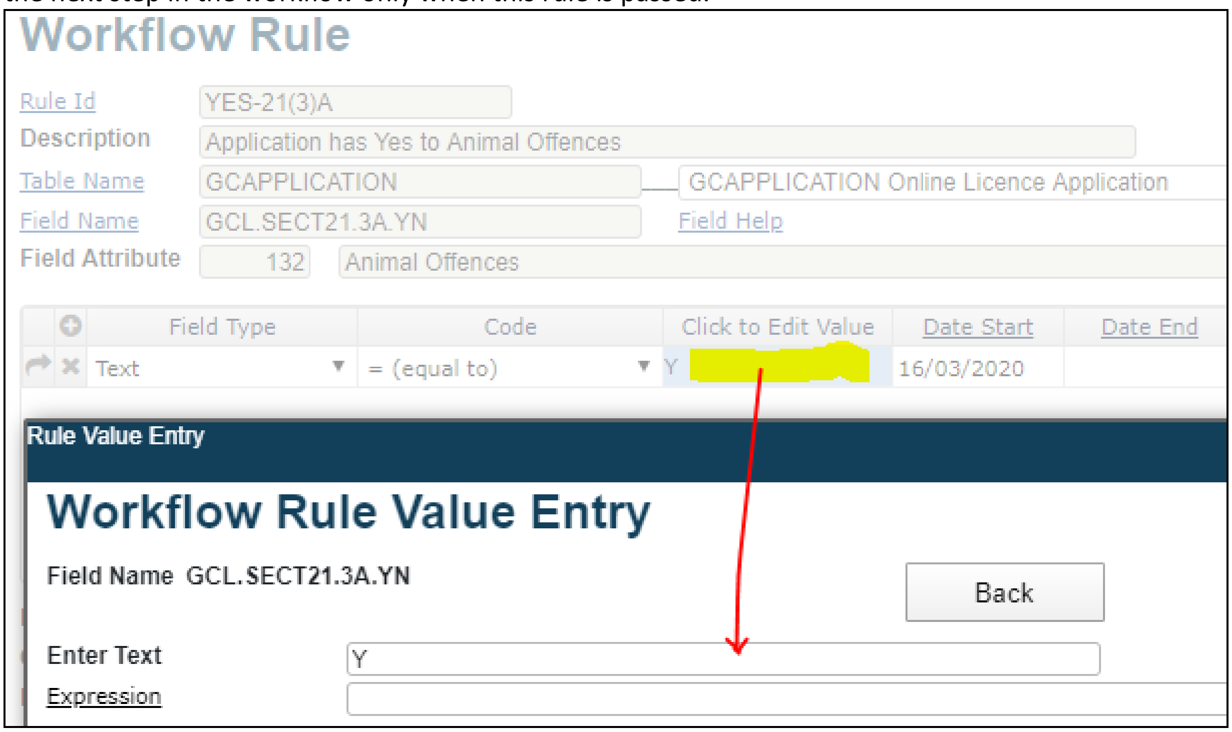
*Field Type* Select the type of field from the dropdown list to which the rule is linked. The type includes text, date and time, amount and quantity. It must be selected based on, where applicable, the number of decimal places that the field has. Cost implies 4 decimal places.

*Code* Select the required code from the dropdown selection list. This is the operand that will be used in evaluating the rule.

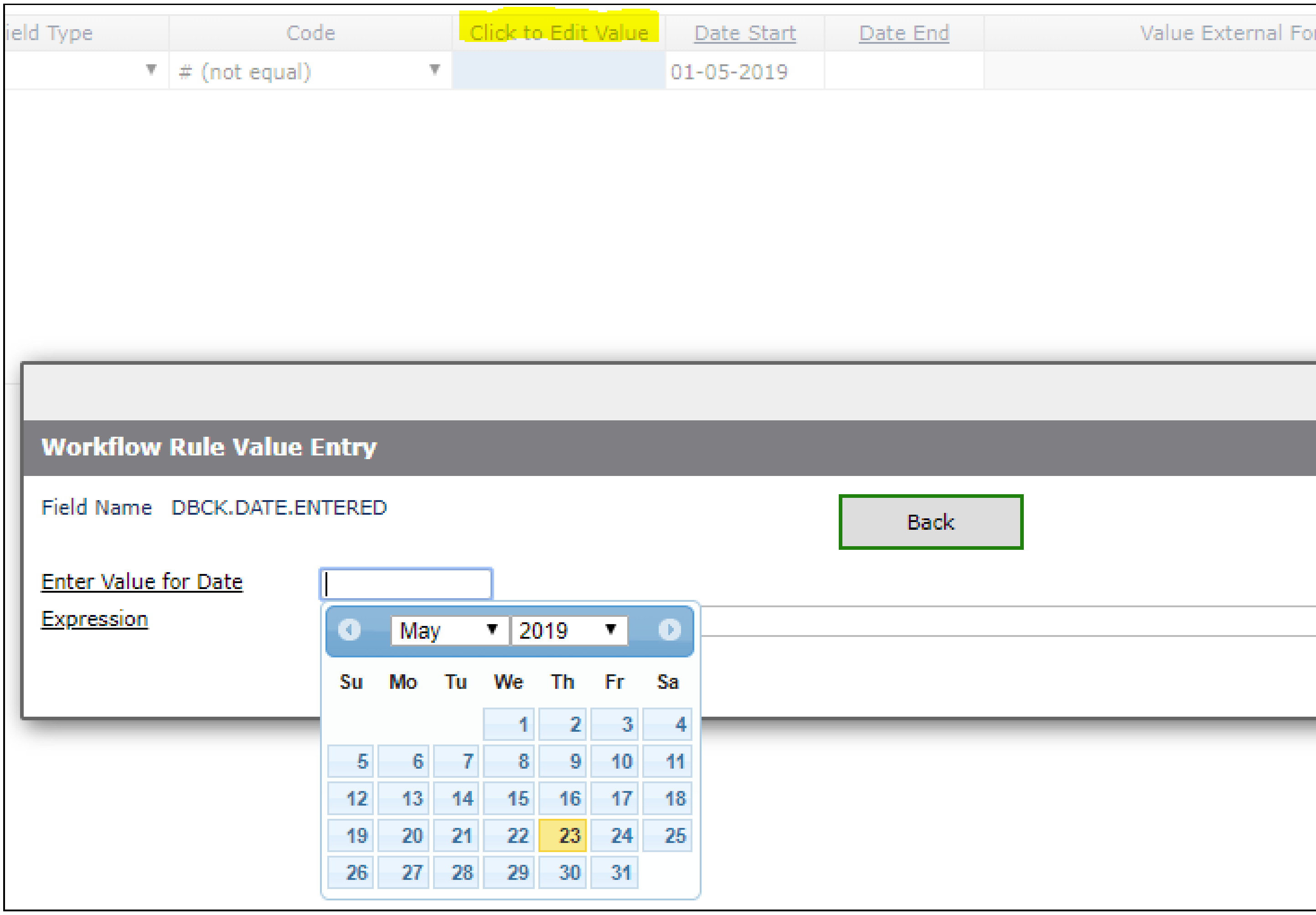
*Click to Edit Value*

Click the highlighted cell to open the form in which the rule value is entered.
If the field type is *Date* then the popup calendar is available to enter the required date.

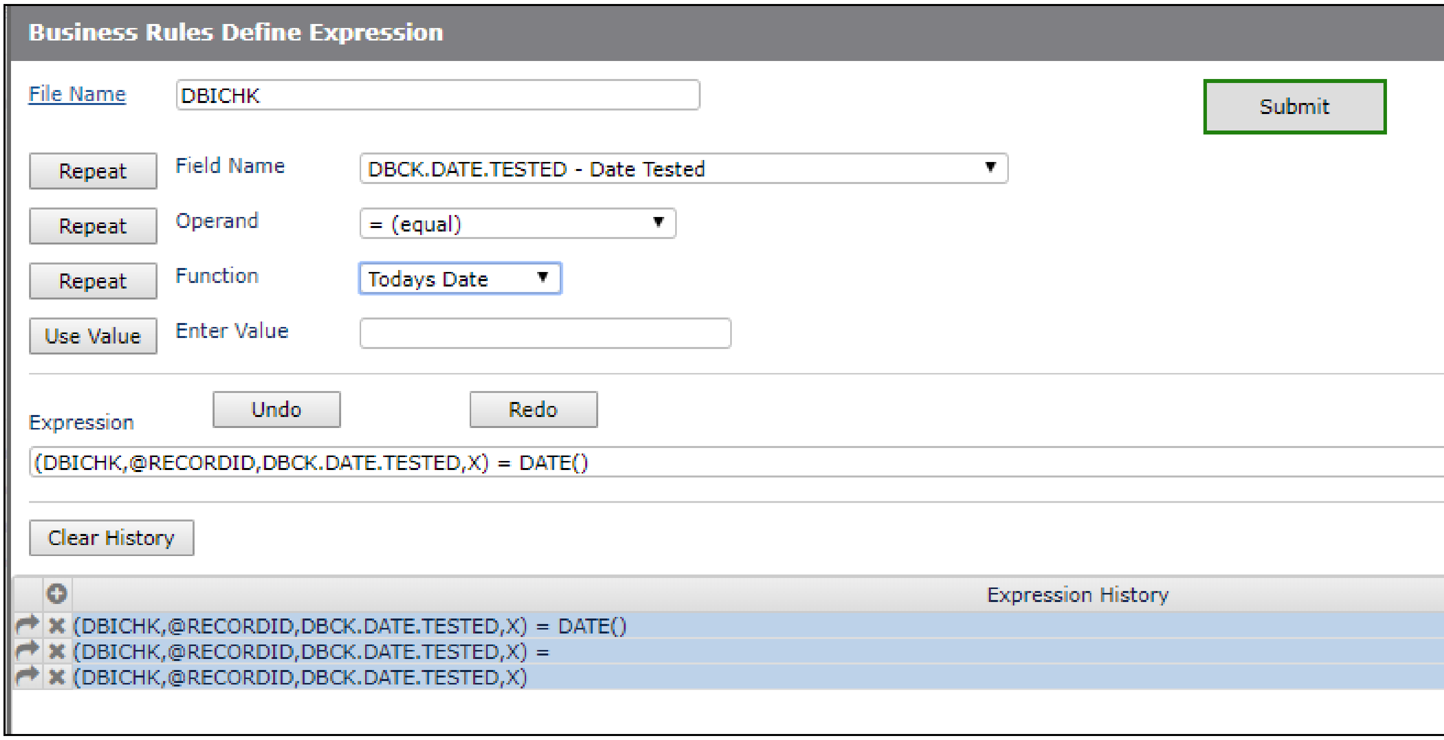
In the example shown here the rule is to evaluate if the field GCL.SECT21.3A.YN on a record in the GCAPPLICATION file has a value of "Y". If it does then the rule is passed. If not the rule fails and the transaction will remain at this step in the workflow process. The transaction moves to the next step in the workflow only when this rule is passed.



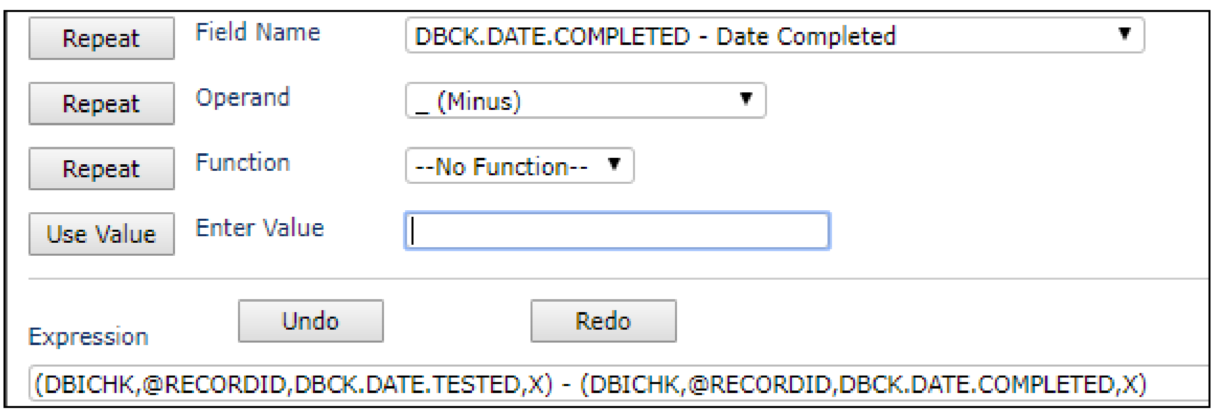

As another example, this shows how to set up a rule that checks whether a date field on a transaction is equal to a given date, using the pop up calendar to select the date.




*Expression* If the rule value is to be derived using an expression then click this link. *Expression* gives the developer the opportunity to define more complex expressions that may be required in order to define the workflow rule. The example below shows an expression to evaluate the result of comparing DBCK.DATE.TESTED (a field from the database record) to Todays Date. The result will be a Boolean 1 if it matches Todays Date or 0 for any other date.




The next example shows an expression to determine the number of days between the date tested and the date completed.




*Date Start* The rule will be active for the period between and including the Date Start and Date End.

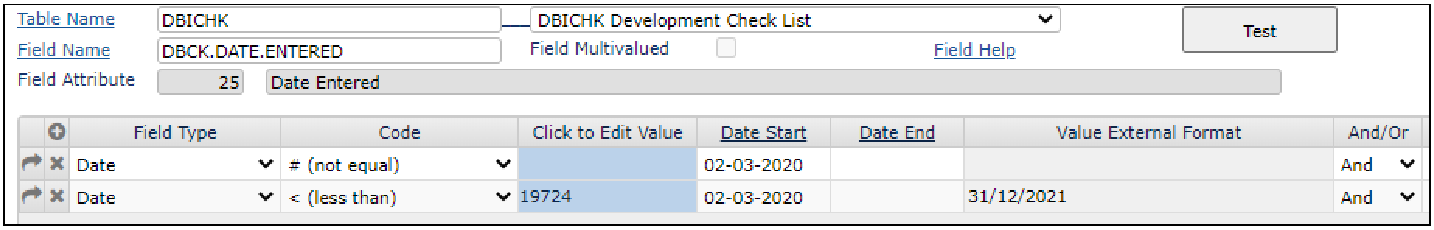
*Date End* The rule will be active for the period between and including the Date Start and Date End.

Rules can be flagged to start and end on selected dates. This permits a rule to be entered and invoked as part of a workflow process before it is due to take effect. Equally a rule can be end dated such that it is disabled even though it remains as part of a workflow process.

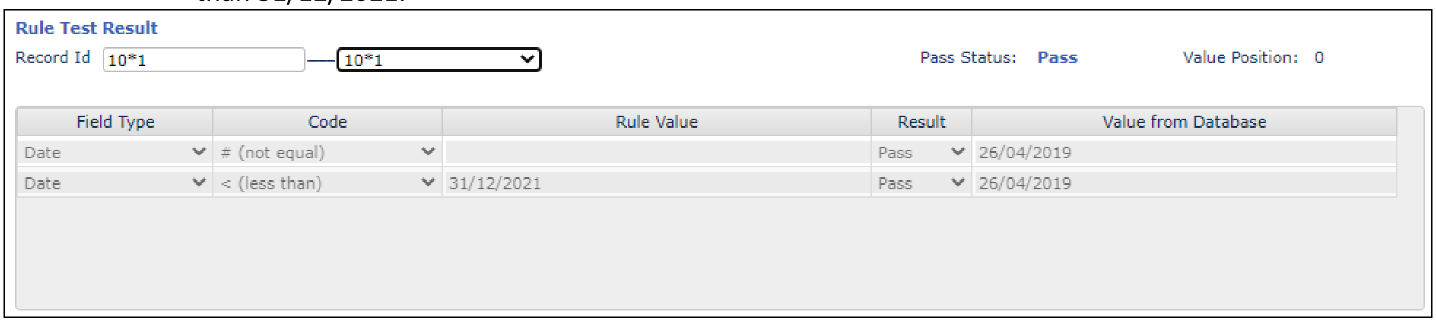
*Value External Format*

This cell displays the rule value in external format.

*And/Or* Multiple rule lines can be concatenated using either *Or* or *And* in order to allow multi-part rules to be created. In the example shown below the rule defines that the field DBCK.DATE.ENTERED must be not null and less than 31/12/2021.




Clicking the Test button and selecting a record from the file permits the rule to be tested. In this case the rule is passed since the date entered is 26/04/2019 which is non-null and less than 31/12/2021.




*Tolerance*

*Tolerance Amount*

Tolerance allows the rule to be evaluated and to pass provided the value is within a defined tolerance. Choose the tolerance as either "+ or -", "+", or "-". Selecting "+" and a tolerance amount of 5 would allow a rule to pass if the rule evaluated to be equal to, or up to 5 greater than, the value of the field in the database.

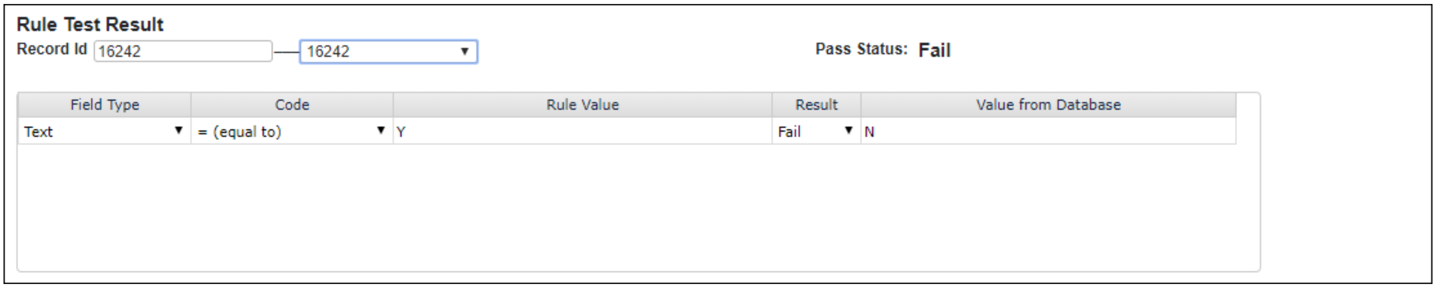
*Test* Click the *Test* button to test the currently displayed rule. The *Test* button changes to *Close Test*. This opens a section that allows you to enter any *Record Id* from the rule file. You can either select a sample Id from the dropdown or enter any Id of an existing record that you choose.

*Record Id* Enter the key or id of a record that exists on the table (file) to which this rule applies. The rule will be applied to this record by extracting the field value from the record and comparing it to the rule value.

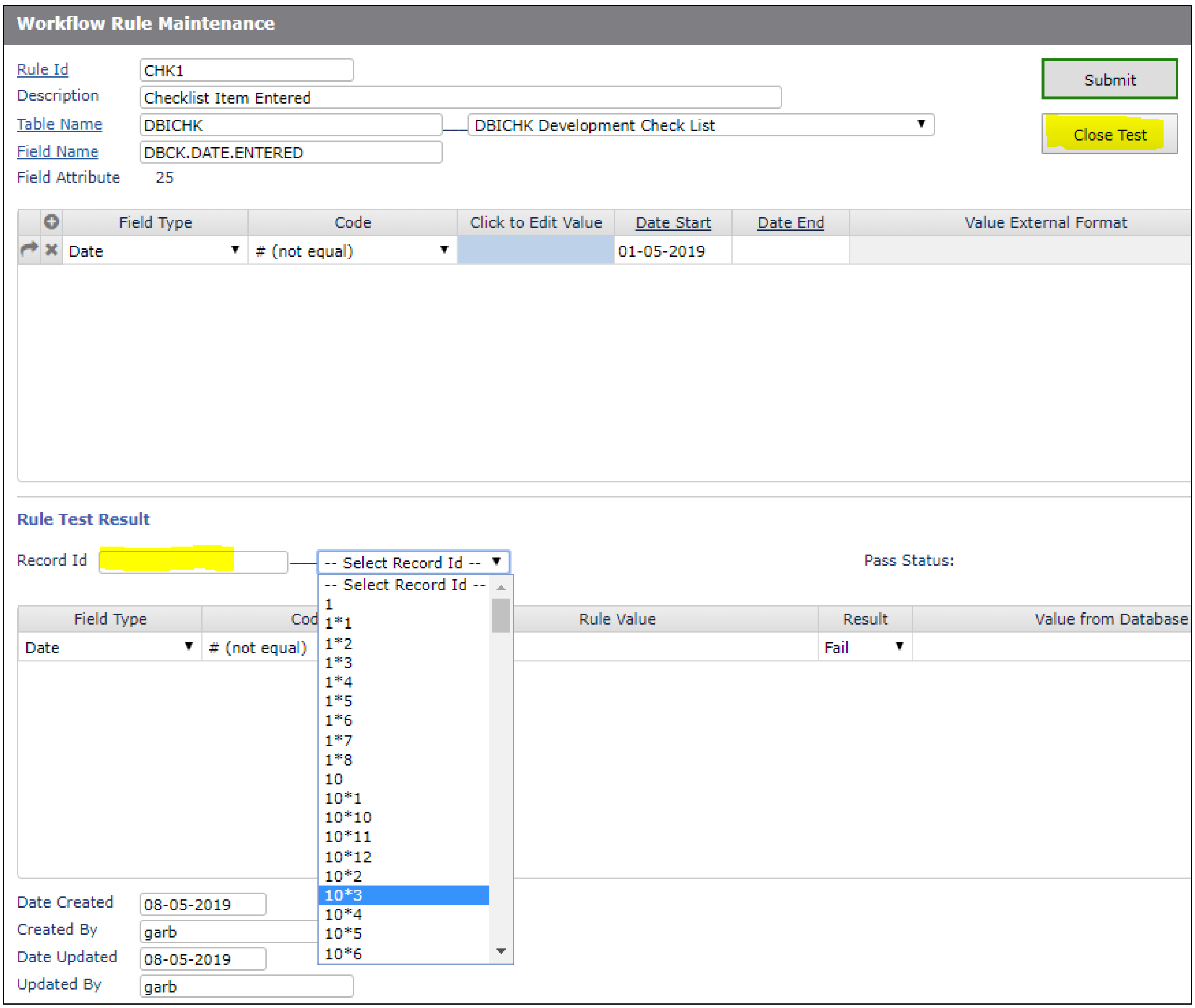
*Select Record Id*

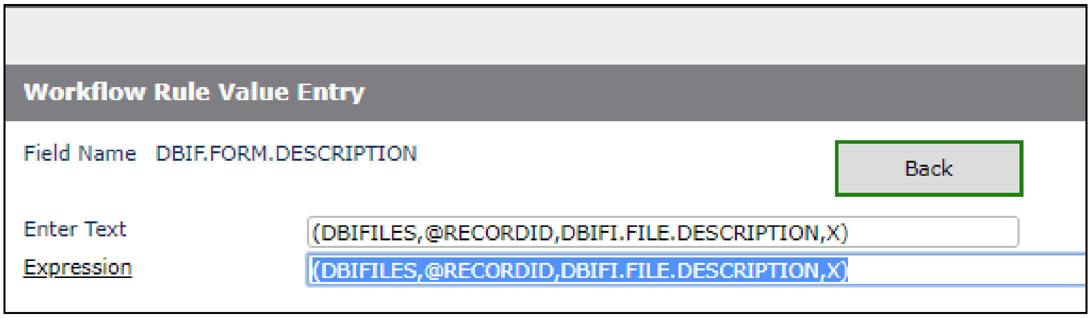
Select the key or id from the sample list of records from the table (file) to which this rule applies. The rule will be applied to this record by extracting the field value from the record and comparing it to the rule value. If a required key is not in the sample then enter the key directly in the *Record Id* field.

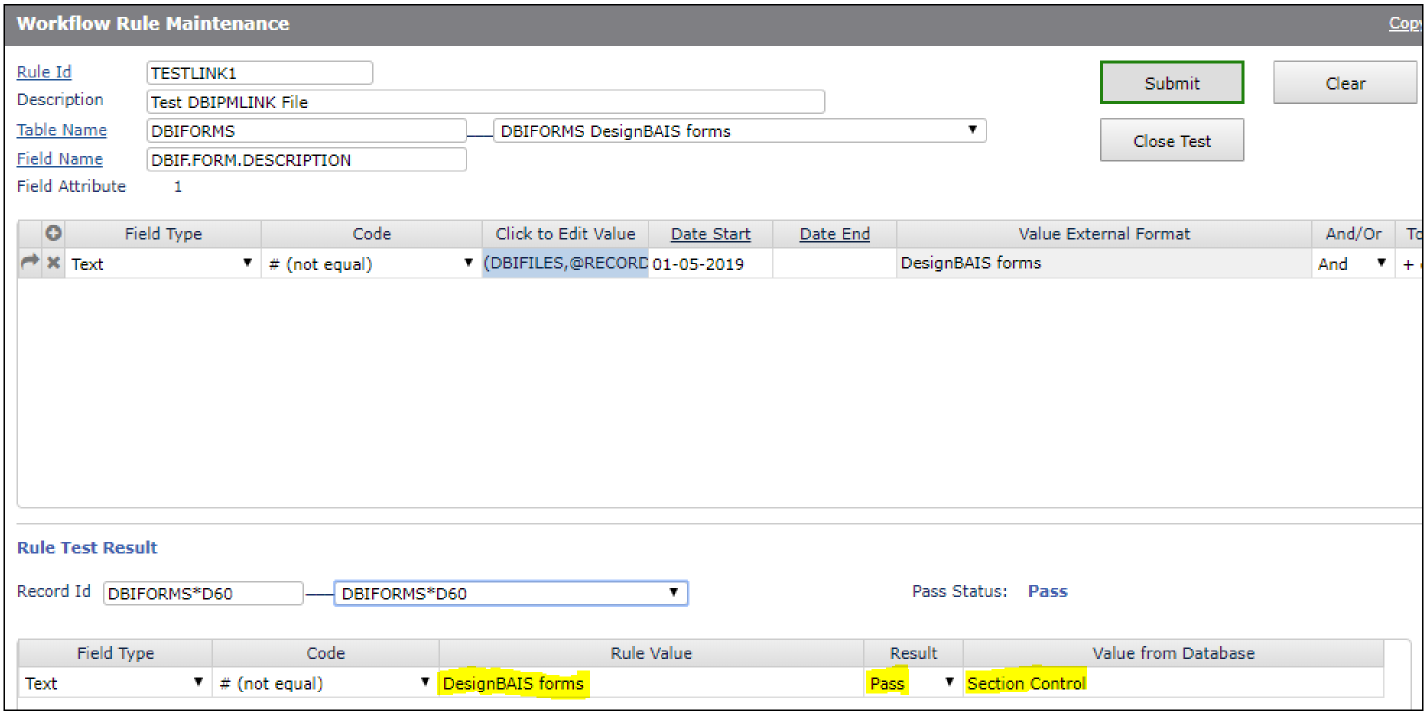
In the first example below the record with a key of 16242 is read and the value in the field GCL.SECT21.3A.YN is checked to see if it contains “Y”. It contains “N” so the rule fails.




This example shows the dropdown list for *Record Id* which contains a sample of record keys from the file.






*Rule Value* The value obtained by evaluating the workflow rule. In the above example the rule uses the table linking function to allow a rule on the DBIFORMS table to access a field value on the DBIFILES table. This rule is for example purposes only obviously.

The rule states: “Return a Boolean value of 1 (Pass) or 0 (Fail) by checking if the Form Description field on DBIFORMS is not equal to the File Description field on DBIFILES.”

*Pass* Displays the result of the rule evaluation, either Pass or Fail.

*Value from Database*

The field value from the database record. This value is compared to the Rule Value in order to assess the result of the rule, either pass or fail. In our example above the *Rule Value* contains the Form Description from the DBIFORMS*D60 record on DBIFORMS and the *Value from Database* contains the File Description from the DBIFORMS record on the DBIFILES table.

**Buttons**

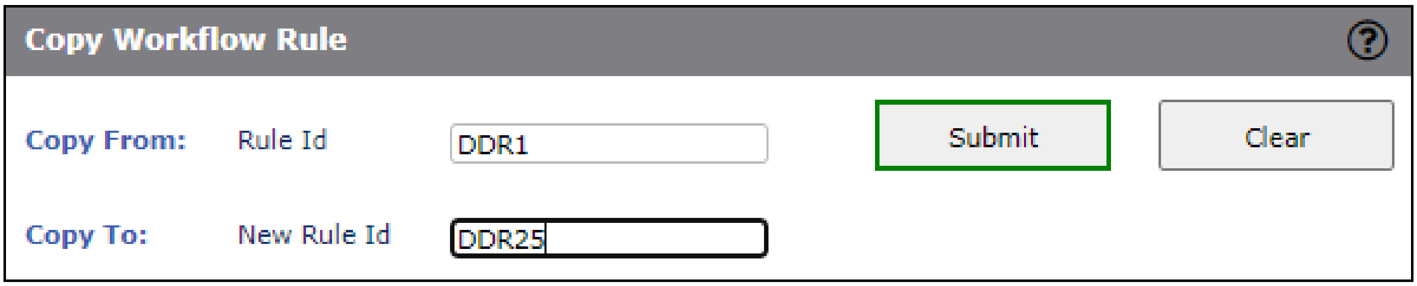
*Submit* Click to save the details currently displayed on the Workflow Step Maintenance form.

*Delete* Click to delete this step.

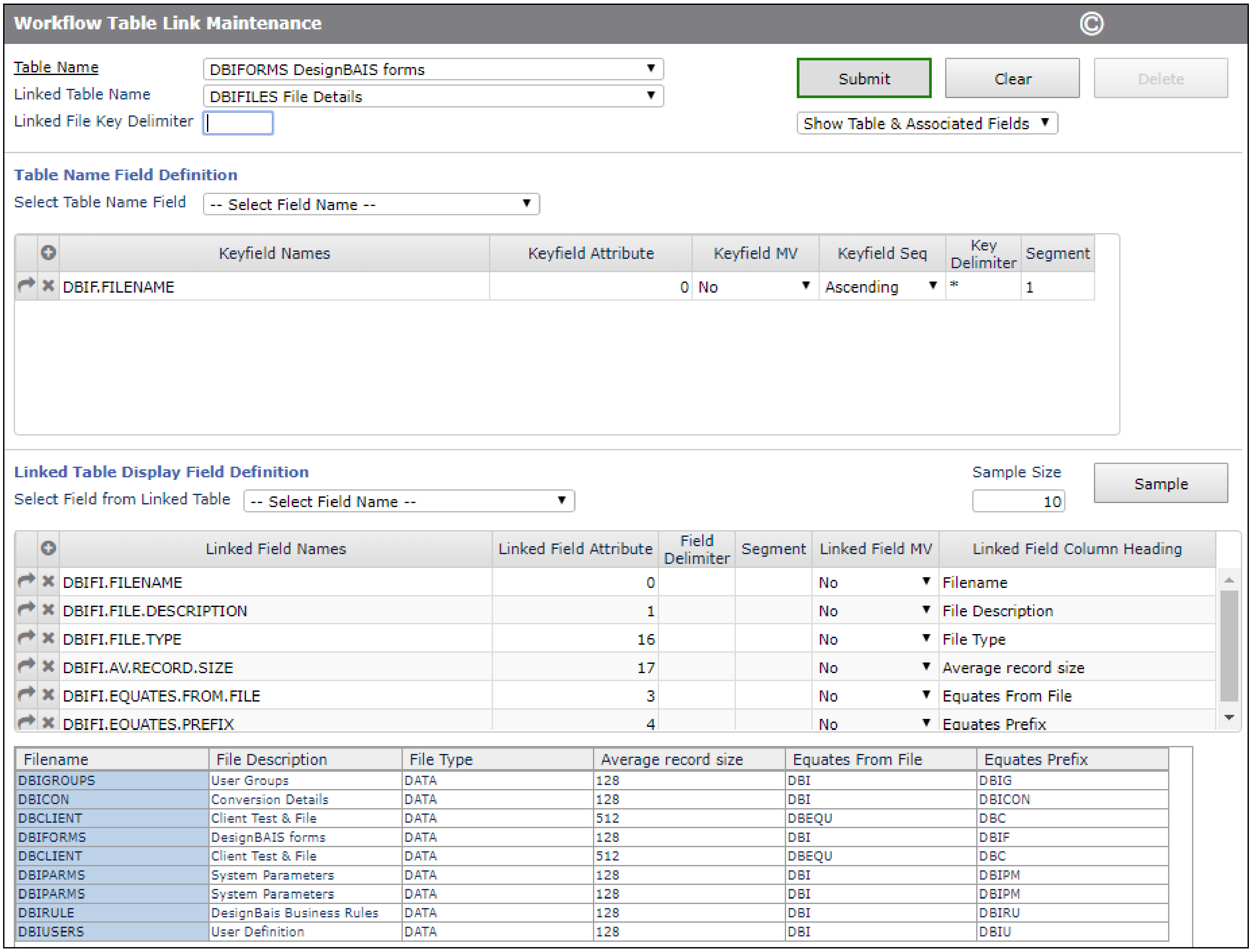
*Clear* Click to clear the currently displayed details from the form.

*Test*
*Close Test* Opens and closes the *Rule Test Result* section of the form where the currently displayed rule can be verified against selected records from the database table.

*Copy Rule* This button in the header bar allows an existing rule definition to be copied to a new rule id.



## Workflow Table Link Maintenance




When records on a table contain the record id of records on another table then it is possible to link these tables using the Workflow Table Link function.

In the example shown above the DBIFILES table (the *Linked Table*) can be linked to the DBIFORMS table because the DBIFORMS record id contains the record id of the DBIFILES table.

The field property DBIF.FILENAME of the DBIFORMS table is the key, or record id, of the DBIFILES table.

**Fields**

*Table Name* The name of the table from which a link is to be defined.

*Linked Table Name*
The name of the table to which a link is to be established.

*Linked File Key Delimiter*
The character that is used in defining a key to the Linked Table. For example the key to an Application table may be defined as the combination of the Member Id and the Year of the application, joined by an asterisk. In this case then the asterisk is the Linked File Key Delimiter and the key may look like "MemberId*Year".

*Show Table & Linked Fields*
This dropdown selection list controls which sections of the form are displayed. The other options allow display or collapse of the Audit fields, the Table fields, or the Linked fields.

***Table Name Field Definition***

*Select Table Name Field*
This dropdown selection displays all the fields on the table entered in the *Table Name* field. Select the field(s) that is/are, or contain(s), the record id of the table to be linked – the *Linked Table Name*.

*Keyfield Names* A list of fields, in sequence, which define the link from the Table to the Linked Table. If a *Linked File Key Delimiter* is present then each field in this list will be separated by the delimiter character. Example: if the primary key of the Linked Table is MEMBER and YEAR separated by an asterisk then the Keyfield Names will list these 2 fields in that order - MEMBER in row 1, YEAR in row 2. The Delimiter field will contain the asterisk. In this example, for Member 54123 and Year 2015, the key to the Linked Table would be 54123*2015.

*Keyfield Attribute*
This field displays the attribute of each Keyfield Name.

*Keyfield MV* Displays whether the field in *Keyfield Names* on this row is a multi-valued field.

*Keyfield Seq* Applies only if the *Keyfield* MV on this row is *Yes*. The sequence of the multivalues in the field in Keyfield Names on this row, either ascending or descending. This setting determines whether the first or last multivalue to be selected.

*Key Delimiter* The delimiter used in the Table field that contains the key to the linked file.

*Segment* The segment to use as defined by the key delimiter. For example, to extract the warehouse id from a field defined as LOC*WHS*PCODE, you would set the Key Delimiter to * and the Segment to a value of 2.

***Linked Table Display Field Definition***

The entry of values in this section of the form is optional. The Workflow Table Link feature will function regardless of these fields. They are provided only so that the developer can verify that the link cab successfully access various fields on the Linked Table.

*Select Table Name Field*
This dropdown selection displays all the fields on the table entered in the *Linked Table Name* field. Select the field(s) that are to be displayed in the on form report below.

*Sample Size* By default 10 records in the *Linked Table* will be displayed

*Linked Field Names*
Selecting fields from the dropdown above will load them into this column. Alternatively you can enter the field names required.

*Linked Field Attribute*
The attribute number will display in this column.

*Field Delimiter*
Enter the delimiter character if required that allows the desired segment, defined in the next column, of the linked field to be displayed.

*Segment* The segment of the linked field, based on the field delimiter entered in the preceeding column.

*Linked Field MV*
This will be set to *Yes* if the linked field has the Multivalue flag set in the Designbais Field Properties.

*Linked Field Column Heading*
The screen label of the linked field, obtained from the Field Properties file. It is used as the column heading for the field in the on form report displayed below this grid.

**Buttons**

*Submit* Click to save the details currently displayed on the Workflow Step Maintenance form.

*Delete* Click to delete this step.

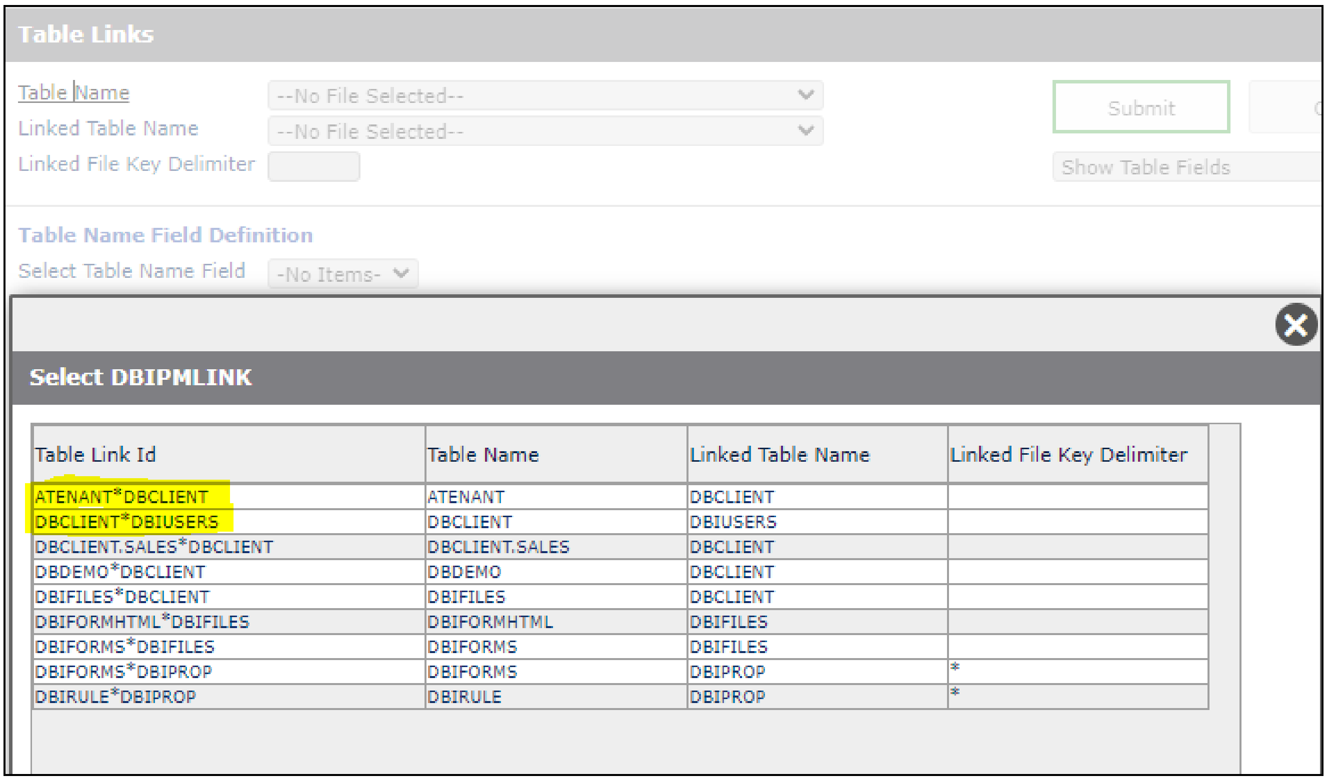
*Clear* Click to clear the currently displayed details from the form.

*Sample* Click to display the on form report of linked fields. Only required if the *Sample Size* is changed.

## Workflow Multi-Level Table Linking

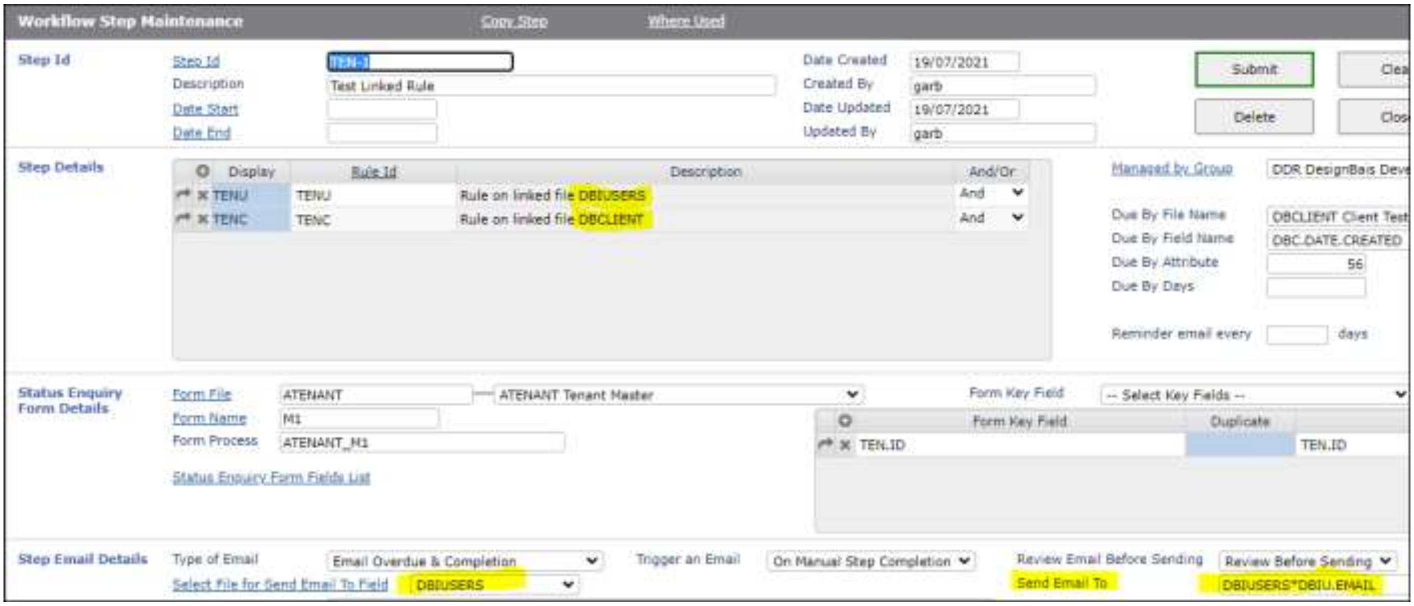
It is possible to define a workflow rule based on a field in a file that is not directly linked to the table (file) containing the transactions monitored by the workflow process (the workflow process file).

This requires the linked file to be linked to a file that *is* directly linked to the workflow process file. In the example below the ATENANT file is directly linked to the DBCLIENT file, which is directly linked to the DBIUSERS file. It is therefore possible to define a rule for a field on the DBIUSERS file as part of a workflow process for the ATENANT file.

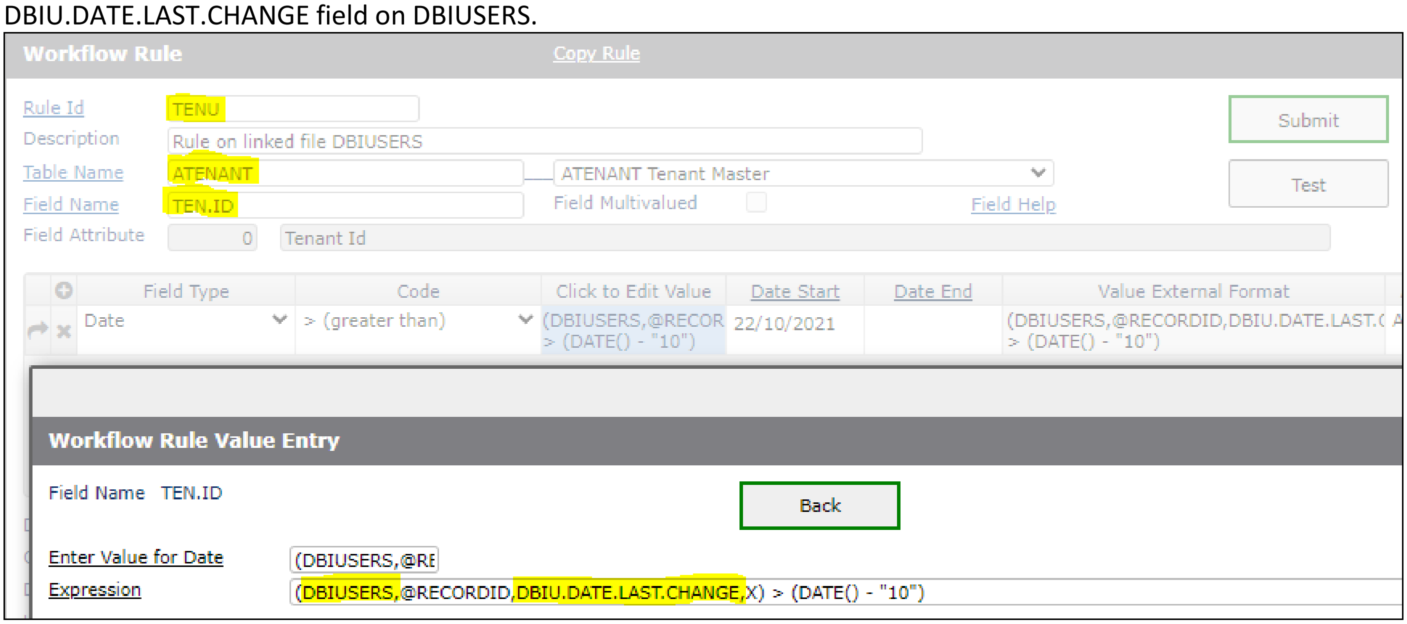



| Table Link Id | Table Name | Linked Table Name | Linked File Key Delimiter |
|---|---|---|---|
| ATENANT*DBCLIENT | ATENANT | DBCLIENT | |
| DBCLIENT*DBIUSERS | DBCLIENT | DBIUSERS | |
| DBCLIENT.SALES*DBCLIENT | DBCLIENT.SALES | DBCLIENT | |
| DBDEMO*DBCLIENT | DBDEMO | DBCLIENT | |
| DBIFILES*DBCLIENT | DBIFILES | DBCLIENT | |
| DBIFORMHTML*DBIFILES | DBIFORMHTML | DBIFILES | |
| DBIFORMS*DBIFILES | DBIFORMS | DBIFILES | |
| DBIFORMS*DBIPROP | DBIFORMS | DBIPROP | * |
| DBIRULE*DBIPROP | DBIRULE | DBIPROP | * |

In the following example two rules are defined on a workflow step for a workflow process for the ATENANT file.



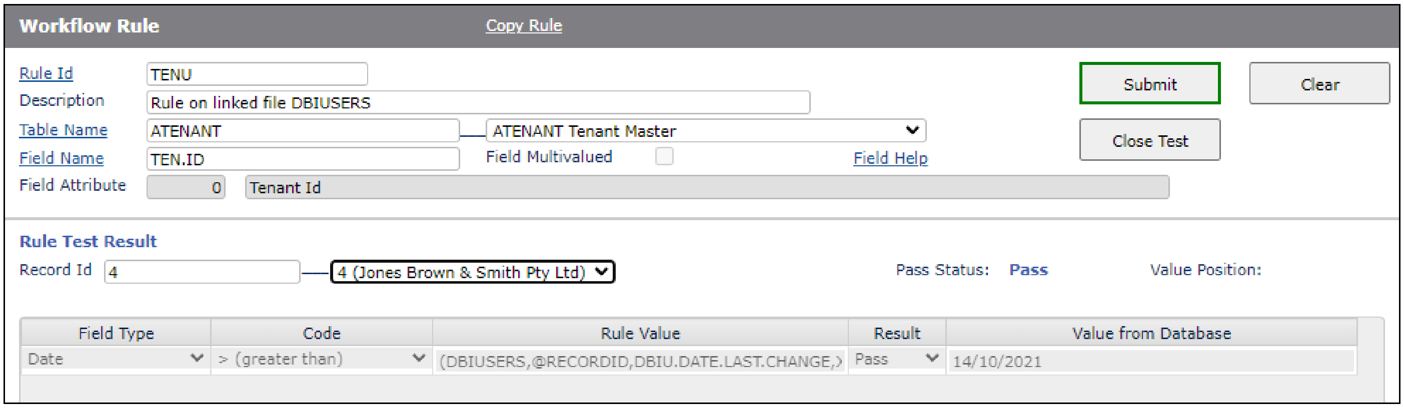

The first rule TENU is rooted to the ATENANT field TEN.ID but it uses an expression to access the DBIU.DATE.LAST.CHANGE field on DBIUSERS.




This rule is true if the DBIUSERS record was changed within the last 10 days. This rule relies on the link between DBCLIENT and DBIUSERS since there is no direct link between ATENANT and DBIUSERS.

Note that the ATENANT field TEN.ID does not play a part in the evaluation of the rule. It acts merely as a handle to tie the rule to ATENANT.

The rule can be tested using the *Test* button and selecting a record from the ATENANT file using the dropdown selection list.




If record id 4 on the ATENANT file is selected then the *Pass Status* displays as *Pass* indicating the expression (shown in the *Rule Value* column) evaluates as true.

The linkage is shown here:

ATENANT file record id 4:

| | |
|---|---|
| 1 | CT ATENANT 4 |
| 2 | 4 |
| 3 | 0001 Jones Brown & Smith Pty Ltd |
| 4 | 0002 Fred |
| 5 | 0003 Smith |
| 6 | 0004 |
| 7 | 0005 2 |

Attribute 5 holds the key to the associated record on the DBCLIENT file. In this example the DBCLIENT record id is 2. Attribute 18 on DBCLIENT holds the key to the associated record on the DBIUSERS file which, in this example, is *garbtest*.

| | | |
|---|---|---|
| 42 | 618 | 2 |
| 43 | 619 | 0001 Client 2 Name |
| 44 | 620 | 0002 111 |
| 45 | 621 | 0003 Ryde |
| 46 | 622 | 0004 |
| 47 | 623 | 0005 |
| 48 | 624 | 0006 Australia |
| 49 | 625 | 0007 QQQQQ WWWW RRDDF GGHHKF FFKDCM FFLFLFLFL CMCCMMCMCMCCM FLFLFFLLF CMCMCCMCMCMCMCMCMCCM CMCCM CMCMCCM CMCMMCCMCMCM |
| 50 | 626 | 0008 |
| 51 | 627 | 0009 |
| 52 | 628 | 0010 bob2@bais.com.au |
| 53 | 629 | 0011 Fred Flintoff |
| 54 | 630 | 0012 |
| 55 | 631 | 0013 B |
| 56 | 632 | 0014 |
| 57 | 633 | 0015 |
| 58 | 634 | 0016 5 |
| 59 | 635 | 0017 |
| 60 | 636 | 0018 **garbtest** |
| 61 | 637 | 0019 |
| 62 | 638 | 0020 |
| 63 | 639 | 0021 |

| | |
|---|---|
| 2 | LIST DBIUSERS "garbtest" DBIU.DATE.LAST.CHANGE 05:25:02pm 22 Oct 2021 PAGE 1 |
| 3 | DBIUSERS.. Date of Last Change |
| 4 | garbtest 14/10/2021 |

The date of the last change is 14/10/2021. The internal value of this date is 19646.

The expression:

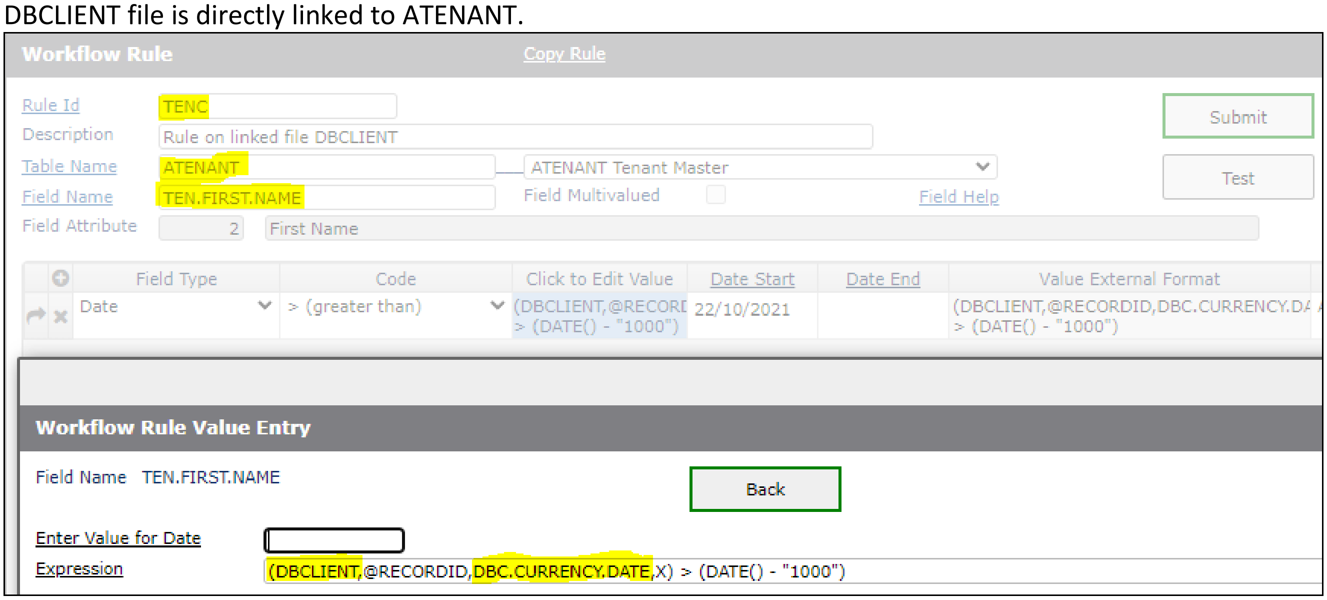
> (DBIUSERS,@RECORDID,DBIU.DATE.LAST.CHANGE,X) > (DATE() - "10")

evaluates to (assuming the current date 22/10/2021 internal format 19654):

> 19646 > (19654 – 10)
> 19646 > 19644

This is true, so the rule is passed.

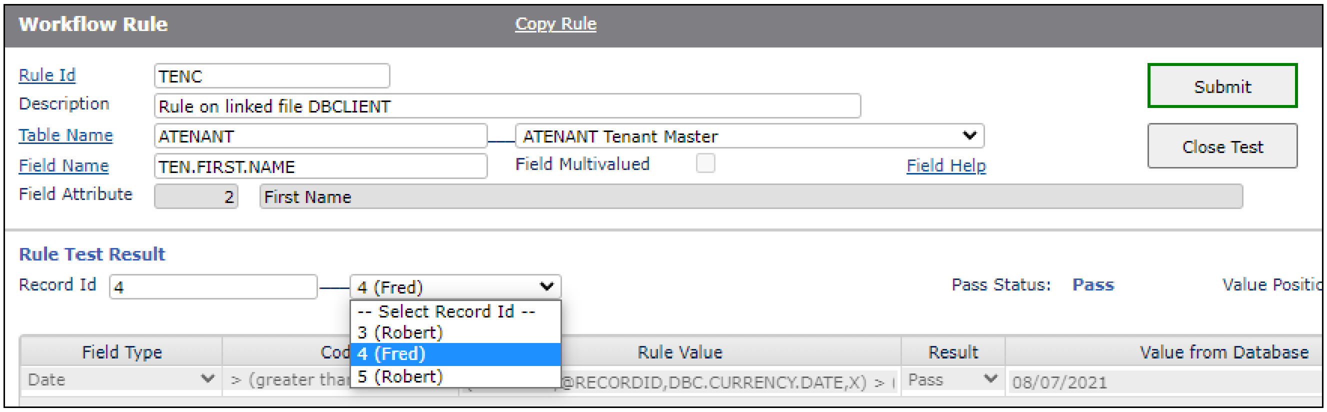
The second rule is similar but it uses an expression to access the DBC.CURRENCY.DATE field on DBCLIENT. The DBCLIENT file is directly linked to ATENANT.




Once again the ATENANT field TEN.FIRST.NAME does not play a part in the evaluation of the rule. It acts merely as a handle to tie the rule to ATENANT.

The rule can be tested. As before select a record on ATENANT from the dropdown select list. This dropdown list reflects the field on which the rule is based by displaying a description in the dropdown that is derived from the field TEN.FIRST.NAME.

As shown below the rule is passed since the currency date on DBCLIENT is 08/07/2021 which is internal value 19548.




The expression:

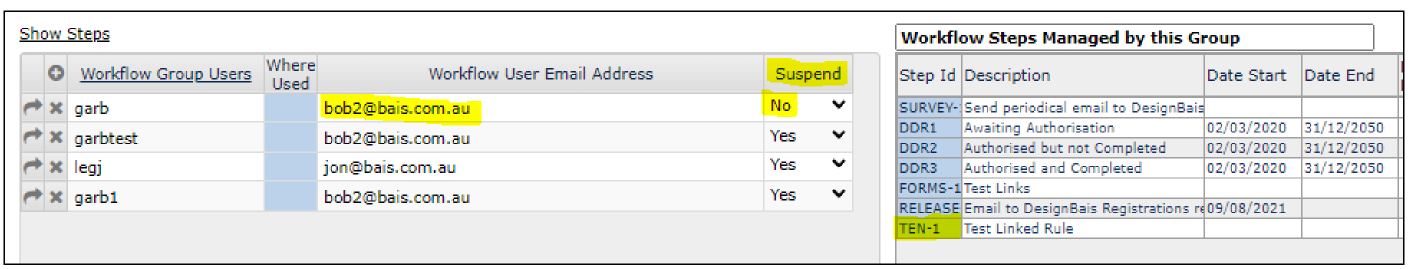
(DBCLIENT,@RECORDID,DBC.CURRENCY.DATE,X) > (DATE() - "1000")

evaluates to (assuming the current date 22/10/2021 internal format 19654):

19548 > (19654 – 1000)
19548 > 18654

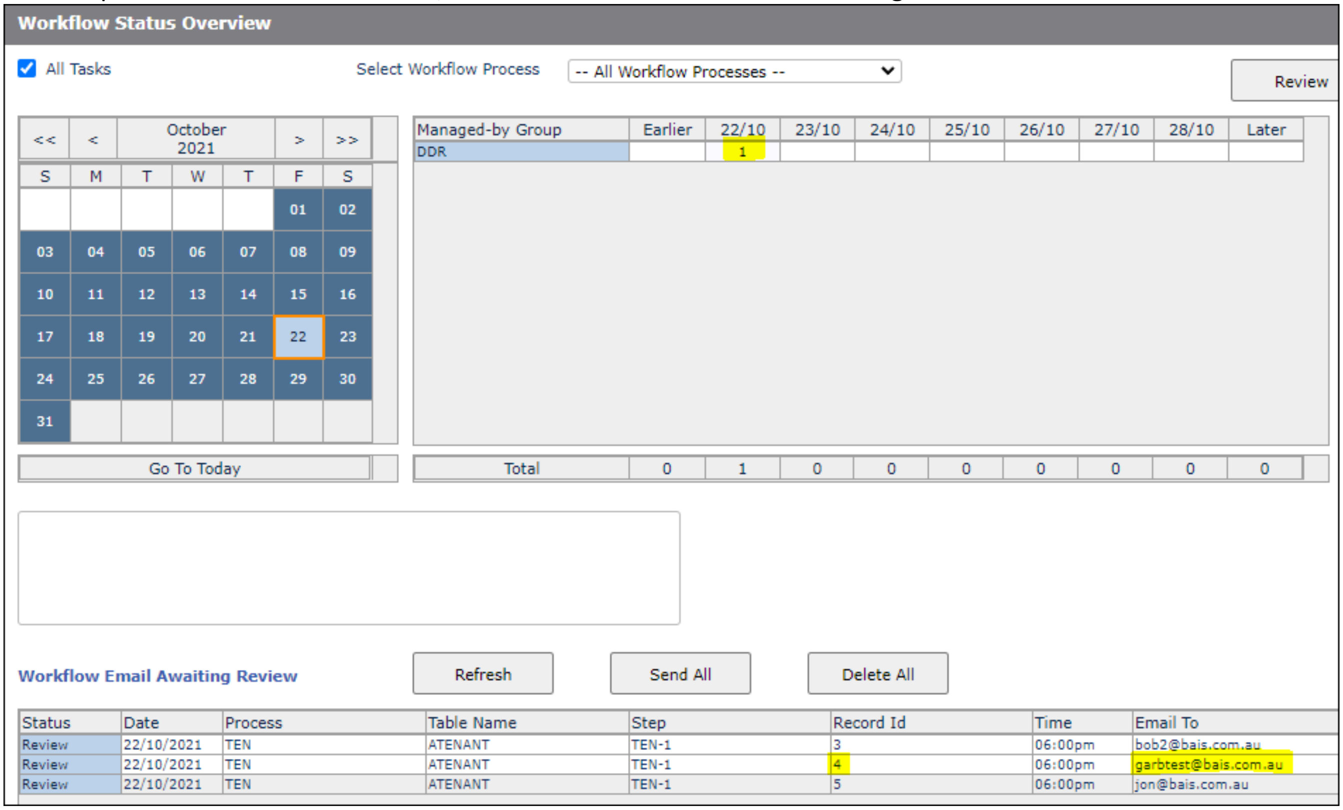
This is true, so the rule is passed.

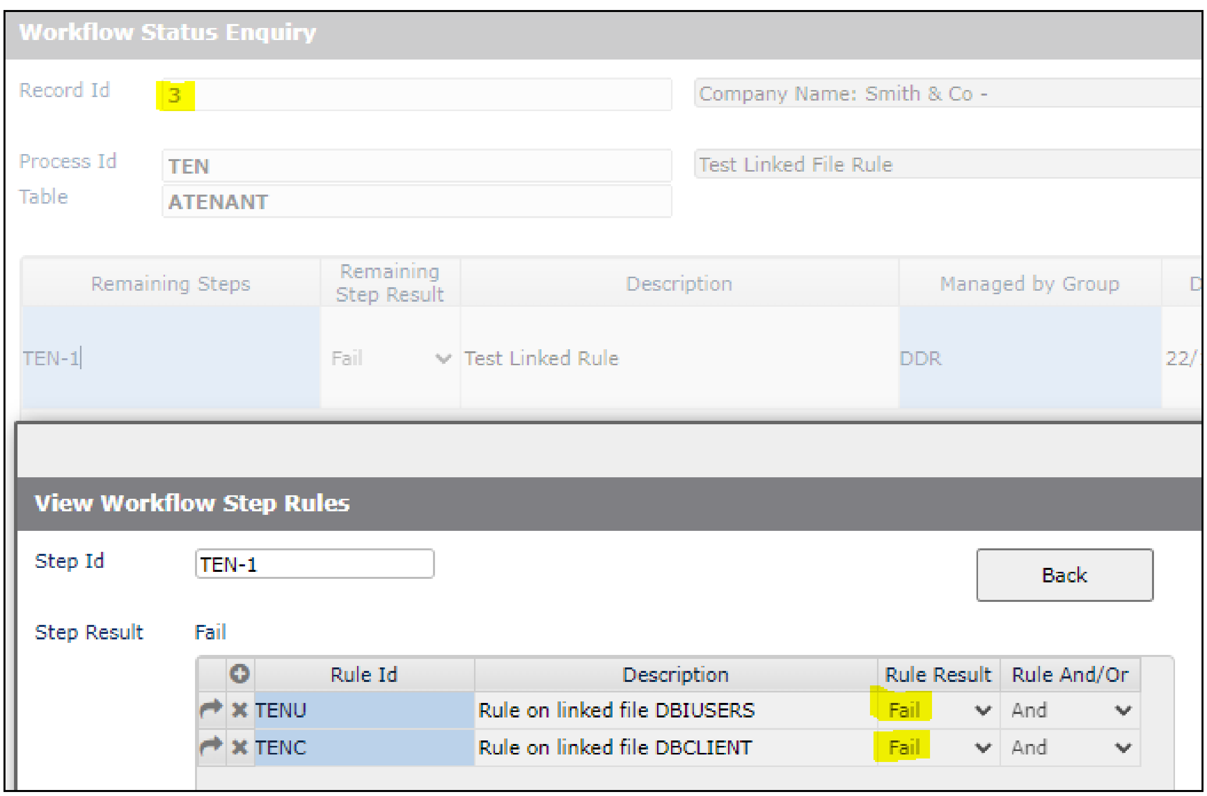
As shown above in the first snip in this section the workflow is set up to send an email when the step is overdue and when it is completed. The email will be sent to any members of the *Managed By* group that are not flagged as *Suspend*.



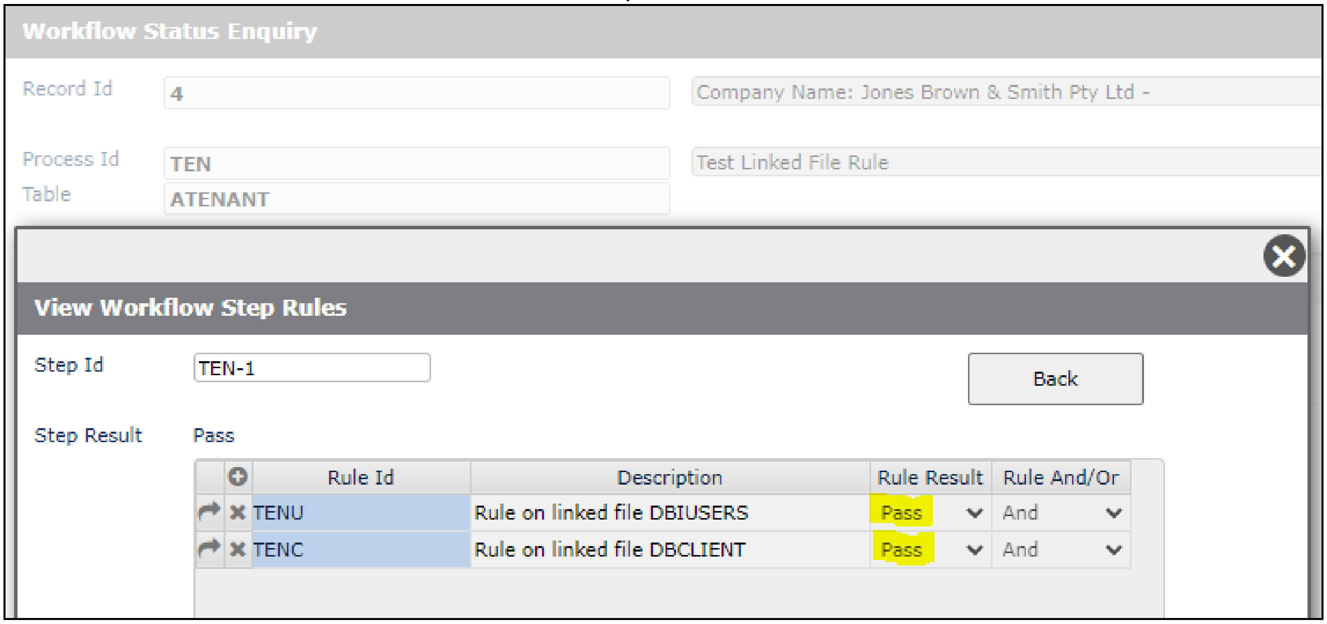

In addition the email can be sent to an email address that is found on any field on the workflow process file, or on any linked file. In this example therefore the email address can be on ATENANT, DBCLIENT or DBIUSERS. The DBIU.EMAIL field on DBIUSERS has been selected.

When the workflow is processed by the workflow phantom the three records on ATENANT are selected. Two records pass both of the above rules, while one record remains outstanding as shown below.



Record 3 above fails both rules. Record 4 below has passed both rules.




The three emails are generated based on the setting *Email on Overdue and Completion*.

## Workflow Rules using Expressions

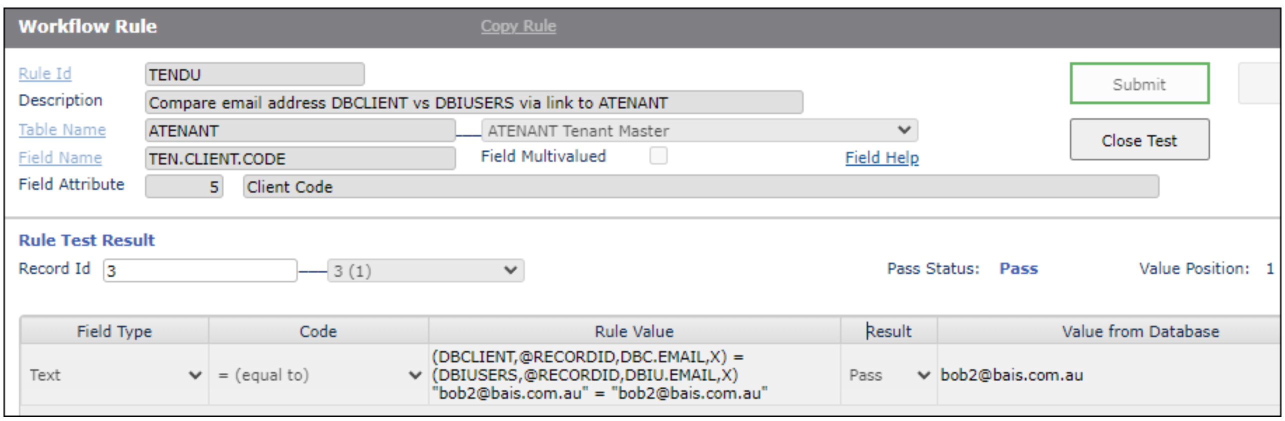
The following examples are provided to demonstrate how expressions can be used in workflow rule definitions.

In the first example note that the rule is linked to the ATENANT file using the TEN.CLIENT.CODE field property but this field does not enter into the rule evaluation. The rule result is entirely controlled by the expression which involves references to field properties on files linked to the ATENANT file. In the case of the DBCLIENT file this is a direct link. In the case of DBIUSERS this file is not directly linked to ATENANT, the file containing the transactions monitored by the workflow process (the workflow process file), but is directly linked to DBCLIENT.

This demonstrates therefore how a rule can operate when it is linked indirectly to the workflow process file.

This rule is true if the email address on a DBCLIENT record that is linked to a record on ATENANT, matches the email address on the DBIUSERS file record that is linked to this DBCLIENT record. This is shown when the test button is used. The parts of the expression are evaluated and the result is displayed in the *Rule Value* column.

Here, below, Record Id *3* on ATENANT is linked to Record Id *1* on DBCLIENT, which is linked to DBIUSERS Record Id *garb*. These links are not displayed in the explicitly in the Workflow Rule definition form when the *Test* button is clicked. They are derived from the underlying database structure. The rule has a *Pass* status for this record id.

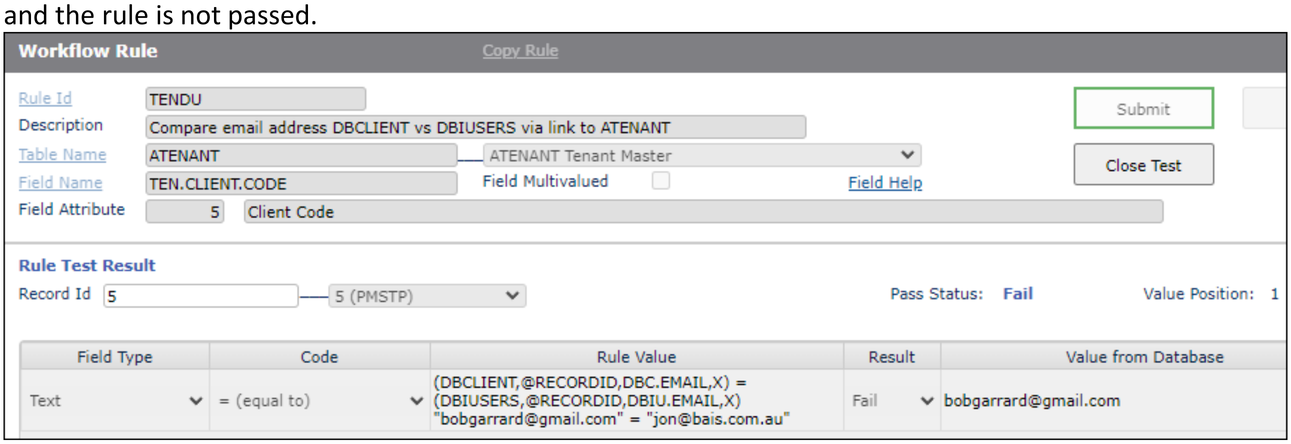

Workflow Rule | Copy Rule

Rule Id: TENDU
Description: Compare email address DBCLIENT vs DBIUSERS via link to ATENANT
Table Name: ATENANT — ATENANT Tenant Master
Field Name: TEN.CLIENT.CODE — Field Multivalued — Field Help
Field Attribute: 5 — Client Code
Submit
Close Test

Rule Test Result
Record Id: 3 — 3 (1)
Pass Status: Pass
Value Position: 1

| Field Type | Code | Rule Value | Result | Value from Database |
|---|---|---|---|---|
| Text | = (equal to) | (DBCLIENT,@RECORDID,DBC.EMAIL,X) = (DBIUSERS,@RECORDID,DBIU.EMAIL,X) "bob2@bais.com.au" = "bob2@bais.com.au" | Pass | bob2@bais.com.au |

Here, Record Id *5* on ATENANT is linked to a different DBIUSERS record which holds a different email address, and the rule is not passed.


Workflow Rule | Copy Rule

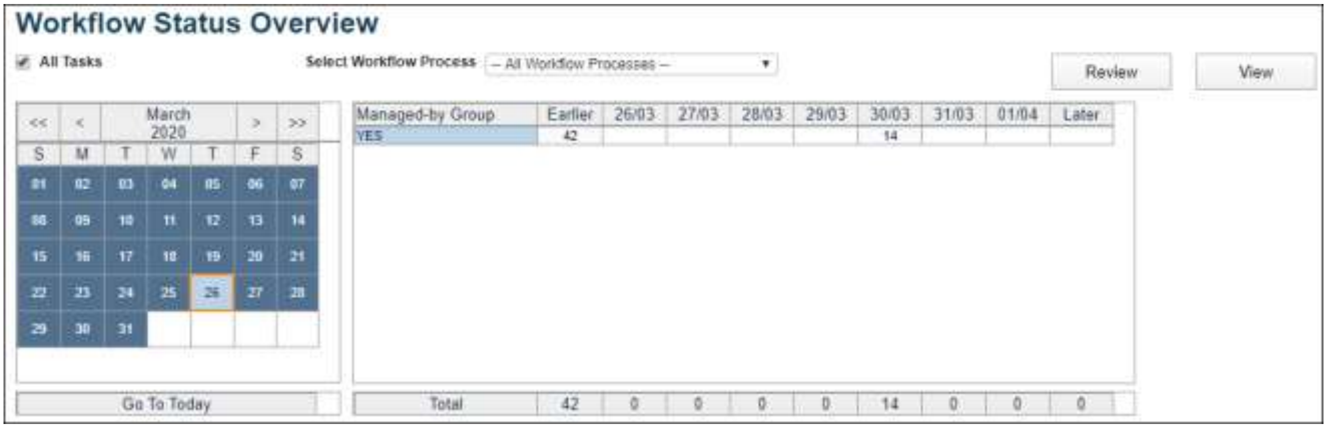
Rule Id: TENDU
Description: Compare email address DBCLIENT vs DBIUSERS via link to ATENANT
Table Name: ATENANT — ATENANT Tenant Master
Field Name: TEN.CLIENT.CODE — Field Multivalued — Field Help
Field Attribute: 5 — Client Code
Submit
Close Test

Rule Test Result
Record Id: 5 — 5 (PMSTP)
Pass Status: Fail
Value Position: 1

| Field Type | Code | Rule Value | Result | Value from Database |
|---|---|---|---|---|
| Text | = (equal to) | (DBCLIENT,@RECORDID,DBC.EMAIL,X) = (DBIUSERS,@RECORDID,DBIU.EMAIL,X) "bobgarrard@gmail.com" = "jon@bais.com.au" | Fail | bobgarrard@gmail.com |

## Workflow Status

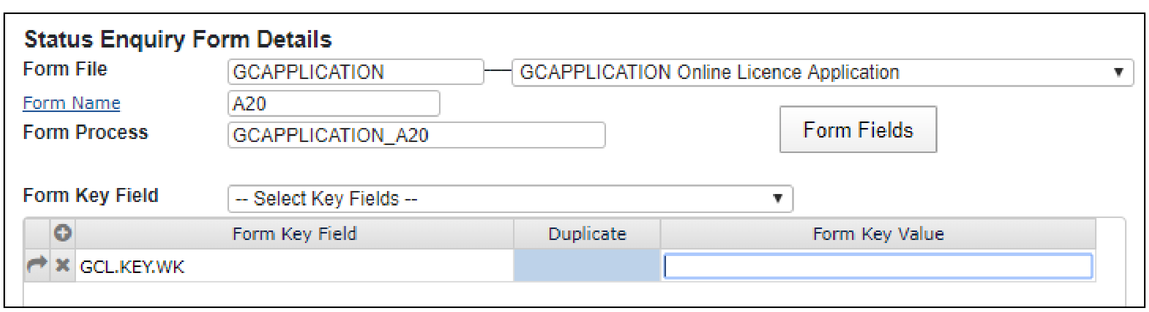
The Workflow Status function provides an overview of outstanding transactions in all, or selected, Workflow Processes.



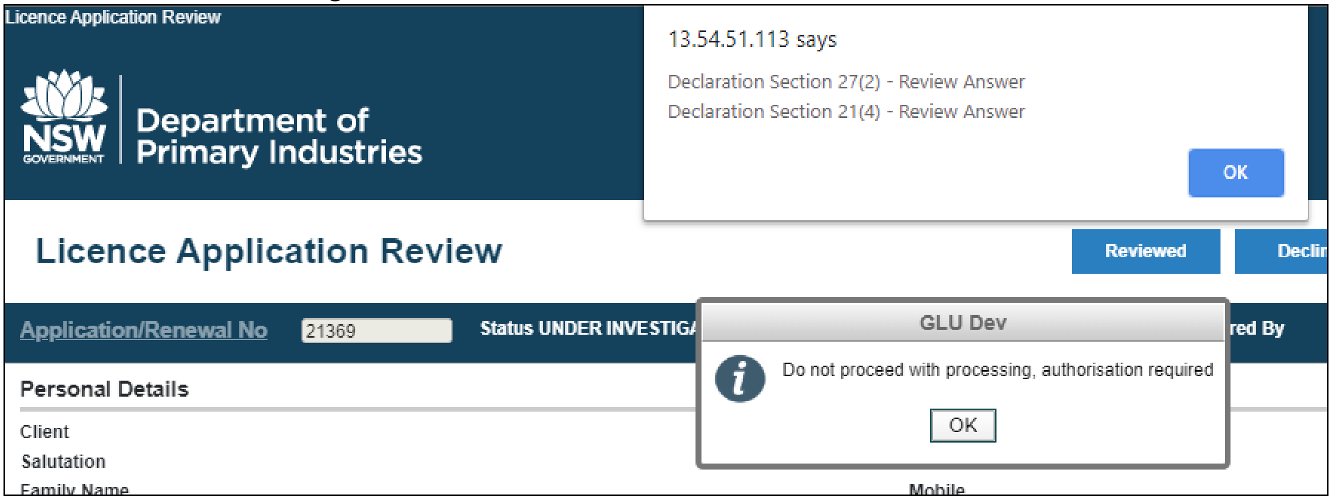

Transactions are displayed by Due-by Date. Clicking on the calendar displays transactions with due-by date falling in the next seven days from the selected date. All transactions with due-by date outside of this 7-day window are grouped in either the *Earlier* or *Later* columns.

Clicking on a cell in the report to the right of the calendar will open a form that displays all the transactions with that due-by date.


*Record Id* Click on a row in this column to access the record shown in the selected row. The form that opens is defined on the workflow process definition record. In this example this form is GCAPPLICATION_A20.



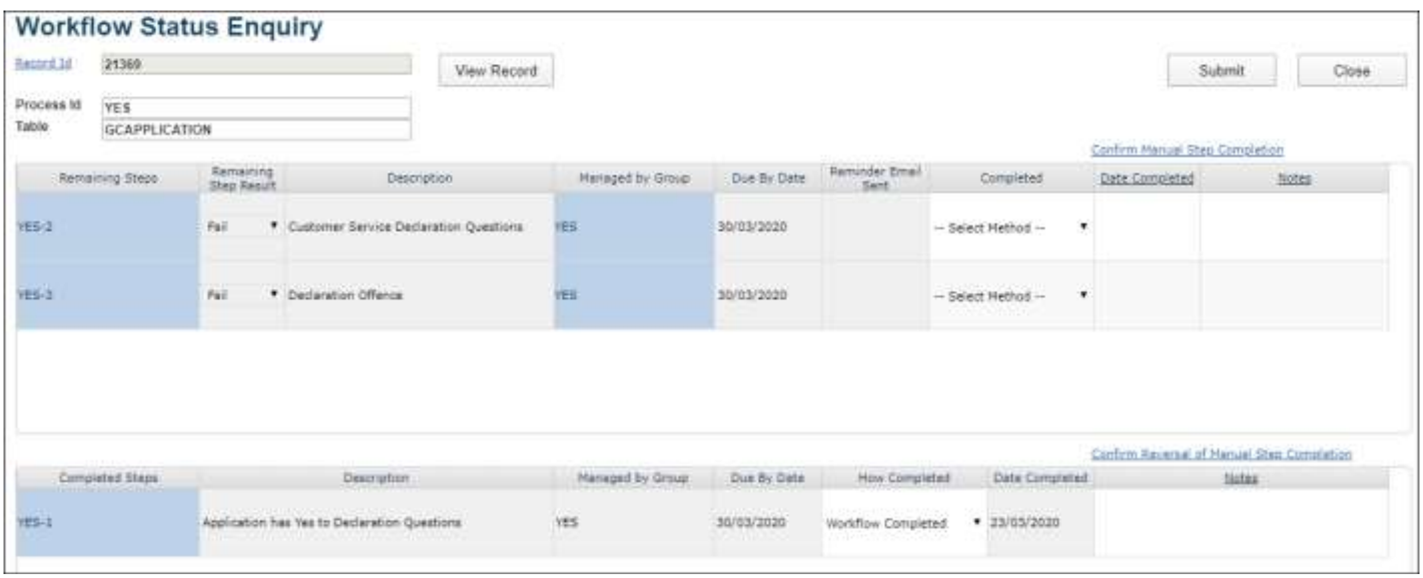
The *Form Key Value* field is blank so the record id of the transaction is passed into the field on the form defined as the key field. In this example, where column 1 row 1 has been clicked, the DBWORK field GCL.KEY.WK is populated with the record id 21369 of the workflow transaction that is being viewed.




The workflow user can maintain the displayed record in the same way as if this form was run from the menu or from favorites. If a particular field must be entered or maintained in order to complete the workflow step then this can be done in this form. Once submitted the record will be picked up by the workflow phantom and, providing the rules associated with the current step are passed, the transaction will move to the next workflow step.

*Next or Final Step*

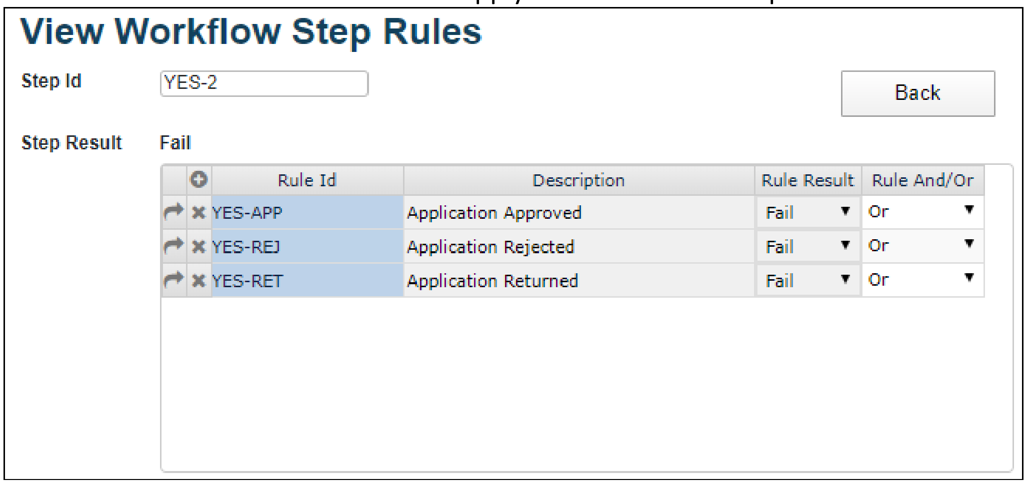
Click the selected row of the second column in order to display the status of all workflow steps for the transaction.



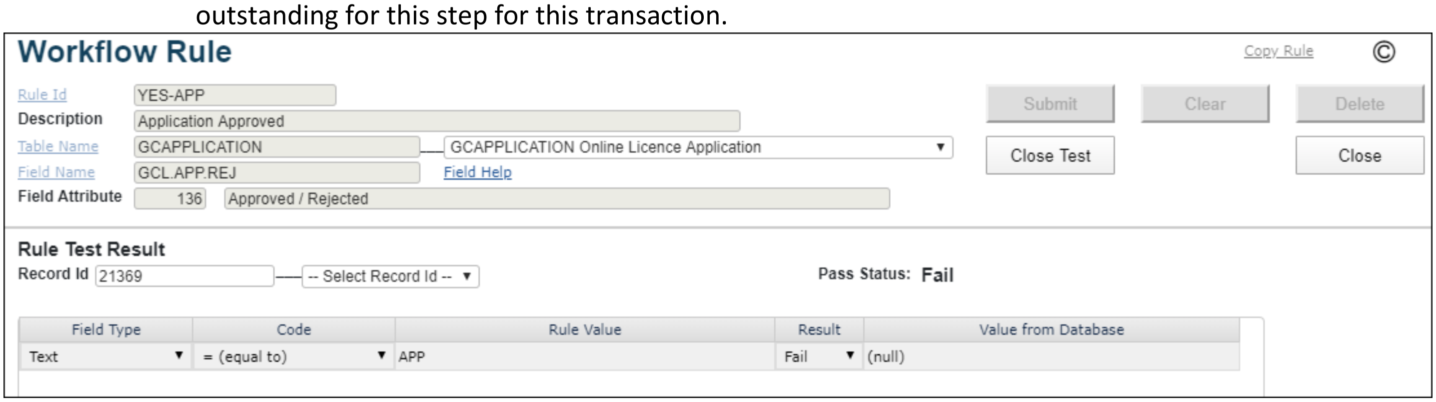

The above workflow form displays the list of remaining and completed steps within the selected workflow process for the selected transaction. This example shows that the first step

*YES-1* has been completed. Steps *YES-2* and *YES-3* remain outstanding because the rules for each of these steps have not yet been passed.

In order to view the rules click on the blue highlighted row in the first column. The form shown below lists the three rules that apply to this workflow step.




Click on a *Rule Id* to review the rule. This allows the workflow user to check what action is outstanding for this step for this transaction.




The rule in this example is evaluating the GCL.APP.REJ field on the file GCAPPLICATION to see if it has a value of “APP”. This field on transaction 21369 is null which means that the rule fails. The workflow user, if this action falls within their authorized job description, may choose to approve this transaction with the effect that the GCL.APP.REJ is assigned the value of “APP”.

The action to approve the transaction is carried out by the same application functionality that would be used if workflow was not in use. In this example, click the *Close* button on the *Workflow Rule* form, then click the *Back* button on the *View Workflow Step Rules* form.

Click the *View Record* on the *Workflow Status Enquiry* form which allows the transaction to be updated.

*Workflow Status Enquiry form*

This form provides the ability to manually complete workflow steps, and to reverse manual completion of steps.

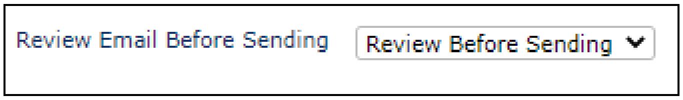
Select the action required from the *Completed* dropdown, enter the date and any notes, then click the *Confirm Manual Step Completion* button.


The step will move to the *Completed Steps* grid.

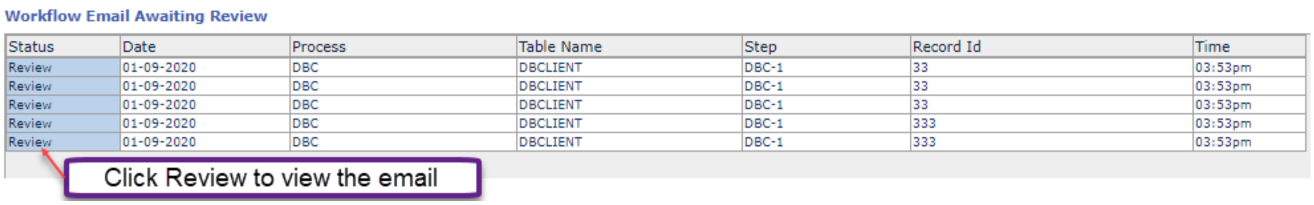

This action can be reversed by selecting *Reverse Manual Completion* from the *How Completed* dropdown, completing the date and any required notes and clicking *Confirm Reversal of Manual Completion*.

## Workflow Status Email Awaiting Review

Workflow steps may generate email, either when overdue or on completion. There is an option to review email before sending.




Emails awaiting review are displayed on the Workflow Status form.

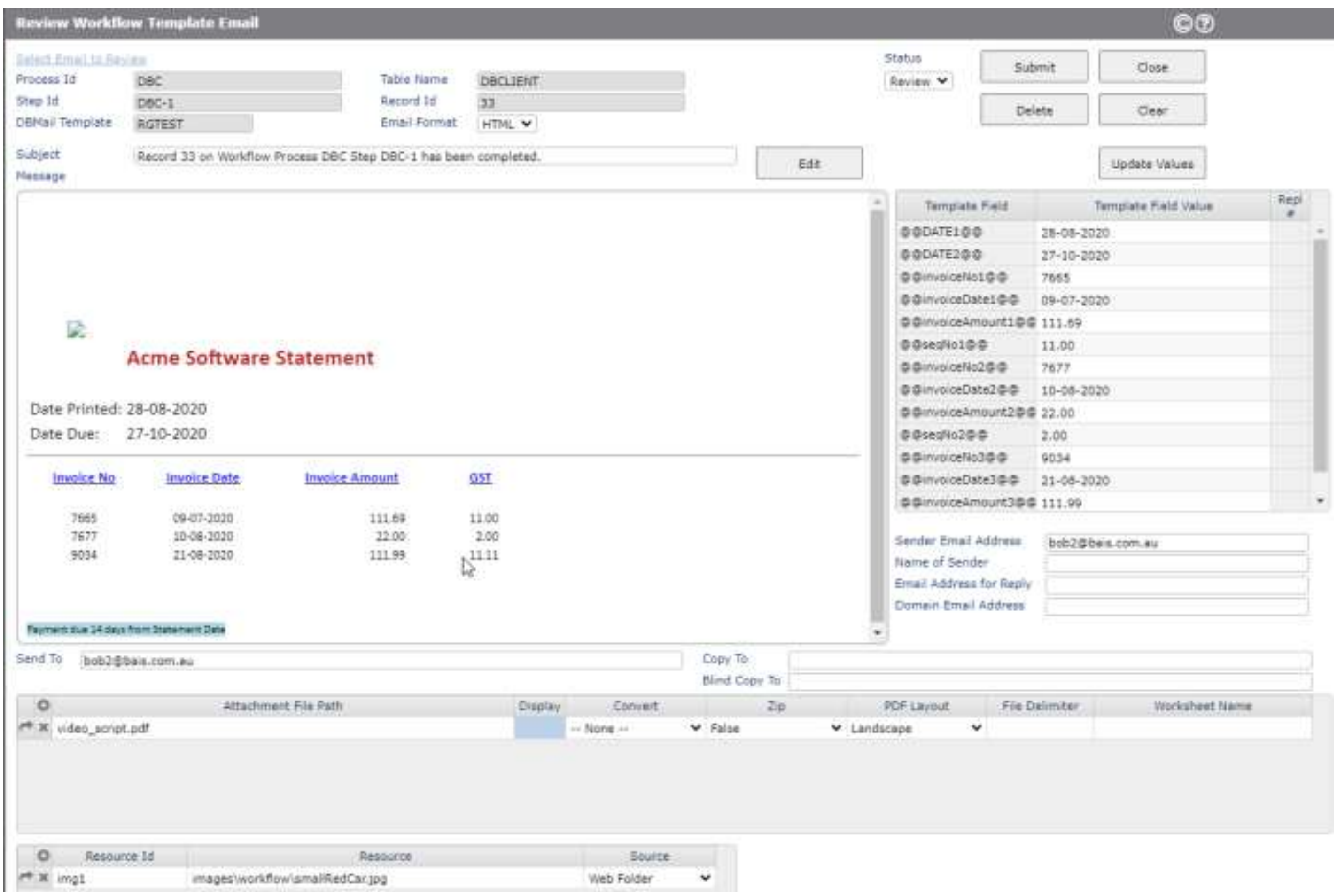


**Workflow Email Awaiting Review**

| Status | Date | Process | Table Name | Step | Record Id | Time |
|---|---|---|---|---|---|---|
| Review | 01-09-2020 | DBC | DBCLIENT | DBC-1 | 33 | 03:53pm |
| Review | 01-09-2020 | DBC | DBCLIENT | DBC-1 | 33 | 03:53pm |
| Review | 01-09-2020 | DBC | DBCLIENT | DBC-1 | 33 | 03:53pm |
| Review | 01-09-2020 | DBC | DBCLIENT | DBC-1 | 333 | 03:53pm |
| Review | 01-09-2020 | DBC | DBCLIENT | DBC-1 | 333 | 03:53pm |



Click on the highlighted *Review* column in order to open the *Review Workflow Template Email* form.



This form displays the HTML email message with field value replacements in place.

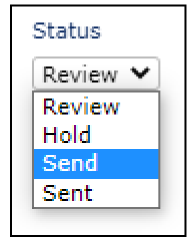
The list of Template Fields and Template Field Values are shown in a grid on the right. The values can be amended. Click the *Update Values* button to apply changes to the email.

The HTML message can also be edited. Click the *Edit* button to open the email in the HTML Editor.

The email *Subject*, *Send To*, *Copy To* and *Blind Copy* to fields are displayed and can be amended.

The *Attachments* and *Resources* may be added to or amended.

The Status must be amended prior to clicking the *Submit* button unless the email is to remain as *Review*.




*Hold* — the email remains in the review category and it can be selected and displayed. This category is designed to allow the user to flag emails that may have been reviewed but are not ready to be sent yet.

*Send* — Change the status to *Send* and then click the submit button when you are ready for the email to be sent. The workflow phantom selects review emails with a status of *Send* and submits them for processing.

*Sent* — A user cannot select this status. It is assigned to the email when it is submitted with the *Send* status. Emails in this category cannot be selected from the workflow status form *Email Awaiting Review* list.

The next run of the phantom will select emails flagged as *Send (*or *Sent)* and they will be processed.

The list below shows that an email has been submitted for sending (*Send* shown in orange color). If the Workflow Status form is refreshed this orange *Send* status will disappear and the email will appear either as *Sent* (shown in pink) or it will disappear altogether once the phantom re-selects it.

**Workflow Email Awaiting Review**

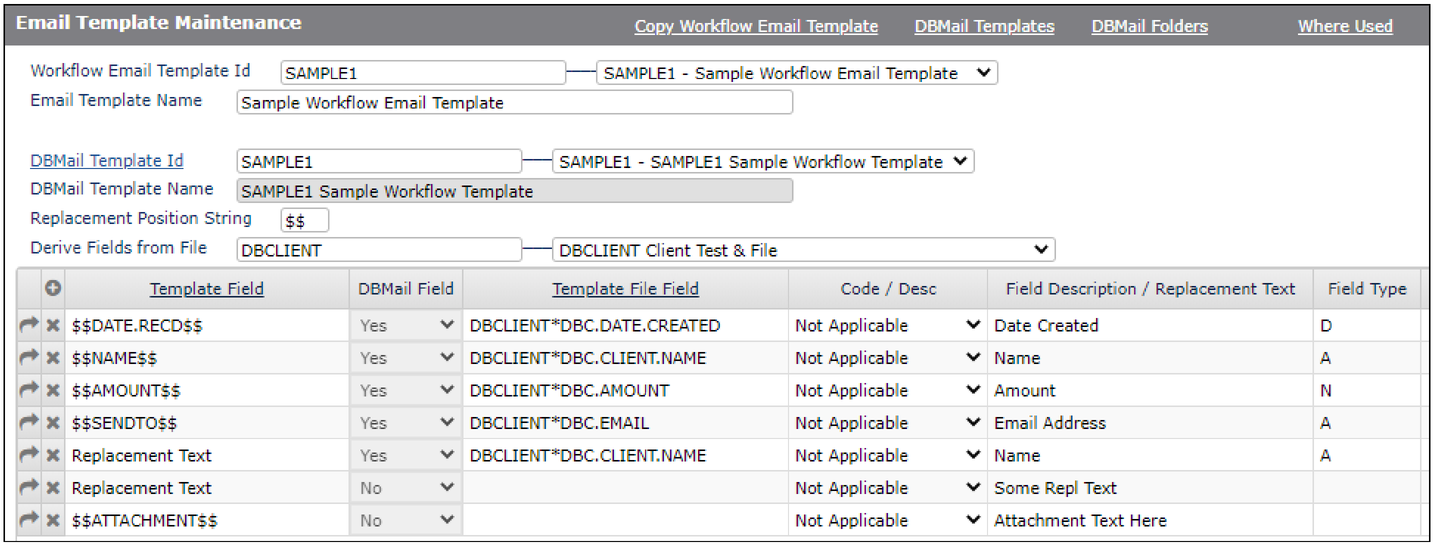
| Status | Date | Process | Table Name | Step |
|---|---|---|---|---|
| Hold | 03-09-2020 | DBC | DBCLIENT | DBC-1 |
| Send | 03-09-2020 | DBC | DBCLIENT | DBC-1 |
| Review | 03-09-2020 | DBC | DBCLIENT | DBC-1 |
| Sent | 03-09-2020 | DBC | DBCLIENT | DBC-1 |

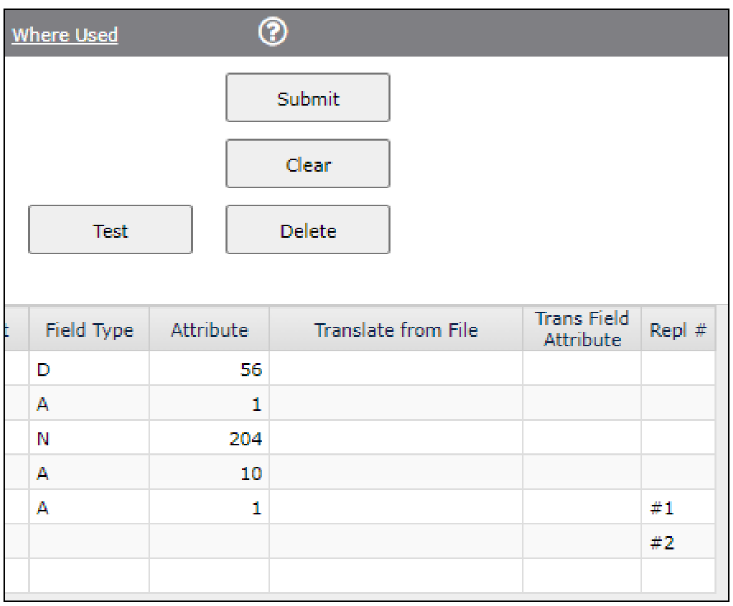
In practice the above display will only appear if the phantom is stopped. If it is running then *Sent* status emails disappear almost instantly.

## Workflow Email Templates

Workflow Email Templates allow you to create customized HTML email formats. Each template links to a DBMail Template. Refer to the *DBMail* section in the DesignBais Reference Manual.




*Workflow Email Template Id*

Assign a unique Id or code to be used to identify the Workflow template.

*Email Template Name*

Assign a meaningful name to the workflow email template.

*DBMail Template Id*

Select an existing DBMail template. This template determines the format of the workflow email message.

*Replacement Position String*

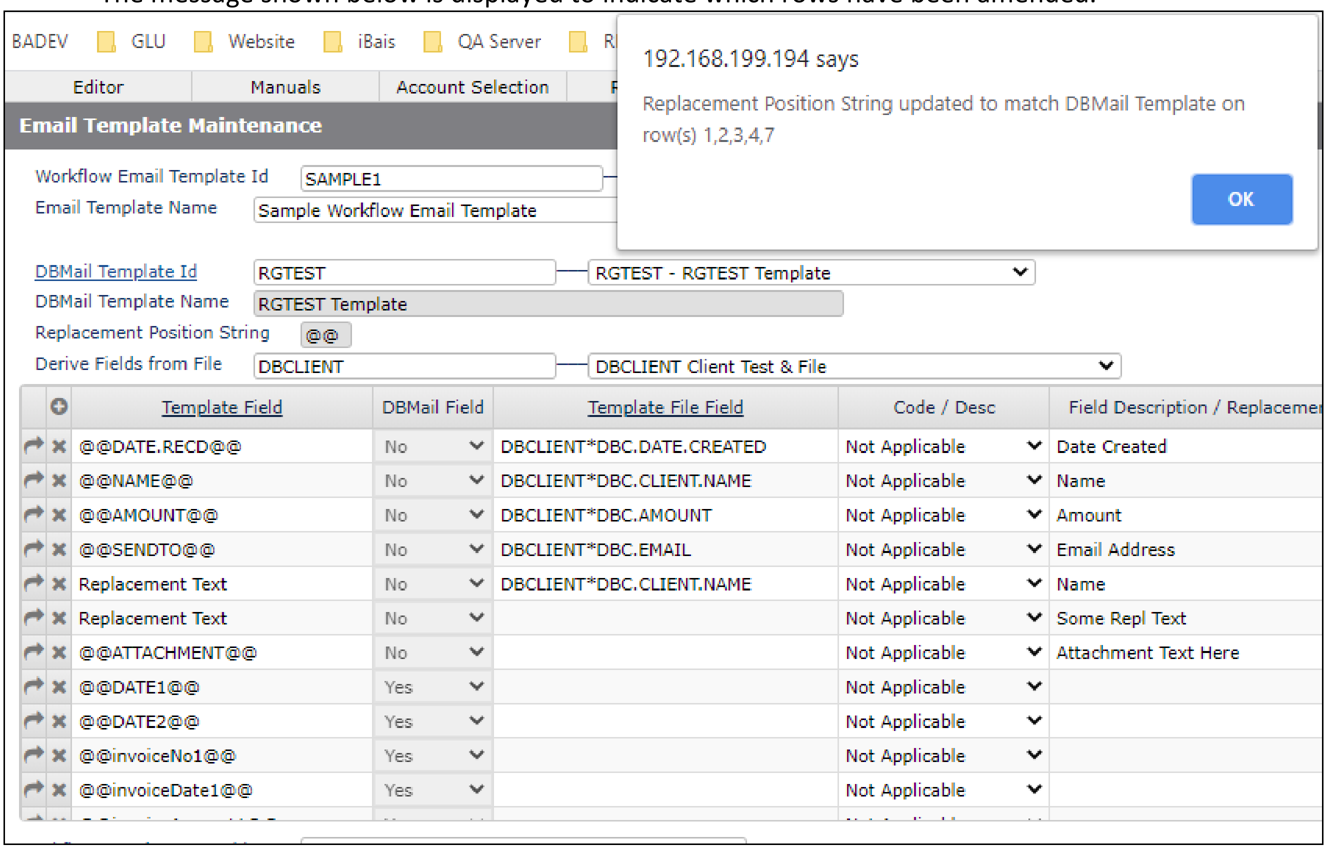
Replacement Position String is the string used in the DBMail Template HTML to surround fields included in the message text that are to be replaced at run time. The string must be unique within the body of the DBMail template message including any HTML characters. The string ]] cannot be used as this string is part of the CDATA termination string.

The Replacement Position String cannot be amended from the Workflow Email Template form. It must be changed in the linked DBMail Template.

When a DBMail Template is first linked to a Workflow Email Template the replacement fields are automatically extracted and listed in the grid.

When the DBMail Template Id in an existing Workflow Email Template is changed, and the new DBMail Template has a different Replacement Position String, then the list of Template Fields will be amended to reflect the new Replacement Position String.

The message shown below is displayed to indicate which rows have been amended.



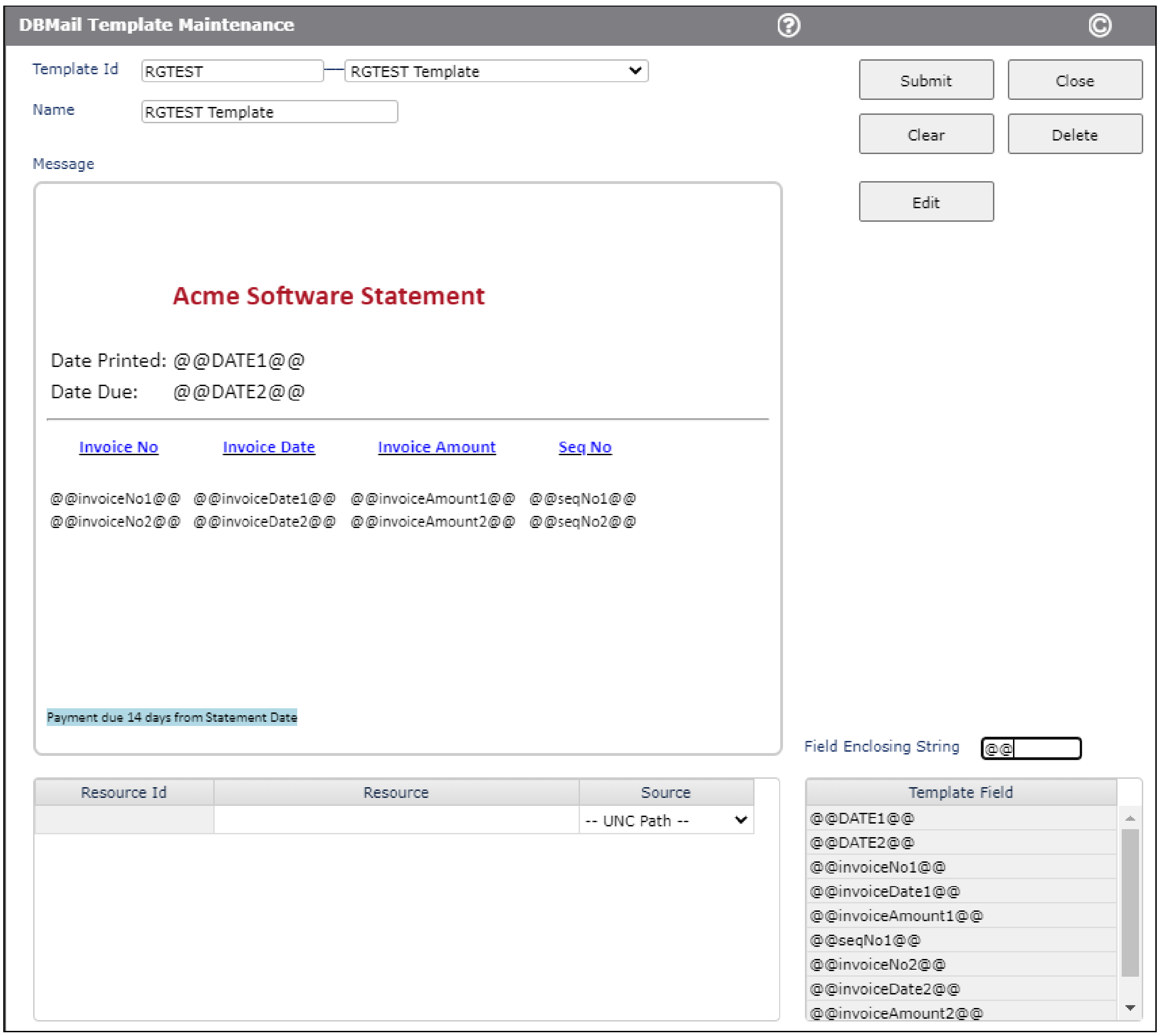

The list of template fields may change. The second column *DBMail Field* in the above image indicates which fields are on the currently attached DBMail Template. Fields that are not on the template need to be reviewed and removed from the workflow template or added to the DBMail template.

*Derive Fields from File*

Select the name of the file to be used to derive the value of the Template Fields. This will normally be the file that is entered in the Table Name field of the workflow process to which this Workflow Email Template is linked.

*Template Field* The list of fields that have been included in the DBMail Template. The list of fields cannot be added to since these fields are embedded in the template. The list can be extended in order to specify *Replacement Text*. Either insert a row or add a row to the grid, then focus on the new row, then click the link *Template Field* in the column header .The string *Replacement Text* is added to the list.

The template fields in the example shown below are shown enclosed by the "@@" string.




When this DBMail template is linked to a workflow template all the fields shown above in the *Template Field* grid will be imported into the *Template Field* column of the workflow template.

*DBMail Field* Indicates whether the template field name exists on the linked DBMail Template.

*Template File Field*

The field from the file entered in the *Derive Fields from File* field above. Select from the available fields by focusing on the required grid row and then clicking the selection process link *Template File Field* in the column header.

For *Replacement Text* the value from this field will be used to replace the string designated by the value in this row of the *Repl #* column. Alternatively this row in this column can be left blank and replacement text can be entered in the *Field Description / Replacement Text* column.

*Code / Desc* This field only applies to fields entered in the Template Field column that have a valid input list. Specify the type of display required for these fields:

- Code display the code only
- Description display the valid input description only
- Both display both the code and the description, space-separated
- Both with separator display both separated by a dash “Code – Description”

*Field Description / Replacement Text*

For fields entered in the Template Field column this column displays the description from the field property record. For *Replacement Text* enter the text that is to be included in the email at the position designated by the value in the *Repl #* column in this row.

*Field Type* This column displays the field type.

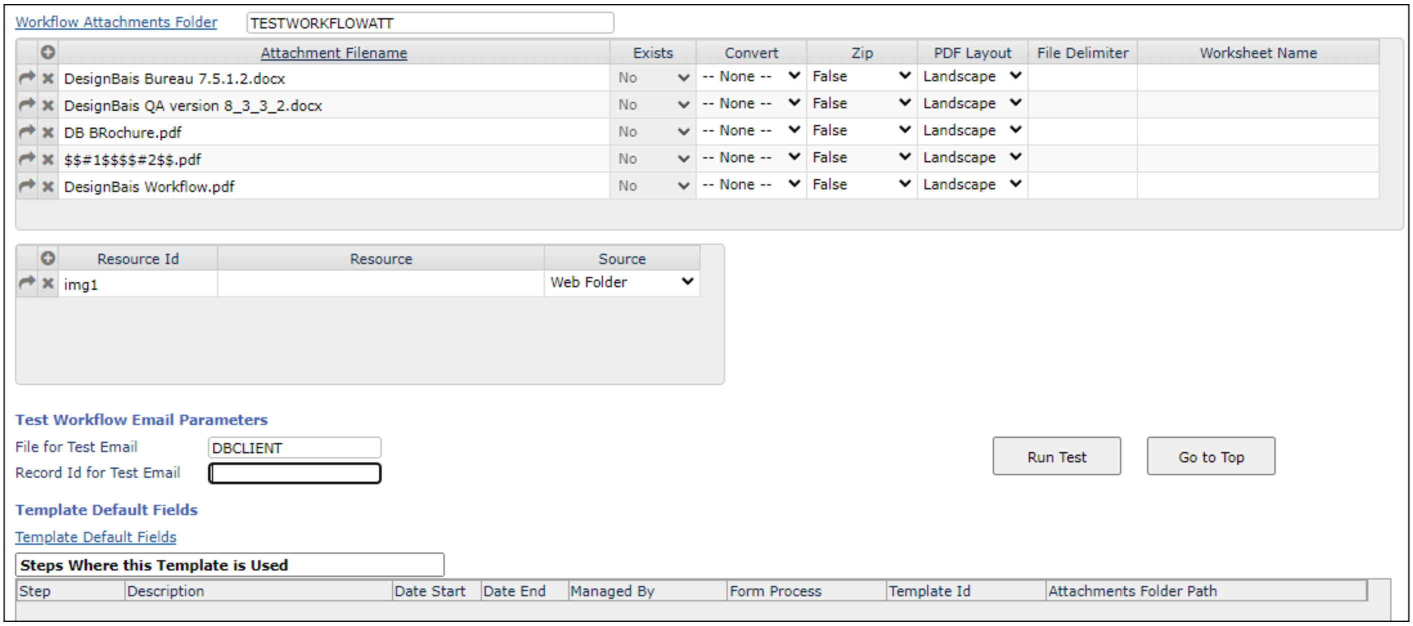
- A alpha field
- N numeric
- D date
- T time

*Attribute* The attribute position of the field within the database file.

*Translate from File*
*Trans Field Attribute*

If the field to include contains a correlative pointing to another file then these columns will display the filename of the file from which this field derives its value, and the attribute on the correlative file.

*Repl #* If *Replacement Text* has been specified then enter the integer value that will be used in conjunction with the *Replacement Position String* to designate the position within the email subject or message or other field at which to place the replacement text.




<u>*Workflow Attachments Folder*</u>

Enter the name of the folder that contains the attachments to be sent with this email. Click the hyperlink to select the folder specified in the Workflow Control *Attachments Path* field. When the *Where Used* button is clicked to display the list of *Steps Where this Template is Used* then the *Attachments Folder Path* (the last column of the report) is clickable. Click in a selected row to set the *Workflow Attachments Folder* to the value from the selected step.

*Attachment Filename*

Enter the names of files that are to be attached to the workflow email at run time. The <u>*Attachment Filename*</u> header button allows you to select from the *Workflow Attachments Folder* displayed above.

Attachment file names can be entered even if the file is not currently in the attachments folder. The application must ensure that these files are present at the point that the workflow email template is used to generate an email at run time.

*Exists* This column indicates whether the attachment filename currently exists in the attachments folder.

*Convert* Specify the conversion to take place when DBMail sends the attachment. The choices are *PDF*, *Excel*, or *None*.

*Zip* Specify whether the file is to be zipped when DBMail sends the attachment.

*PDF Layout* Specify whether the file is to be sent as *Landscape* or *Portrait*.

*File Delimiter* The field delimiter character that is in the file to be converted to Excel. This could be a comma or a tab. I f the character can be typed, such as a comma, then enter the character. For tab enter the number 9. This will be converted to char(9). Any numeric value entered here will be converted to its char() equivalent.

*Worksheet Name*
The name for the Excel Worksheet to be created during the conversion.

*Resource Id* Displays the names of "cid" variables for the HTML body (message node) images and css files. Refer to the DBMail section in the DesignBais Reference Manual for more detail.

*Resource* UNC path to the resource or file name that will be accessed via the Source Folder (Attachment or Web).

*Source* Attachment Folder or Web Folder if full UNC path not provided with the Resource File.

*File for Test Email*
This field will default to the file named in the *Derive Fields from File* field as this will normally be the file that is required to test template field replacement.

*Record Id for Test Email*
Enter a record id from the file that you have specified in the above field. If you do not enter anything then a sample record will be selected when you click the *Run Test* button.

The *Run Test* button triggers the creation of an email using the record id specified as if this record were being processed in a workflow. The email will simulate the email that will be created when this template is applied to a workflow process and step and the step is overdue or completed.

*Template Default Fields*
Click this link to display the following fields.

*Email Format* Select *HTML* or *TEXT* as the format of the workflow email.

*Name of Sender*
The email sender's name.

*Email Address for Replies*
Enter the email address to be used for replies to the workflow email.

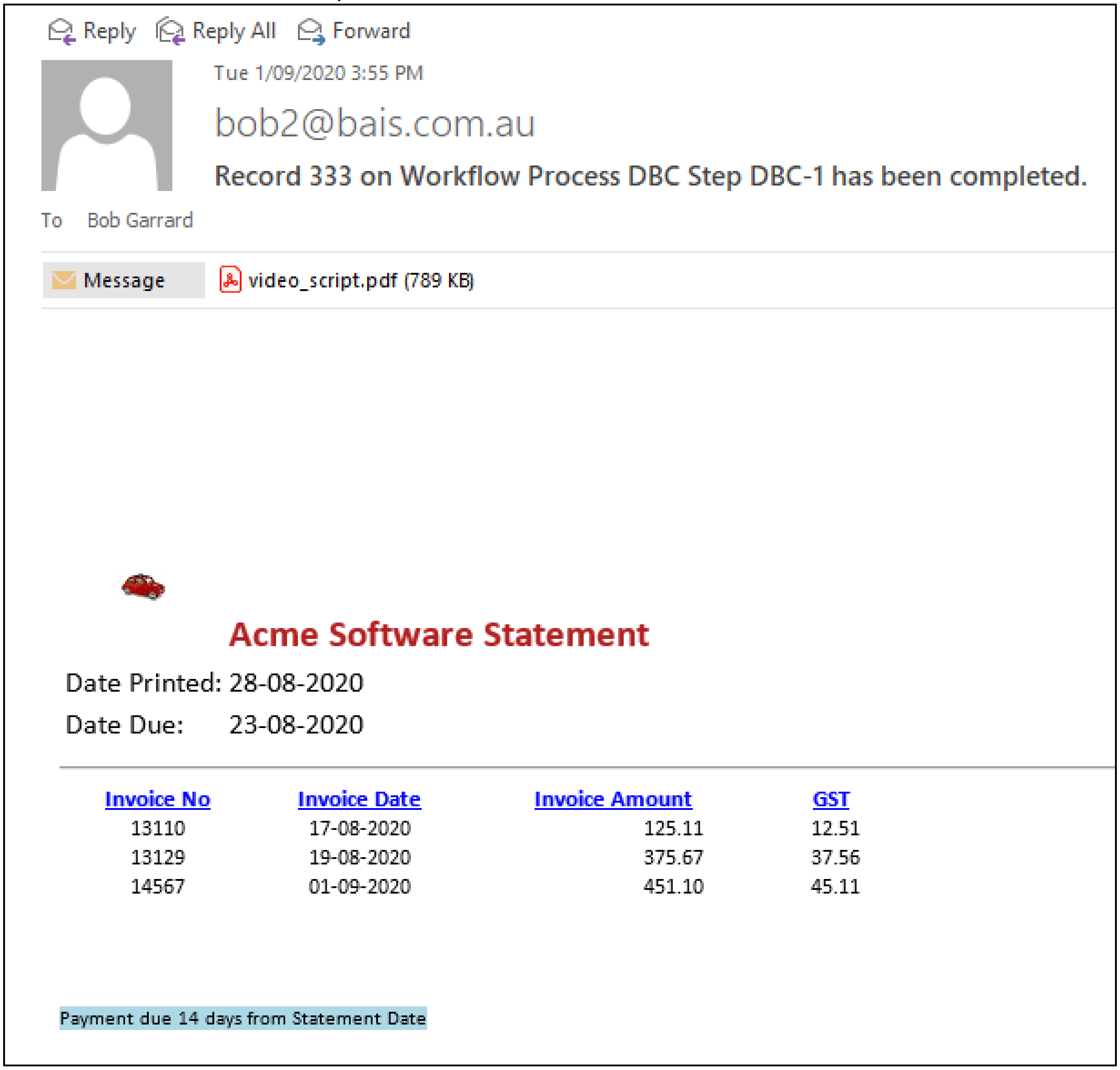
*Domain Email Address*
The email address of the Domain which is used as the Email From address. This field should only be populated if the email from address is required to be different to the *Email From* address in Workflow Control.

*Send To* The list of *Send To* email addresses separated by semicolon. If blank then the email will be sent to the Managed By Group email addresses.

*Copy To* The list of Copy To email addresses separated by semicolon.

*Blind Copy To* The list of Blind Copy To email addresses separated by semicolon.

A formatted HTML email example is shown below:



Reply Reply All Forward

Tue 1/09/2020 3:55 PM

bob2@bais.com.au

Record 333 on Workflow Process DBC Step DBC-1 has been completed.

To Bob Garrard

Message video_script.pdf (789 KB)

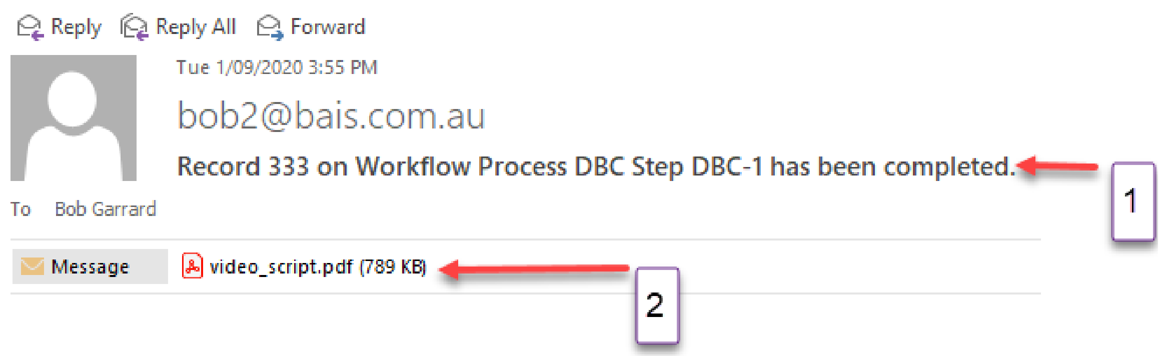
## Acme Software Statement

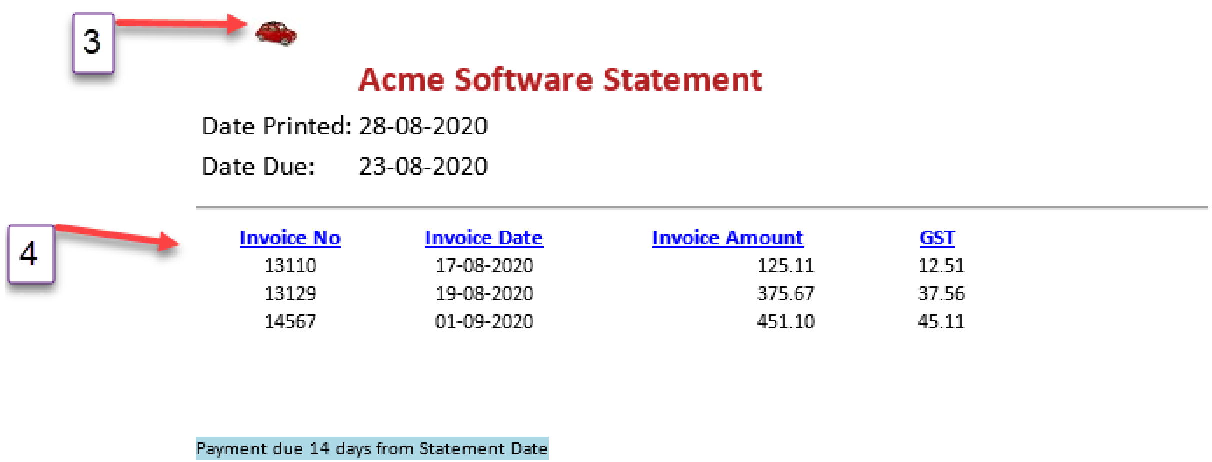
Date Printed: 28-08-2020

Date Due: 23-08-2020

| Invoice No | Invoice Date | Invoice Amount | GST |
|---|---|---|---|
| 13110 | 17-08-2020 | 125.11 | 12.51 |
| 13129 | 19-08-2020 | 375.67 | 37.56 |
| 14567 | 01-09-2020 | 451.10 | 45.11 |

Payment due 14 days from Statement Date




HTML emails can be created to include:

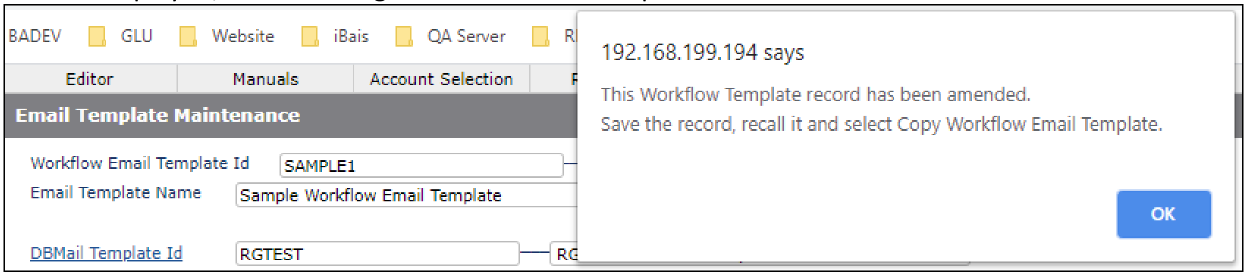
1. Email subject containing field values from the workflow record
2. Attachments
3. Logos and other images
4. Formatted HTML with colors, fonts and shading populated from fields on the workflow record

| Buttons |
|---|

| | |
|---|---|
| *Test* | Click to test the template appearance. An email using the template is sent to the email address held on the DesignBais user record. |
| *Submit* | Click to save the currently displayed field values. |
| *Clear* | Click to clear the form details currently displayed. |
| *Delete* | The Delete button is used to delete the currently displayed record, after confirmation by the user. |

*Copy Workflow Email Template*

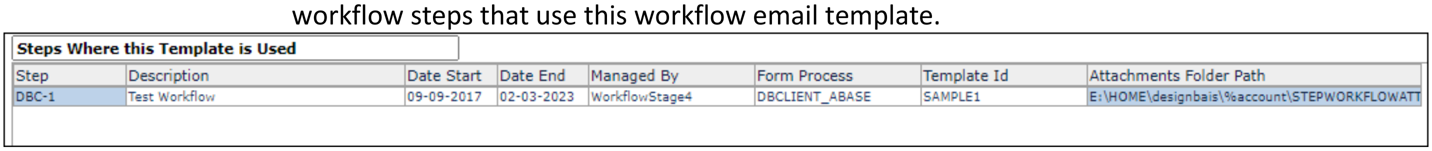
Opens a form that allows the user to copy this template to a new Template Id. If the current template record has been changed then the message shown below is displayed, so that changes to the current template are not lost.




*DBMail Templates* Opens the *DBMail Template Maintenance* form

*DBMail Folders* Displays the *System Parameters DBMail Configuration* form showing the folders used by DBMail.

*Where Used* Displays an on-form report titled *Steps Where this Template is Used* which lists the workflow steps that use this workflow email template.



**Steps Where this Template is Used**

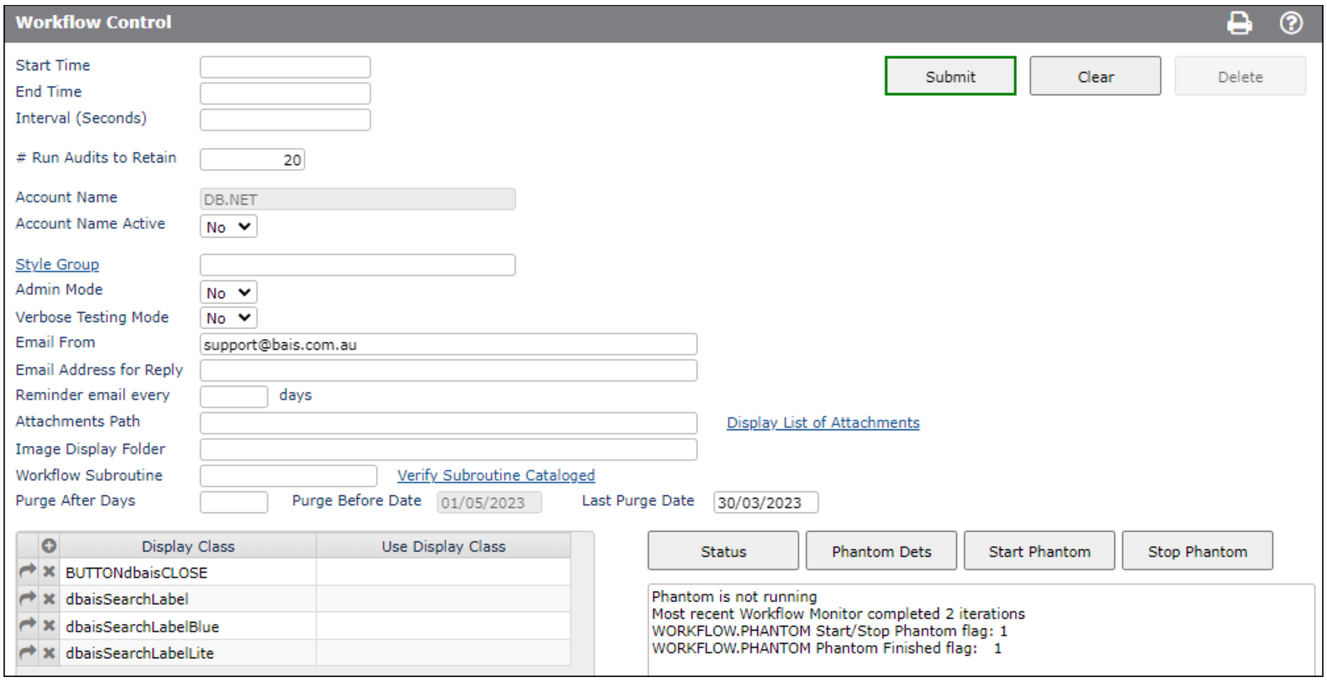
| Step | Description | Date Start | Date End | Managed By | Form Process | Template Id | Attachments Folder Path |
|---|---|---|---|---|---|---|---|
| DBC-1 | Test Workflow | 09-09-2017 | 02-03-2023 | WorkflowStage4 | DBCLIENT_ABASE | SAMPLE1 | E:\HOME\designbais\%account\STEPWORKFLOWATT |

## Workflow Control

Use this form to start, stop, and view the status of the Workflow Phantom.

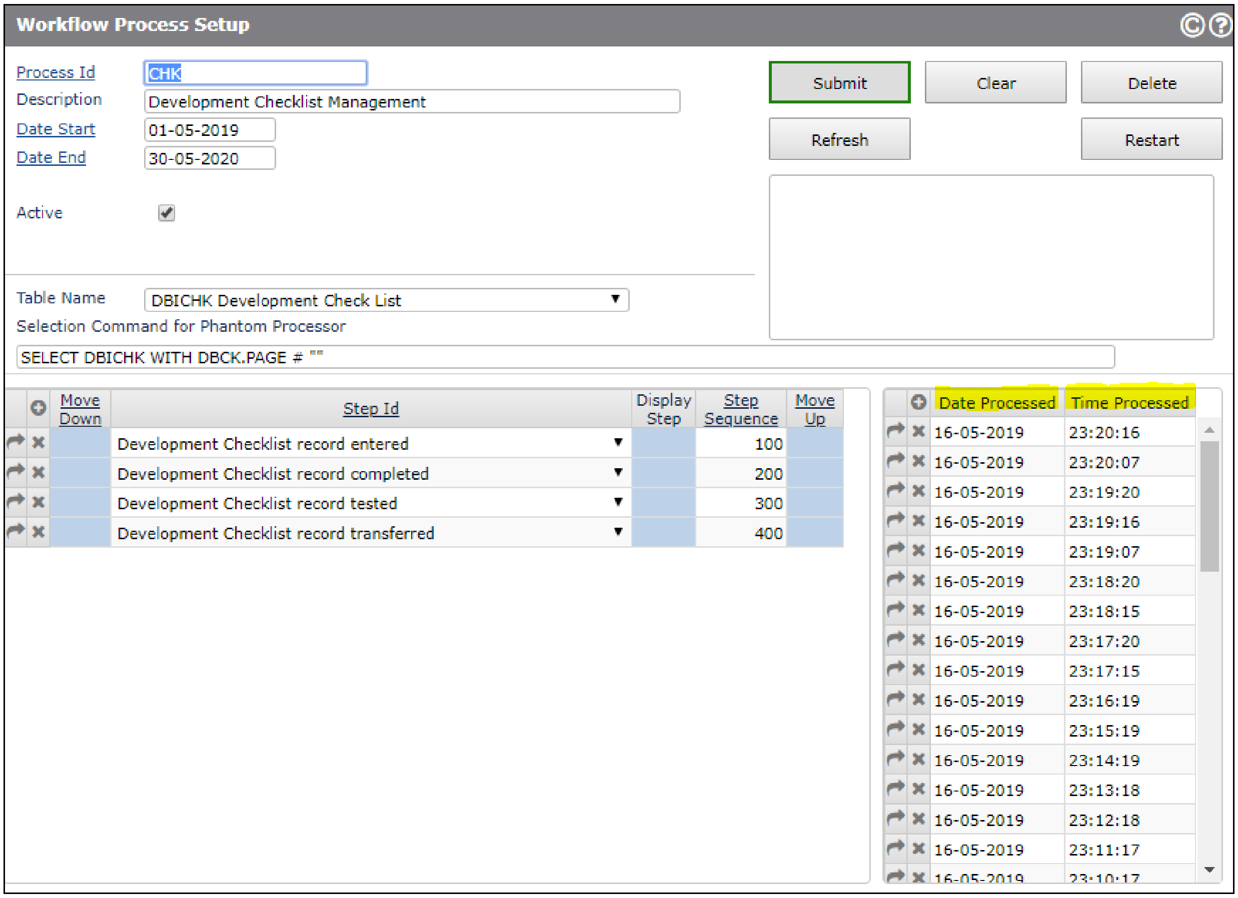
The Workflow function relies on a phantom process that is regularly monitoring all transactions within the tables that are defined in each of the Workflow Process definitions.

The phantom process can be started or stopped at any time.




### Fields

| | |
|---|---|
| *Start Time* | This is not the start time of the phantom. Rather it is the time that the phantom process will commence processing transactions. |
| *End Time* | The time that the phantom process will stop processing transactions. |
| *Interval (Seconds)* | The interval in seconds between each cycle of the phantom. After completing the processing of all defined Workflow processes the phantom process will sleep for this number of seconds before commencing another processing cycle. |
| *# Run Audits to Retain* | An audit trail of phantom cycles is retained and displayed on the Workflow Process Setup form for each workflow process. An example is shown below.<br>This field determines the number of audit records to be retained and displayed. |




*Account Name* Displays the name of the account in which Workflow is running.

*Account Name Active* Set to “Yes” if the account name is to be used in the keys of the Workflow Status records. This feature allows different database accounts to share the Workflow Status file and still retain unique keys on DBIPMSTATUS.

*Style Group* Select a style group to be applied to the workflow forms. This allows these forms to take on the ‘look and feel’ of the rest of the application.

*Admin Mode* Set to “Yes” to remove access restrictions that apply to a Workflow User Group or Workflow User. Members of the Developers or DBAdministrator User Groups will be granted full access to some forms where normal workflow access is enquiry only.

*Verbose Testing Mode* This setting only effects users who are members of the Developers or DBAdministrator Groups.

Set this flag to Y to invoke verbose mode for workflow rule evaluation. The user como and the phantom output (&PH& for UniVerse) display variables to assist in setting up complex workflow rule definitions.

*Email From* This email address will be used as the email from address for reminder emails.

*Email Address for Replies*

This email address is used as the default "Email Address for Replies" address in workflow reminder emails.

*Reminder email every "n" days*

The default to be used where this setting has not been set in the workflow step setup. It provides the ability to limit the number of emails sent when a workflow task is overdue. Rather than sending a reminder every day the reminders can sent every "n" days.

*Attachments Path* This path defines a folder from which workflow email attachments are copied into the DBMail Attachments Folder at the point that the workflow phantom process generates emails to be sent either when a workflow step is completed or when it is overdue.

Documents to be attached to workflow emails must therefore exist in this folder prior to the point at which the workflow emails are generated. This can be done via application subroutine or manually.

The folder path can contain the string "%account" which will be replaced at run time with the account name from the DBIACCOUNT common variable.

*Display List of Attachments*

Click this link to display the list of files currently held in the attachments file designated by the Attachments Path.

*Image Display Folder* When reviewing emails with an image attachment and selecting to display the attachment the image is moved to this folder in the website images folder in order to allow it to be displayed.

The system administrator may routinely clean out this folder.

This folder must be set up manually, if it does not already exist, when rolling out the DesignBais Workflow module. It is recommended that a new folder be created so that its contents can be purged without impacting other Designbais applications.

*Workflow Subroutine* This subroutine will be called just prior to a workflow email being sent. The subroutine should include DesignBais common (DBINET DBI.COMMON).
The DBMAIL.REC that is passed to the DBMail processor is loaded into DBVALUE prior to calling the user-defined subroutine. On return from the subroutine DesignBais common is reset to the pre-call state.

*Verify Subroutine Cataloged*

If the *Workflow Subroutine* field is populated then this button can be clicked to display whether the subroutine named in the field is cataloged.

*Purge After Days* Specify the number of days that completed workflow status records are to remain accessible through the workflow history menu option. The system calculates the

*Purge Before Date* Purge Before Date based on the number of days entered.

| | |
|---|---|
| *Last Purge Date* | The system displays the date that the most recent purge occurred. |
| *Display Class* <br> <br> <br> <br> <br> <br> *Use Display Class* | If a style group is specified in the *Style Group* field above, in order to change the appearance of the workflow forms, then it may be the case that some display classes also need to be changed. An example is where search type buttons using the *dbaisSearchLabelLite* display class are situated within the header bar which has a background color. They are therefore visible. If the custom style group has a white header bar then these search type buttons cannot be easily seen as they blend into the background. In that case a different display class can be entered into this grid. This display class will be applied at run time. |

**Buttons**

| | |
|---|---|
| *Status* | Displays the status of the Workflow Phantom process. |
| *Phantom Dets* | Click to display the Phantom Control Details as shown below. The control record is held on the DBIPMCODE file. |
| *Start Phantom* | Click to start the phantom process. |
| *Stop Phantom* | Click to stop the phantom process. |
| *Submit* | Click to save the currently displayed field values. |
| *Clear* | Click to clear the message display. |
| *Delete* | The Delete button is disabled since the control parameters must always exist. |

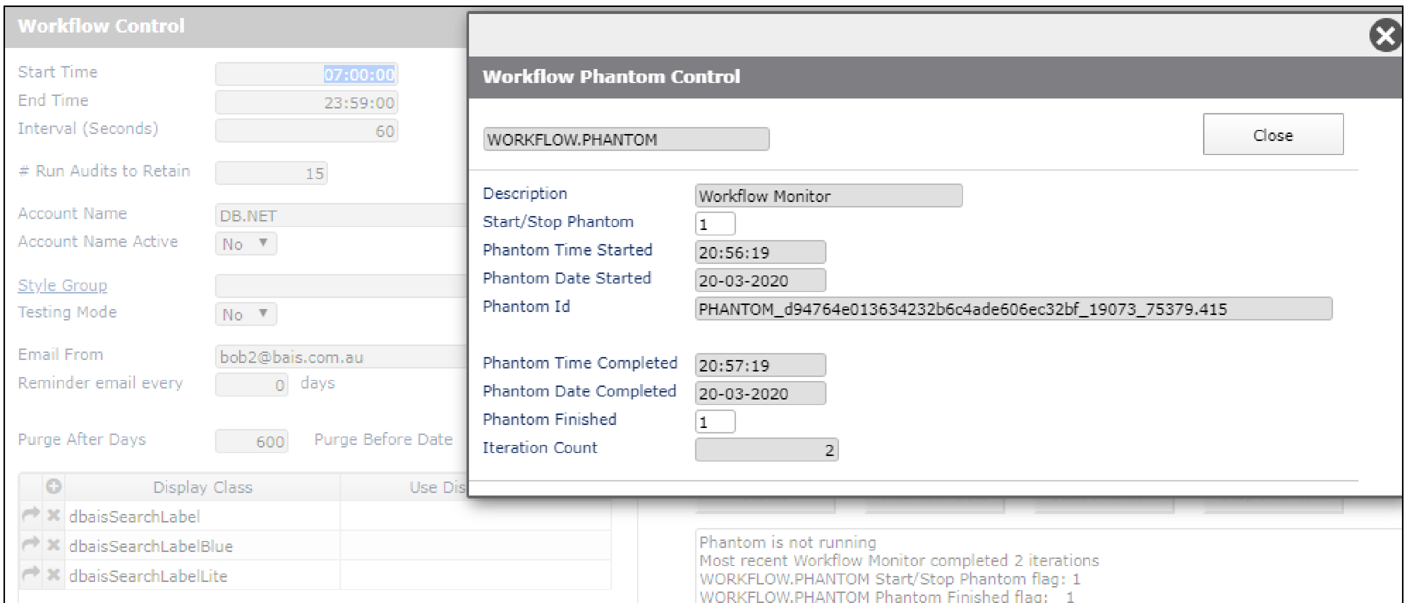
## Workflow Phantom

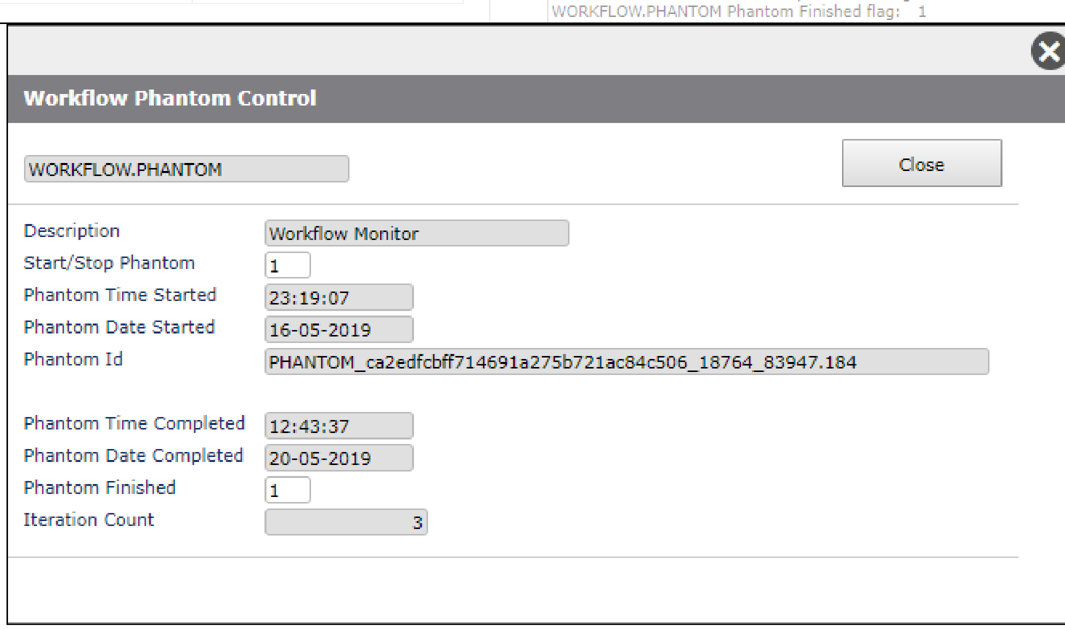
The Workflow Phantom runs a phantom program that, at defined intervals, and within a defined time window each day, passes through all transactions in all tables that are defined in all **active** Workflow Processes.

The transactions are subjected to the workflow rules that are linked to the workflow steps within each workflow process. The result of each rule, either pass or fail, is recorded. The status of each transaction can be viewed in the form displayed from the Workflow Status menu option.

If a rule is passed the transaction moves to the next step in sequence.

The stage that a transaction has reached determines which workflow group is assigned the management of the transaction.

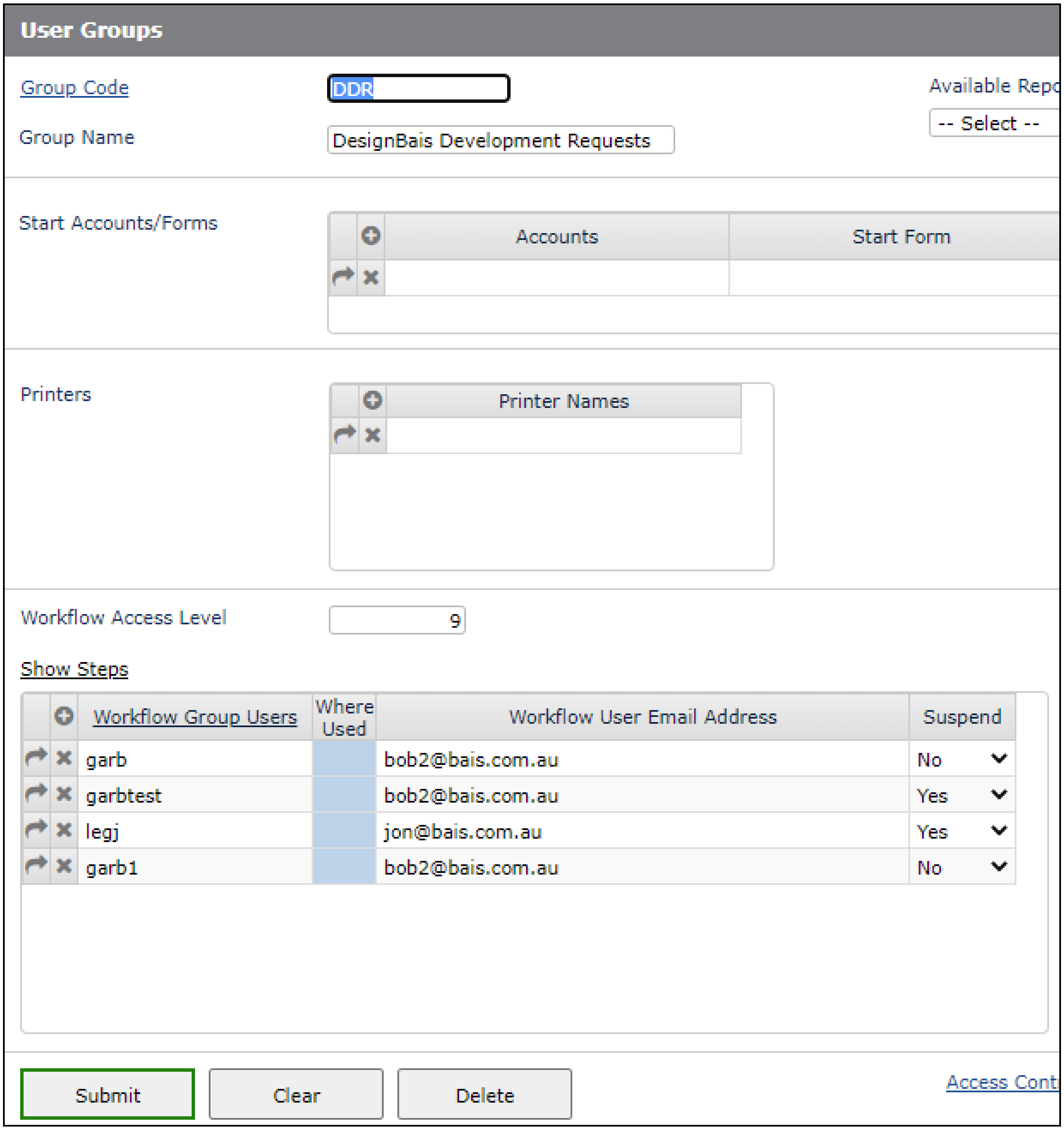


## Managed By Groups

Use this form to maintain the details of Managed By Groups.

These records are held on the DBIGROUPS file. They can also be maintained from the DesignBais User Groups menu option.




*Group Code* The code assigned to a Managed By Group.

*Group Name* Assign a name or description to the group.

*Workflow Access Level* This field is mandatory if this User Group is to be used as a Workflow Managed-By Group.
Enter an integer between 1 and 999, otherwise leave null.

This value indicates the level of access assigned to this group. The higher the value the higher the level of access. A value of 1 indicates that members of this group can view workflow tasks only in groups with a value of 1. A value of 3 would allow access to tasks managed by groups with an access level of 1, 2 or 3.

*Show Steps* Displays an on-form report of the workflow steps that are managed by this Managed-By Group.

**Workflow Steps Managed by this Group**

| Step Id | Description | Date Start | Date End | Last Reminder Date | Form Process | Managed By |
|---|---|---|---|---|---|---|
| DDR1 | Awaiting Authorisation | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |
| DDR2 | Authorised but not Completed | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |
| DDR3 | Authorised and Completed | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |

*Workflow Group Users* Add the user id of those users who are to have access to workflow steps that are managed by this group.

*Where Used* Click this column, in the selected row, to display the groups that the user is a member of.

**garb is a member of these Workflow Groups**

| User | User Group | Group Name | Workflow Access Level |
|---|---|---|---|
| garb | DDR | DesignBais Development Requests | 9 |
| garb | WF | WF Test Group | 9 |
| garb | CST | CST Workflow Group | 1 |
| garb | WorkflowStage1 | WorkflowStage1 | 4 |
| garb | WorkflowStage2 | WorkflowStage2 | 1 |
| garb | WorkflowStage3 | WorkflowStage3 | 5 |
| garb | WorkflowStage4 | WorkflowStage4 | 7 |

*Workflow User Email Address*
The email address for the Workflow User that is to be used for workflow task reminders. The default value will be taken from the DesignBais Users record. Once set this email address will not be amended by a change to the email address in the

DesignBais Users record, in order to allow for independent email addresses to be maintained.

*Suspend* — Set this flag if reminder emails generated by the workflow phantom are to be suspended for this user. The Resend option allows emails generated in the most recent window to be resent.

This on-form report shows the list of Workflow Steps that are managed by the currently displayed Managed By Group.

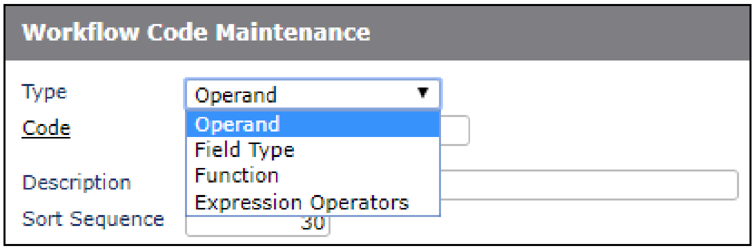
Click on the highlighted *Step Id* to display the Workflow Step maintenance form.

**Workflow Steps Managed by this Group**

| Step Id | Description | Date Start | Date End | Last Reminder Date | Form Process | Managed By |
|---|---|---|---|---|---|---|
| DDR1 | Awaiting Authorisation | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |
| DDR2 | Authorised but not Completed | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |
| DDR3 | Authorised and Completed | 02-03-2020 | 31-12-2050 | | DBICHK_A10 | DDR |

## Workflow Code Maintenance

There are four types of code used to support the Workflow system.

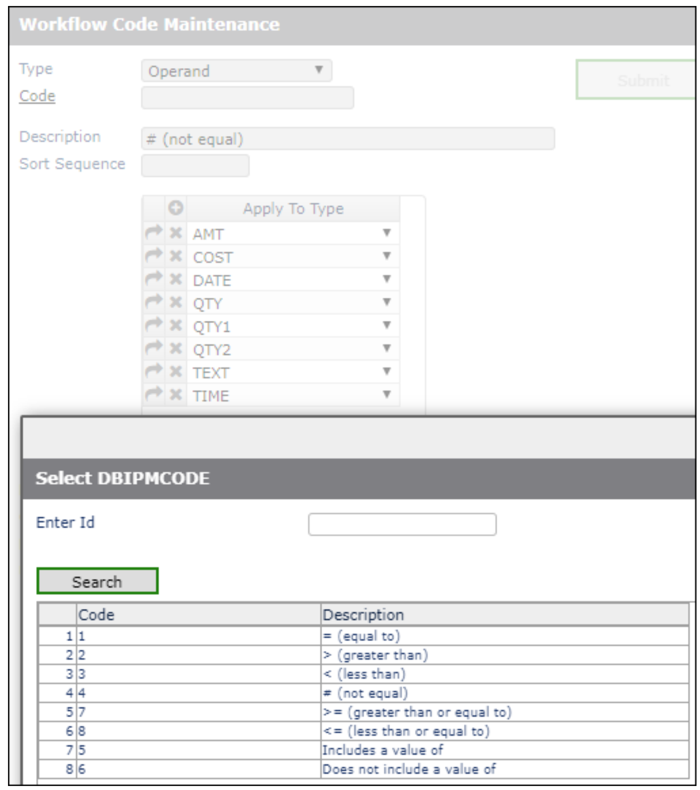


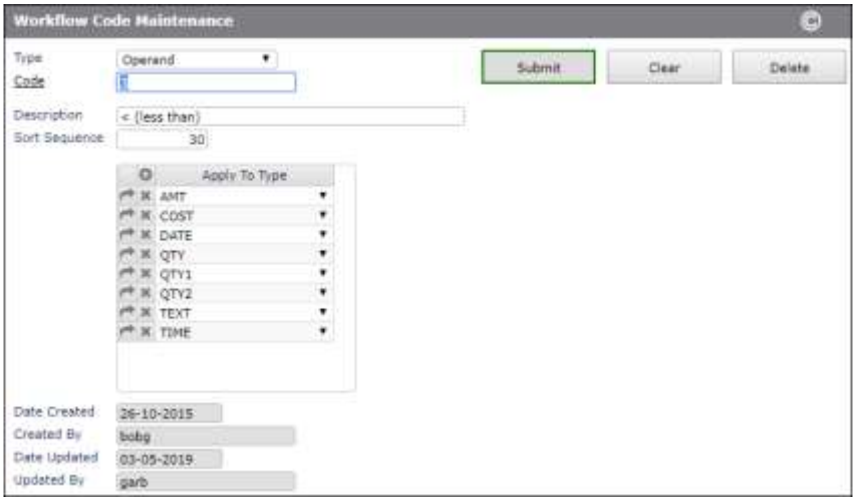

*Operand*

Each operand comprises a code and a description. The sort sequence can be used to alter the display sequence of the codes in the Workflow Rule Maintenance.

The *Apply To Type* field allows for operands to be available only to specific types of fields such as, say, Time and Date.

The list of operands is fixed. If additional operands are required please contact DesignBais Support.



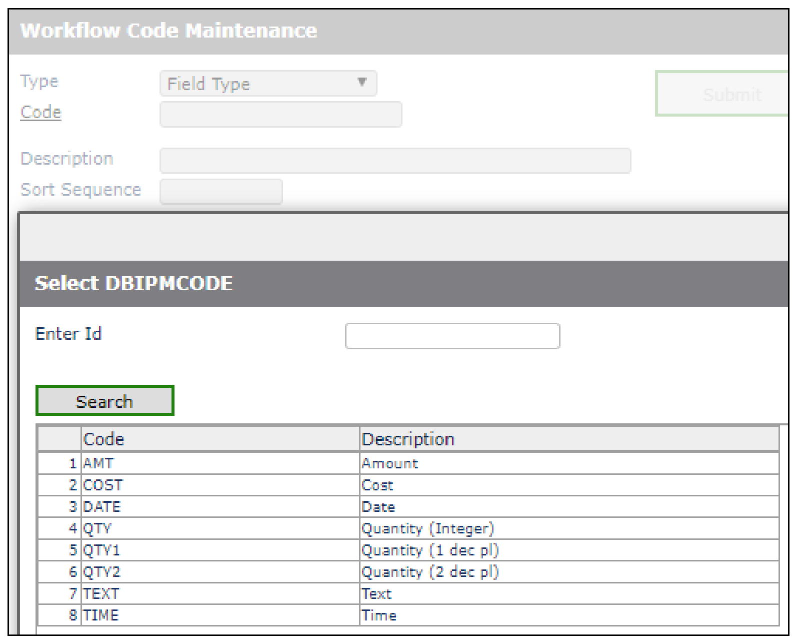



*Field Type*

There are eight field types. These correspond to the most commonly used database field types.

The sort sequence can be used to alter the display sequence of the codes in the Workflow Rule Maintenance.

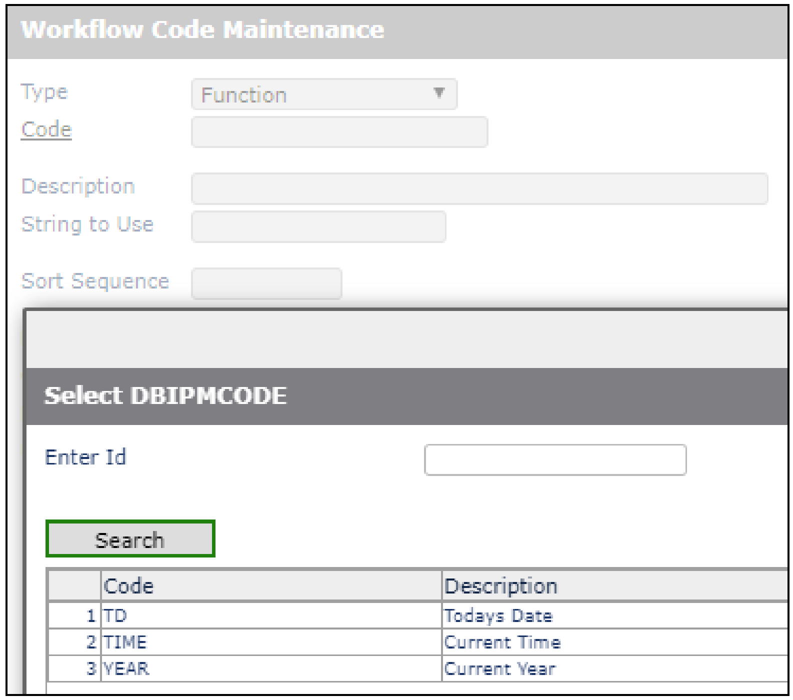
The list of field types is fixed. If additional field types are required please contact DesignBais Support.



*Function*

There are three defined functions. These are used when forming expressions in the Workflow Rule Maintenance process.

If additional functions are required please contact DesignBais Support.

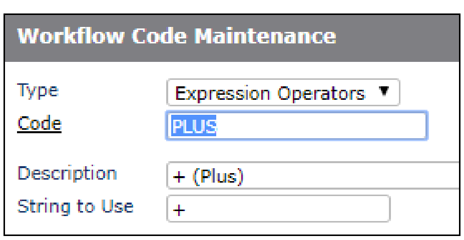


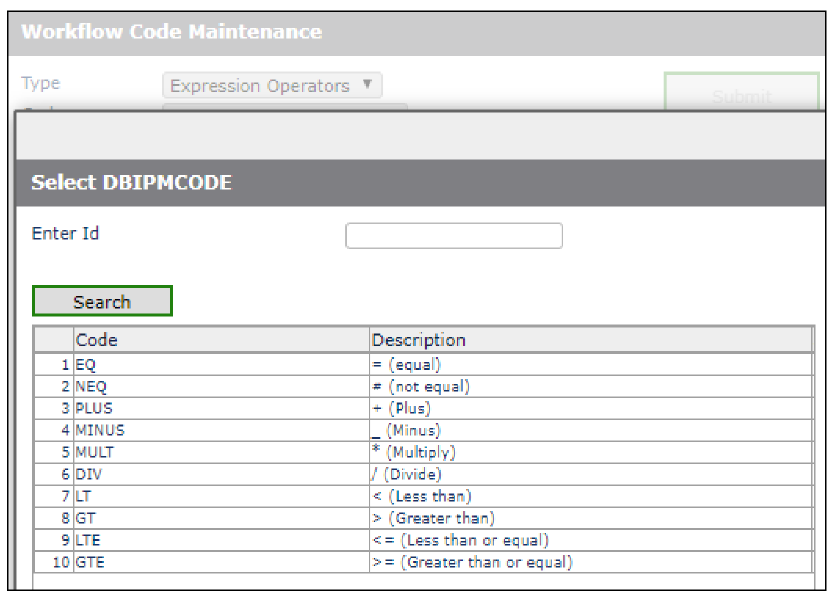

*Expression Operators*

The ten operators are shown here.

These are used when forming expressions in the Workflow Rule Maintenance process.

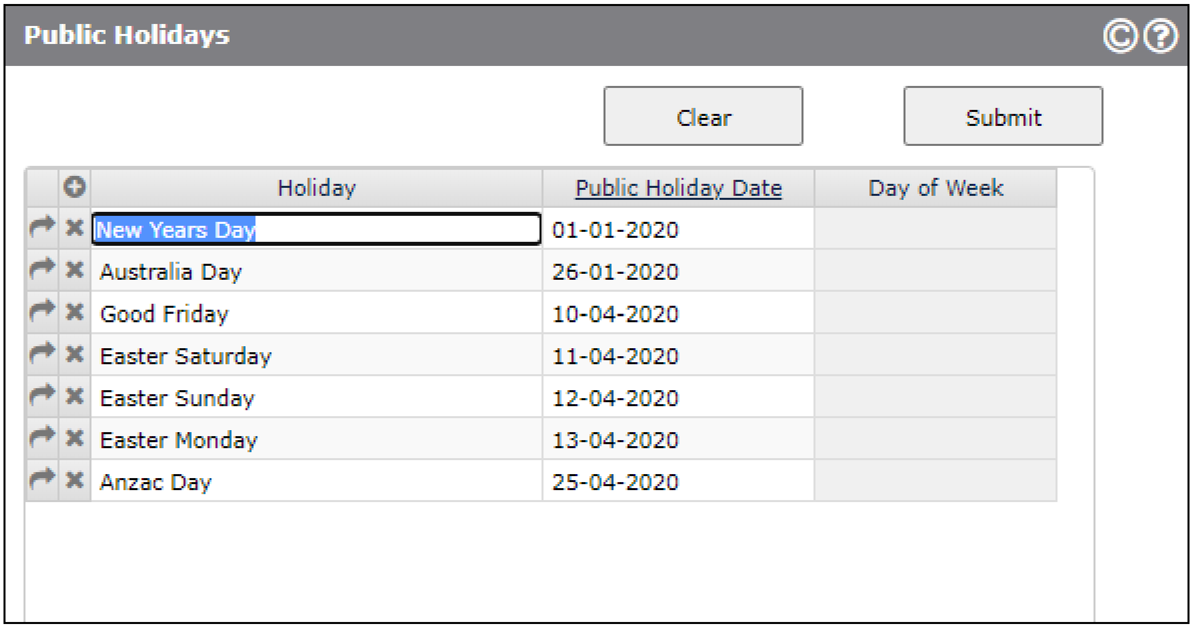
Additional codes can be entered provided the *String to Use* is a valid operator that will be recognized in an arithmetical expression.



## Public Holidays

Use this form to enter the dates of public holidays.
These dates are used in the calculation of workflow step overdue date. Public holidays are not treated as a business day.


Public Holidays

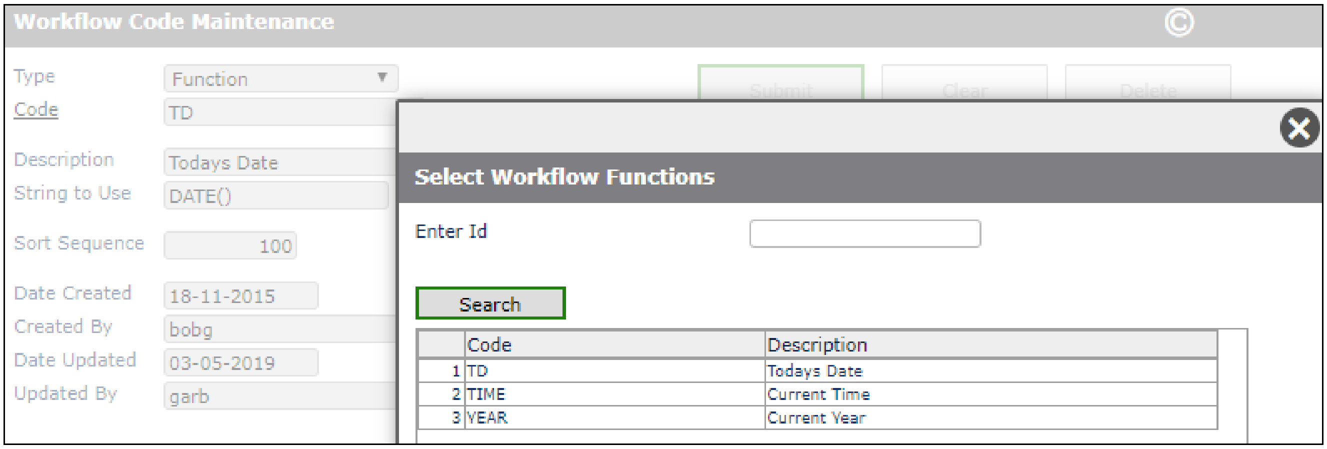
Clear | Submit

| Holiday | Public Holiday Date | Day of Week |
|---|---|---|
| New Years Day | 01-01-2020 | |
| Australia Day | 26-01-2020 | |
| Good Friday | 10-04-2020 | |
| Easter Saturday | 11-04-2020 | |
| Easter Sunday | 12-04-2020 | |
| Easter Monday | 13-04-2020 | |
| Anzac Day | 25-04-2020 | |

## Workflow Example

### Workflow Codes

Additional Workflow Functions can be created providing the *String to Use* can be interpreted by a basic subroutine.

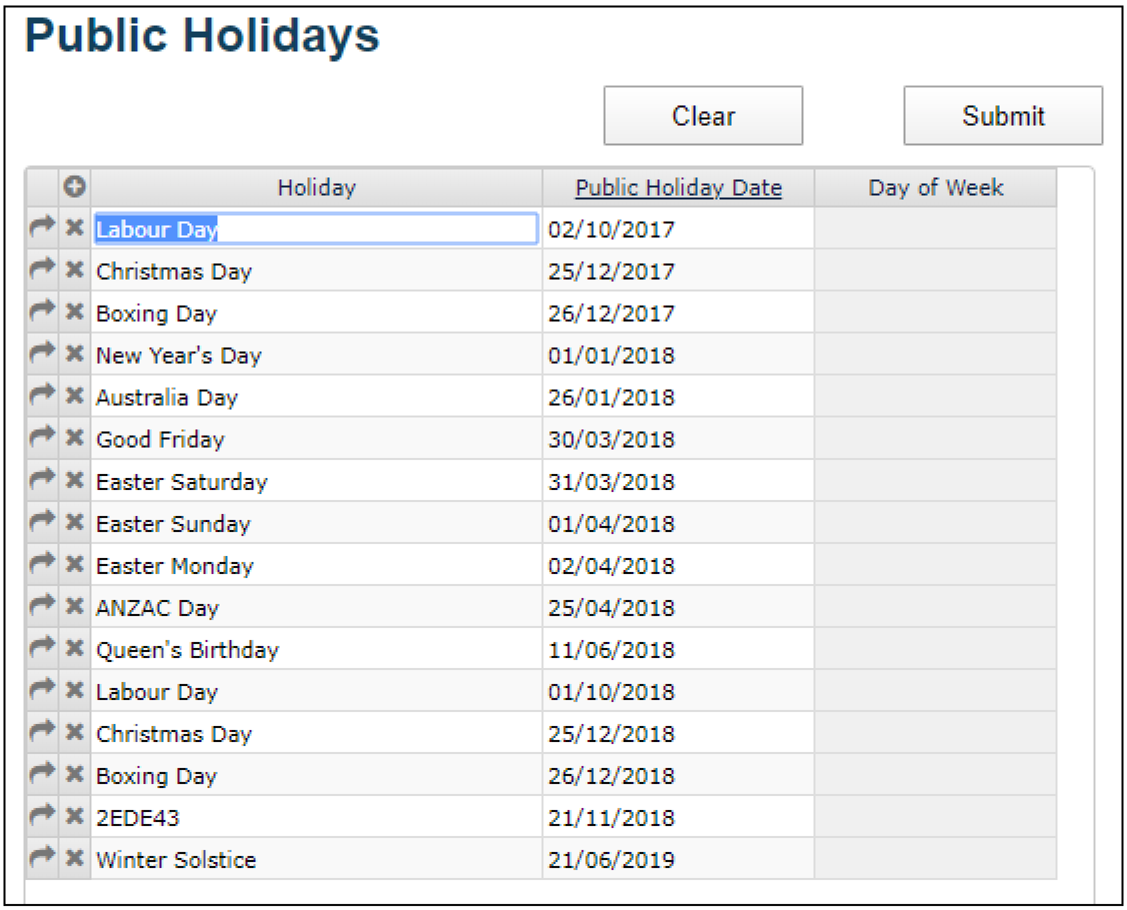


## Public Holidays

The table of public holidays is used by the workflow phantom when calculating the transaction due-by date. The format of this table is two attributes, value mark delimited, in a record in DBIPMCODE with record id *PUBHOLS.*

0001: 18994²19019²19094²19095²19096²19097²19109
0002: New Years Day²Australia Day²Good Friday²Easter Saturday²Easter Sunday

Data can be imported in this format if it already exists, otherwise it can be entered in the form provided.



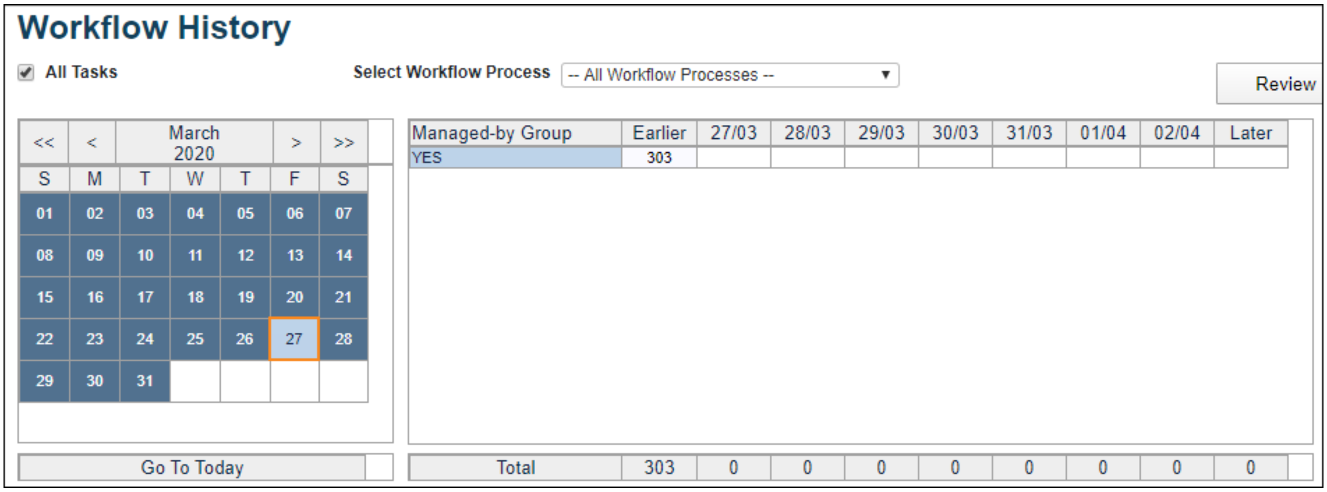
# Public Holidays

Clear Submit

| Holiday | Public Holiday Date | Day of Week |
|---|---|---|
| Labour Day | 02/10/2017 | |
| Christmas Day | 25/12/2017 | |
| Boxing Day | 26/12/2017 | |
| New Year's Day | 01/01/2018 | |
| Australia Day | 26/01/2018 | |
| Good Friday | 30/03/2018 | |
| Easter Saturday | 31/03/2018 | |
| Easter Sunday | 01/04/2018 | |
| Easter Monday | 02/04/2018 | |
| ANZAC Day | 25/04/2018 | |
| Queen's Birthday | 11/06/2018 | |
| Labour Day | 01/10/2018 | |
| Christmas Day | 25/12/2018 | |
| Boxing Day | 26/12/2018 | |
| 2EDE43 | 21/11/2018 | |
| Winter Solstice | 21/06/2019 | |

## Workflow History

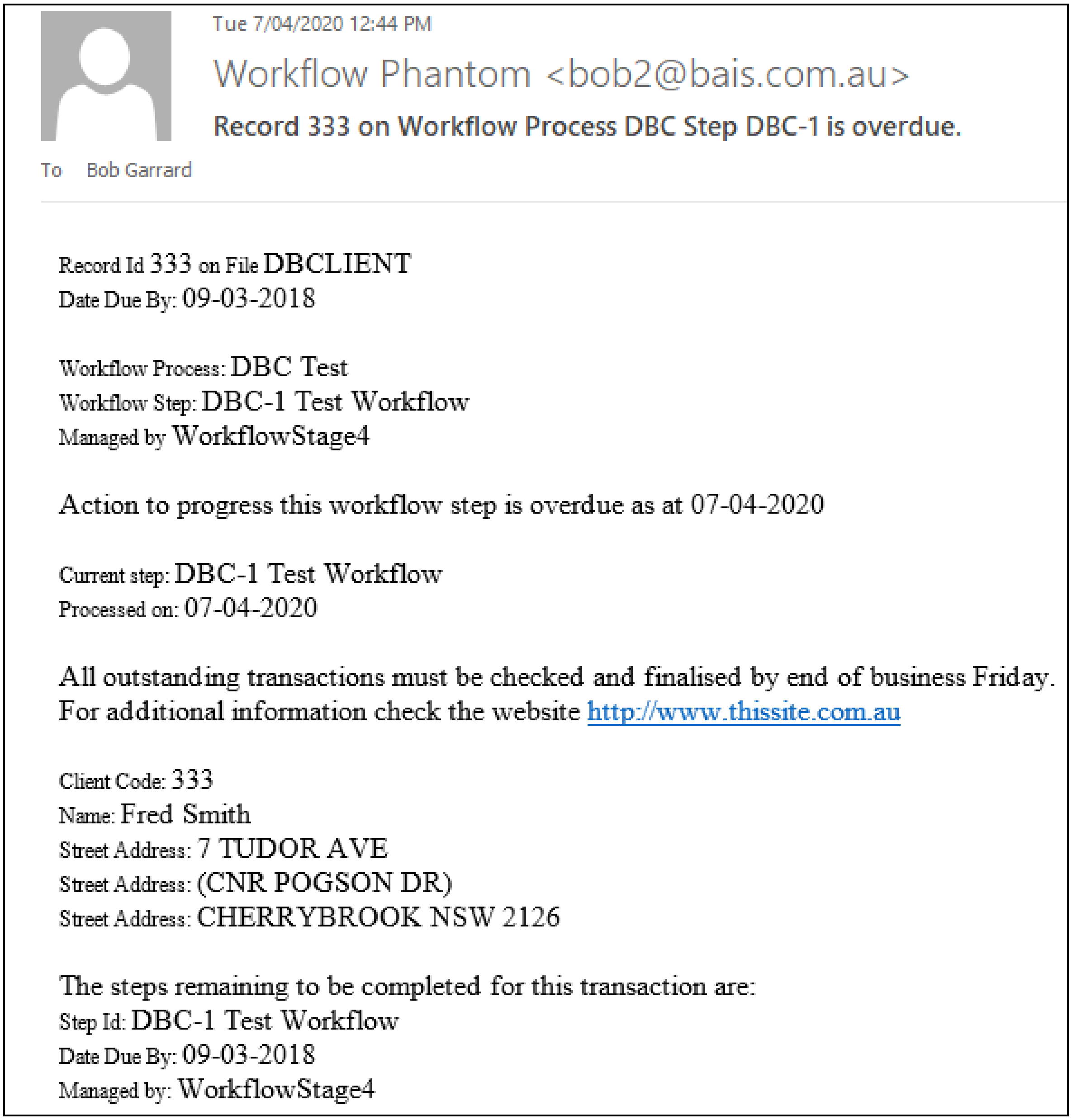
Workflow History can be viewed in a similar manner to Workflow Status.



## Reminder Email Message

The workflow phantom process generates reminder email messages based on the workflow settings.

The email layout is shown below:



Tue 7/04/2020 12:44 PM

Workflow Phantom <bob2@bais.com.au>

**Record 333 on Workflow Process DBC Step DBC-1 is overdue.**

To Bob Garrard

Record Id 333 on File DBCLIENT
Date Due By: 09-03-2018

Workflow Process: DBC Test
Workflow Step: DBC-1 Test Workflow
Managed by WorkflowStage4

Action to progress this workflow step is overdue as at 07-04-2020

Current step: DBC-1 Test Workflow
Processed on: 07-04-2020

All outstanding transactions must be checked and finalised by end of business Friday.
For additional information check the website http://www.thissite.com.au

Client Code: 333
Name: Fred Smith
Street Address: 7 TUDOR AVE
Street Address: (CNR POGSON DR)
Street Address: CHERRYBROOK NSW 2126

The steps remaining to be completed for this transaction are:
Step Id: DBC-1 Test Workflow
Date Due By: 09-03-2018
Managed by: WorkflowStage4

The email message can be stopped by:

- Setting the workflow group user *Suspend* setting to *Yes*
- Setting the type of reminder on a workflow step to *No reminder*

The email message is generated when:

- The transaction is overdue
- The type of reminder on a workflow step is set to *Email*

- The days between the reminder email every ‘n’ days rule is satisfied
- The workflow group user *Suspend* setting is set to *Resend*

The contents of the email are derived from:

- The workflow status record for the transaction
- The workflow step record
- The workflow process record
- The workflow control record

Workflow status record
This record holds the list of completed and remaining steps.

Workflow step record

**Reminder Details**

Type of Reminder: Email

Reminder Message: All outstanding transactions must be checked and finalised by end of business Friday.
For additional information check the website http://www.thissite.com.au

| Fields to Include in Reminder Email | Field Description | Field Type | Attribute | Translate from File | Trans Field Attribute |
|---|---|---|---|---|---|
| DBC.CLIENT.CODE | Client Code | A | 0 | | |
| DBC.CLIENT.NAME | Name | A | 1 | | |
| DBC.AC.MGR.NAME | Account Manager Name | A | 25 | DBEXEC | 1 |
| DBC.STREETADDRESS | Street Address | A | 2 | | |

The Reminder Message can tailored to each workflow step.

The list of Fields to Include in Reminder Email can be omitted from the step record in which case the list from the workflow process record will be used. The value of each field in the list is extracted from the database and displayed on the email.

Workflow process record

| Fields to Include in Reminder Email | Field Description | Field Type | Attribute | Translate from File | Trans Field Attribute |
|---|---|---|---|---|---|
| DBC.CLIENT.CODE | Client Code | A | 0 | | |
| DBC.CLIENT.NAME | Name | A | 1 | | |
| DBC.AC.MGR.NAME | Account Manager Name | A | 25 | DBEXEC | 1 |
| DBC.STREETADDRESS | Street Address | A | 2 | | |

This list of fields will be used for all steps in the workflow process unless a list of fields is present on a workflow step record.

Workflow control record

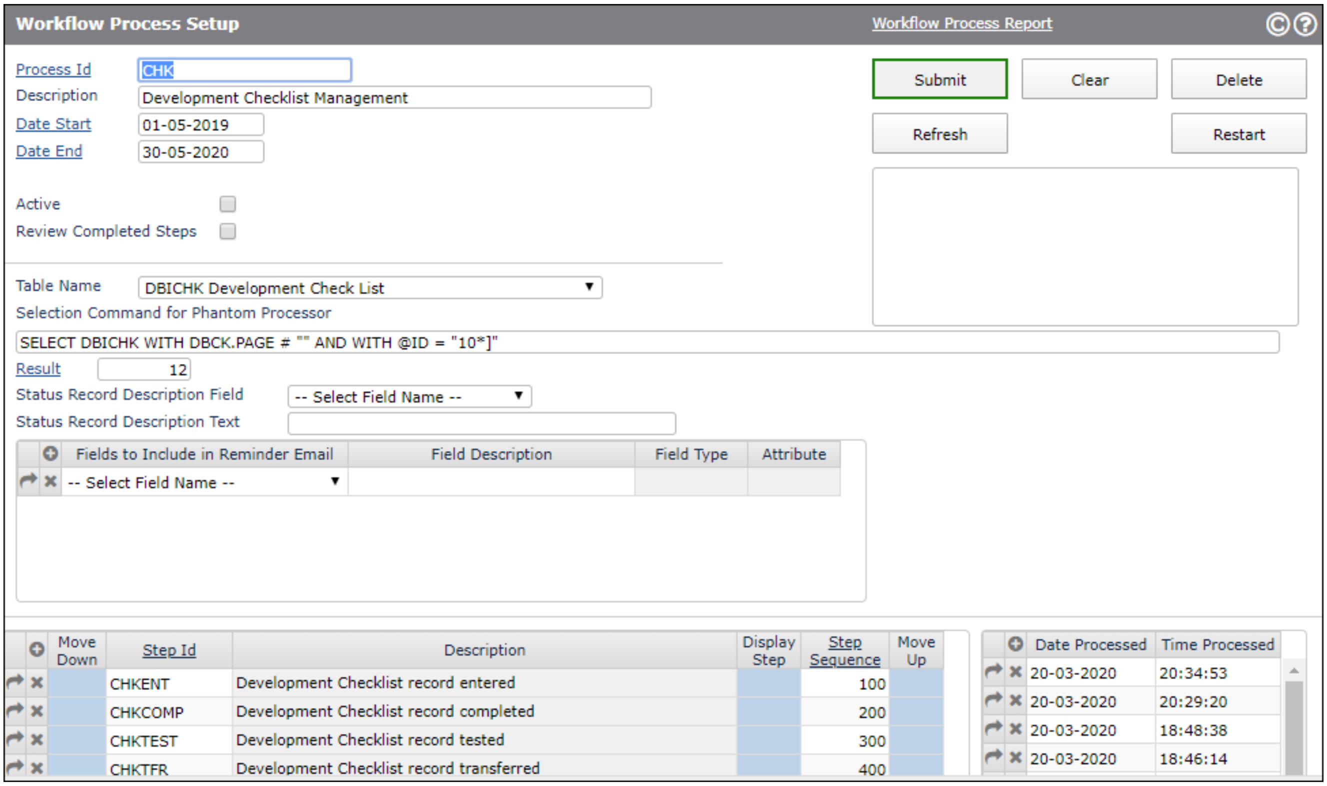
Email From: bob2@bais.com.au

Reminder email every ____ days

The *Email From* is used as the sender’s address for all emails.
The *Reminder email every* setting is used unless there is a value on the workflow step record.

## Example – Setting up a Workflow Process

**Workflow Process**

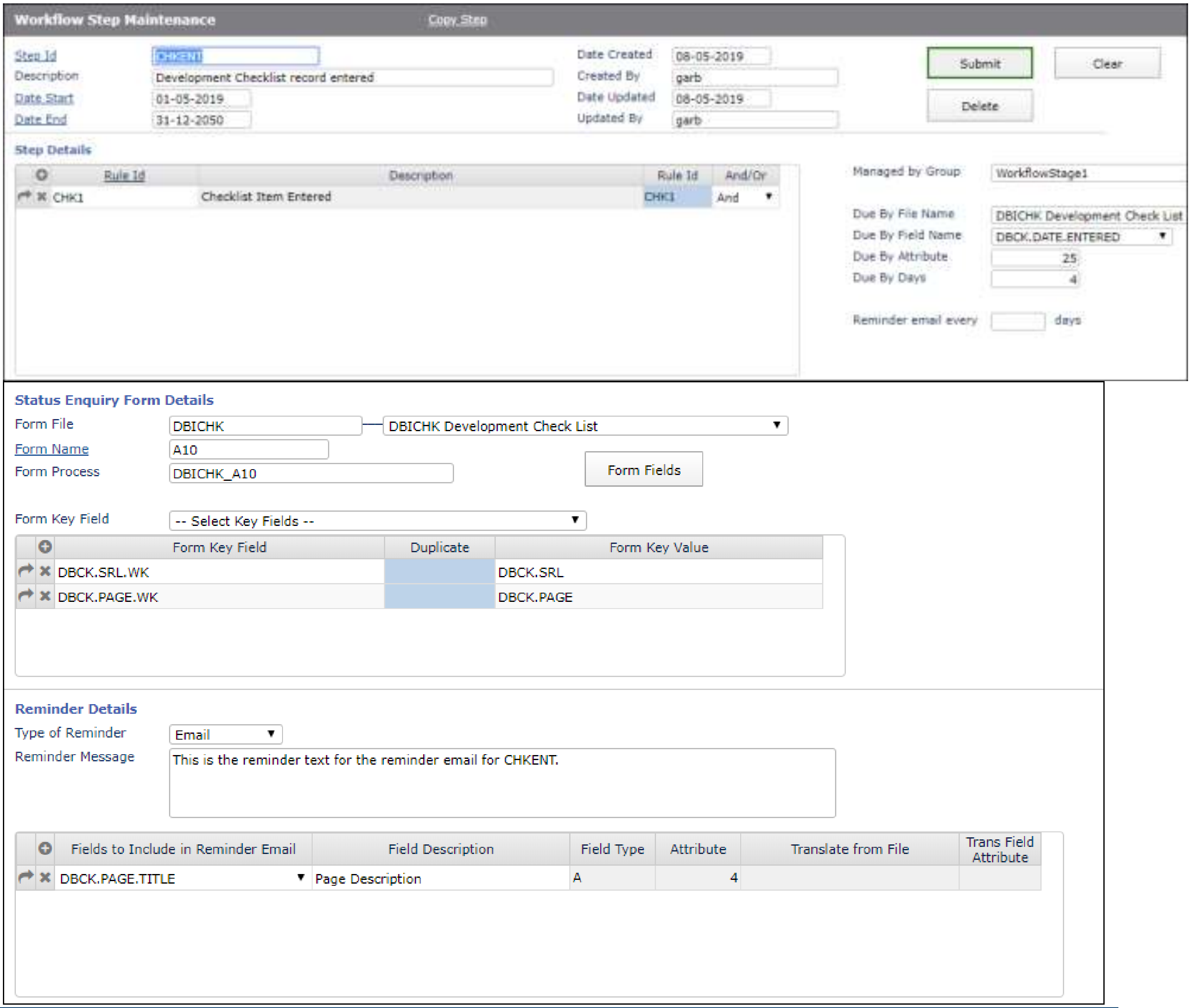



The Workflow Process pulls together the steps and rules that are needed to track and progress a transaction through a given business process.

The *Restart* button provides the ability to remove all tracking status records for the Workflow Process and re-commence workflow tracking.

Provided the Workflow Phantom is running then the Workflow system will immediately begin reviewing all transactions in the table name defined in the Workflow Process. The Status menu option is selected to view the stage of individual transactions. Transactions in a given stage can be assigned to a workflow group to administer.

Use the *Display Step* column in the grid to display the details of each defined step. This displays the name of the workflow group that has been assigned to manage transactions that are currently at this step of the workflow process.




**Workflow Step Maintenance**

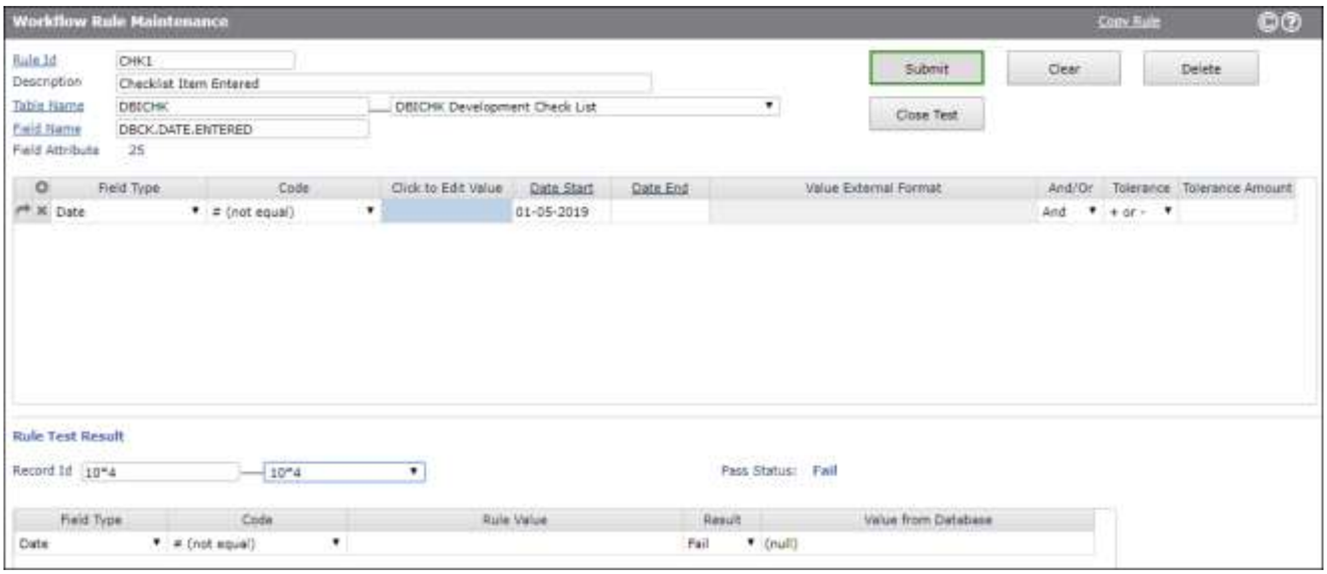
Workflow Step Maintenance allows for:

- Setting the start and end date of a step. Steps can be set up ahead of the time they will be used with a future *Date Start*. Steps can be ended by adding a *Date End* without the need to remove the step from the workflow process.
- A set of workflow rules that determine when the step has been completed.
- The designation of a DesignBais form that can be used from various points with the workflow application to view and maintain transactions within the workflow process.

Workflow rules determine the status of a transaction (it either passes of fails the rules) and therefore the stage (or step) that the transaction has reached.

The step that a transaction has reached determines who, or which group, is assigned to manage the transaction.

Once a transaction has passed all rules within all steps within a workflow process then it is flagged as completed.




The rule displayed above is a simple date-based rule. The workflow process encompasses transactions on the DBICHK table. This rule relates to the DBCK.DATE.ENTERED field (attribute 23) on DBICHK. The rule is equivalent to a basic subroutine statement:

IF REC<DBCK.DATE.ENTERED> # “” THEN PASS = 1

This effectively means that if there is a date in this field then the rule is passed and the transaction can move to the next step in the workflow process.

Another example is shown below. This example is not a realistic rule but is used to demonstrate the features of rule setup.

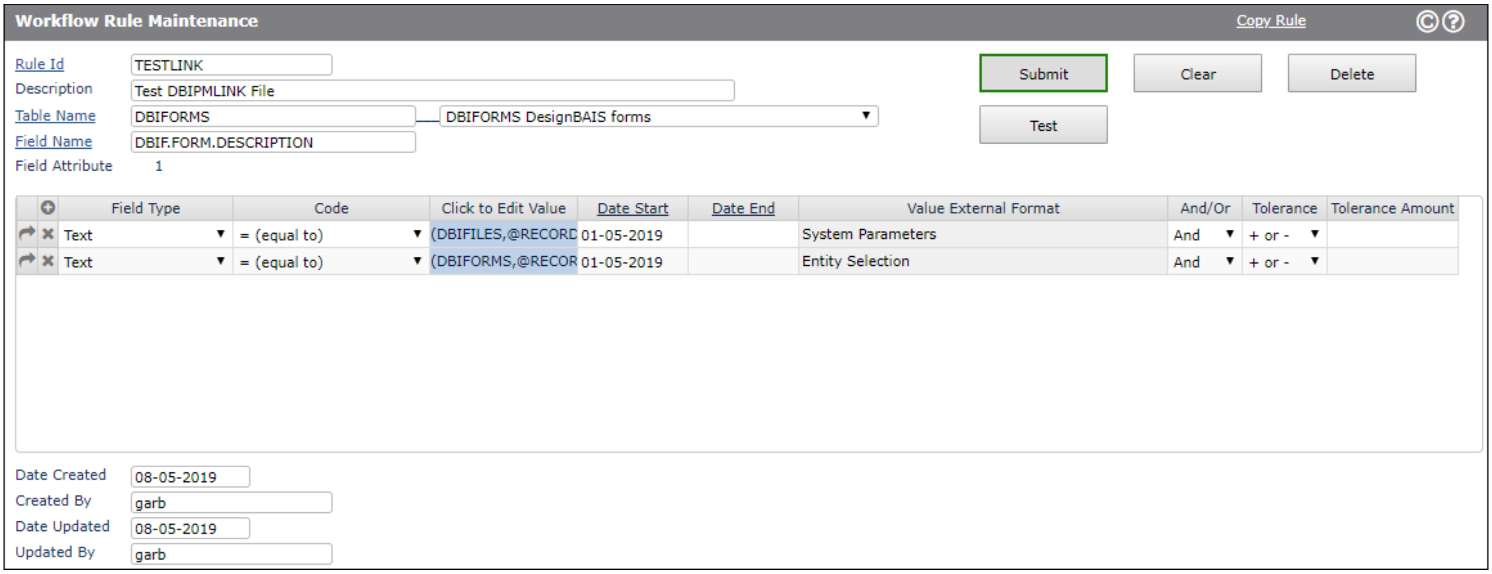
This rule uses expressions to determine the result of the rule. Note that the rule comprises multiple lines joined by the *And* conjunction. This means that both rule lines must be true for the rule to be passed.

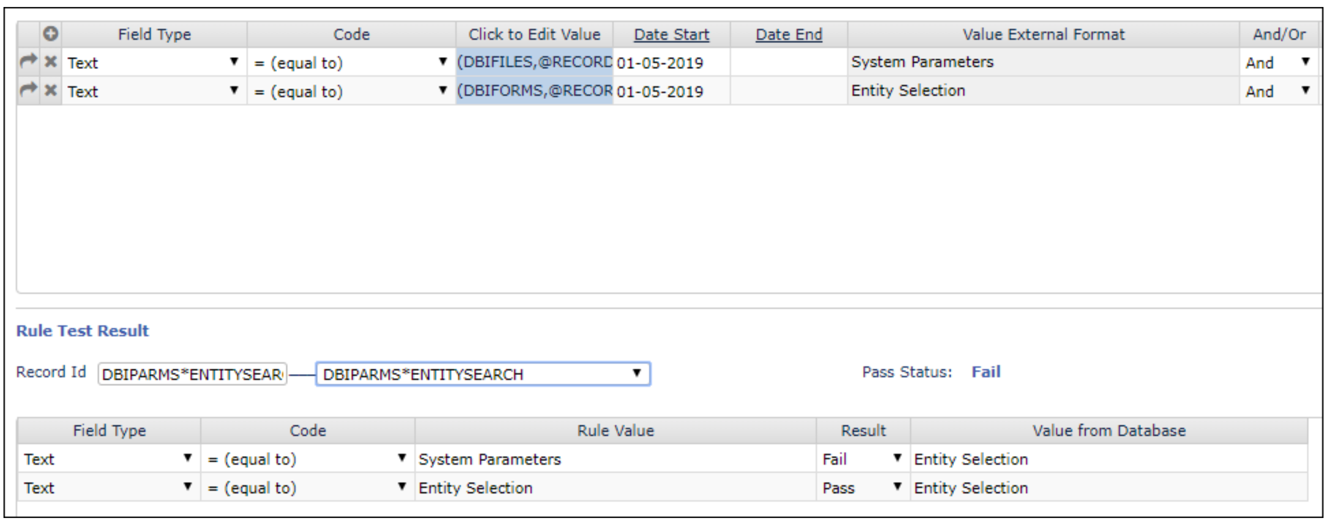
The rule is based on the DBIF.FORM.DESCRIPTION field on the DBIFORMS table. The rule is true (passed) if:

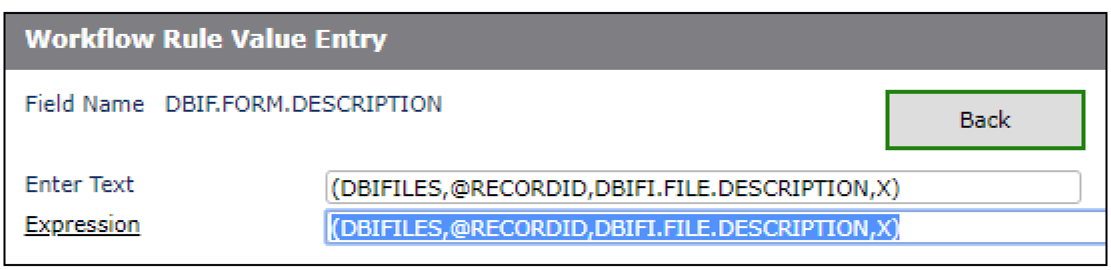
The description of a form (field DBIF.FORM.DESCRIPTION) is equal to the description of a table (field DBIFI.FILE.DESCRIPTION) on the DBIFILES table

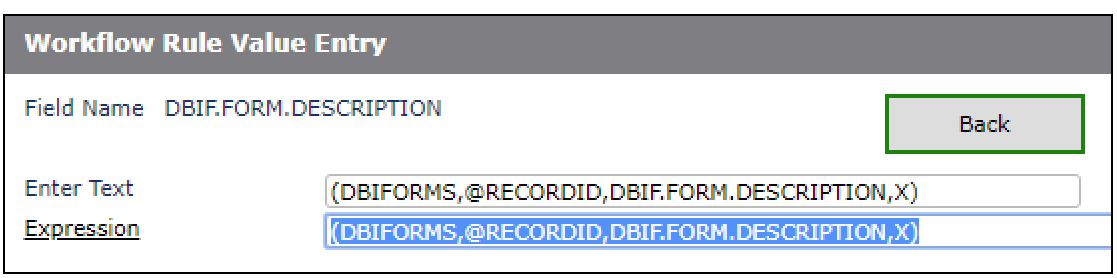
AND

The description of a form (field DBIF.FORM.DESCRIPTION) is equal to itself.


Workflow Rule Maintenance
Copy Rule
Rule Id TESTLINK
Description Test DBIPMLINK File
Table Name DBIFORMS DBIFORMS DesignBAIS forms
Field Name DBIF.FORM.DESCRIPTION
Field Attribute 1
Submit
Clear
Delete
Test
Field Type Code Click to Edit Value Date Start Date End Value External Format And/Or Tolerance Tolerance Amount
Text = (equal to) (DBIFILES,@RECORD 01-05-2019 System Parameters And + or -
Text = (equal to) (DBIFORMS,@RECOR 01-05-2019 Entity Selection And + or -
Date Created 08-05-2019
Created By garb
Date Updated 08-05-2019
Updated By garb


Field Type Code Click to Edit Value Date Start Date End Value External Format And/Or
Text = (equal to) (DBIFILES,@RECORD 01-05-2019 System Parameters And
Text = (equal to) (DBIFORMS,@RECOR 01-05-2019 Entity Selection And
Rule Test Result
Record Id DBIPARMS*ENTITYSEAR DBIPARMS*ENTITYSEARCH
Pass Status: Fail
Field Type Code Rule Value Result Value from Database
Text = (equal to) System Parameters Fail Entity Selection
Text = (equal to) Entity Selection Pass Entity Selection


Workflow Rule Value Entry
Field Name DBIF.FORM.DESCRIPTION
Back
Enter Text (DBIFILES,@RECORDID,DBIFI.FILE.DESCRIPTION,X)
Expression (DBIFILES,@RECORDID,DBIFI.FILE.DESCRIPTION,X)


Workflow Rule Value Entry
Field Name DBIF.FORM.DESCRIPTION
Back
Enter Text (DBIFORMS,@RECORDID,DBIF.FORM.DESCRIPTION,X)
Expression (DBIFORMS,@RECORDID,DBIF.FORM.DESCRIPTION,X)

As explained this is not a realistic rule. Referring to the display above it can be noted that there is a *Test* button. Clicking the button opens up a test area on the form and allows the user to test the rule against a selected record from the rule table DBIFORMS.

In the example above the rule is tested using the DBIFORMS record DBIPARMS*ENTITYSEARCH.

The results of the rule evaluation are shown in the snip below.

**Rule Test Result**

Record Id DBIPARMS*ENTITYSEAR — DBIPARMS*ENTITYSEARCH    Pass Status: **Fail**

| Field Type | Code | Rule Value | Result | Value from Database |
|---|---|---|---|---|
| Text | = (equal to) | System Parameters | Fail | Entity Selection |
| Text | = (equal to) | Entity Selection | Pass | Entity Selection |

The result of the rule value is displayed along with the value of the rule result (Value from Database).

In this example, in line 1, the rule value is the File Description from the selected record, the file being DBIPARMS. The file description for DBIPARMS is *System Parameters*.

The Value from Database is the Description from the DBIFORMS record which is *Entity Selection*.

These values are not equal and so this line of the rule fails.

Line 2 is comparing the Form Description with itself so it will always be true so the rule result is *Pass*.

This example demonstrates the Table Links feature of the Workflow Module.

## Table Links

The Table Links feature allows tables to be joined or linked based on the presence of a field value on a table that is the key to another *Linked Table*.

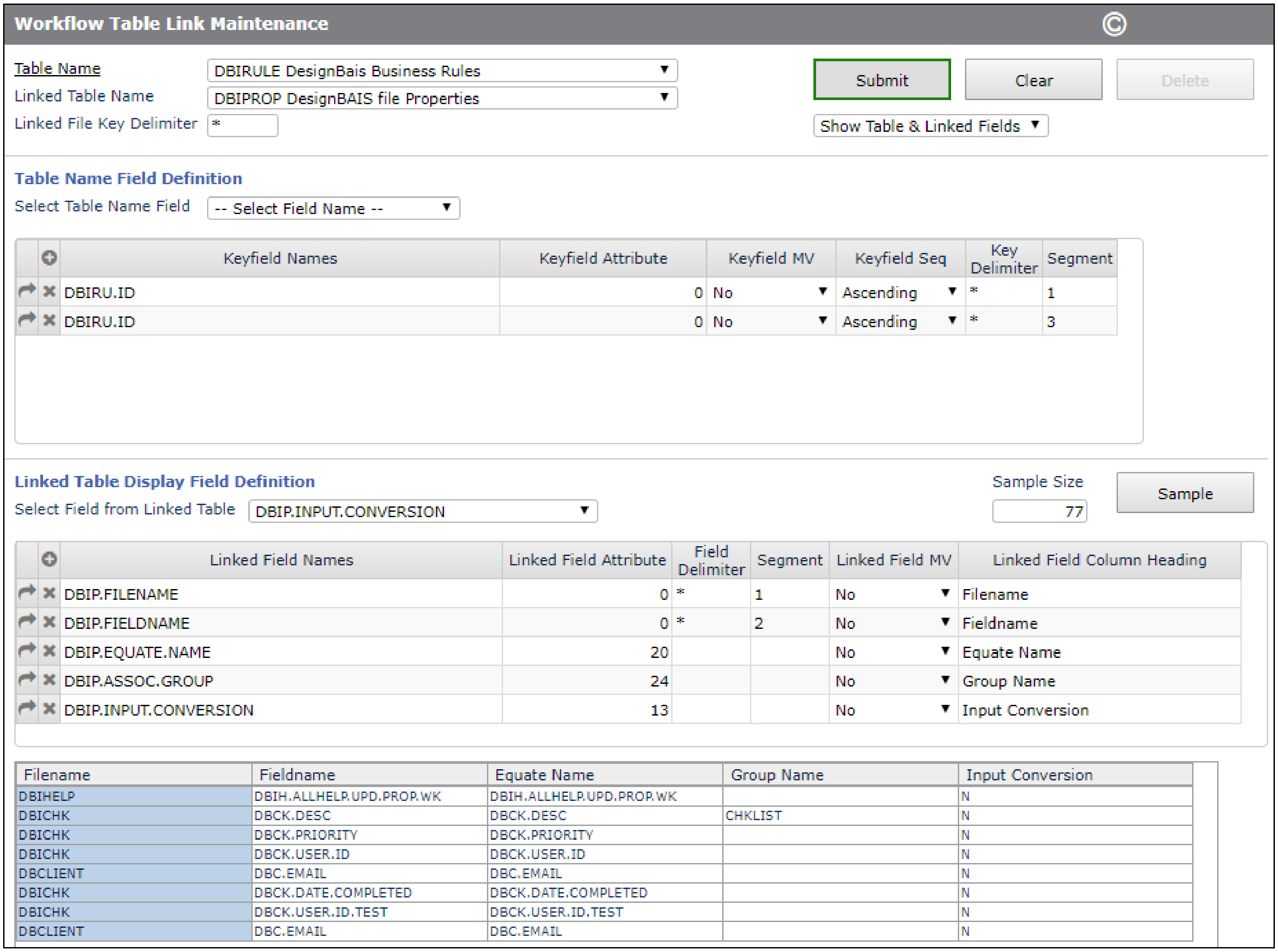

**Workflow Table Link Maintenance**

Table Name: DBIRULE DesignBais Business Rules
Linked Table Name: DBIPROP DesignBAIS file Properties
Linked File Key Delimiter: *

Submit | Clear | Delete

Show Table & Linked Fields

**Table Name Field Definition**

Select Table Name Field: -- Select Field Name --

| Keyfield Names | Keyfield Attribute | Keyfield MV | Keyfield Seq | Key Delimiter | Segment |
|---|---|---|---|---|---|
| DBIRU.ID | 0 | No | Ascending | * | 1 |
| DBIRU.ID | 0 | No | Ascending | * | 3 |

**Linked Table Display Field Definition**

Select Field from Linked Table: DBIP.INPUT.CONVERSION

Sample Size: 77

Sample

| Linked Field Names | Linked Field Attribute | Field Delimiter | Segment | Linked Field MV | Linked Field Column Heading |
|---|---|---|---|---|---|
| DBIP.FILENAME | 0 | * | 1 | No | Filename |
| DBIP.FIELDNAME | 0 | * | 2 | No | Fieldname |
| DBIP.EQUATE.NAME | 20 | | | No | Equate Name |
| DBIP.ASSOC.GROUP | 24 | | | No | Group Name |
| DBIP.INPUT.CONVERSION | 13 | | | No | Input Conversion |

| Filename | Fieldname | Equate Name | Group Name | Input Conversion |
|---|---|---|---|---|
| DBIHELP | DBIH.ALLHELP.UPD.PROP.WK | DBIH.ALLHELP.UPD.PROP.WK | | N |
| DBICHK | DBCK.DESC | DBCK.DESC | CHKLIST | N |
| DBICHK | DBCK.PRIORITY | DBCK.PRIORITY | | N |
| DBICHK | DBCK.USER.ID | DBCK.USER.ID | | N |
| DBCLIENT | DBC.EMAIL | DBC.EMAIL | | N |
| DBICHK | DBCK.DATE.COMPLETED | DBCK.DATE.COMPLETED | | N |
| DBICHK | DBCK.USER.ID.TEST | DBCK.USER.ID.TEST | | N |
| DBCLIENT | DBC.EMAIL | DBC.EMAIL | | N |

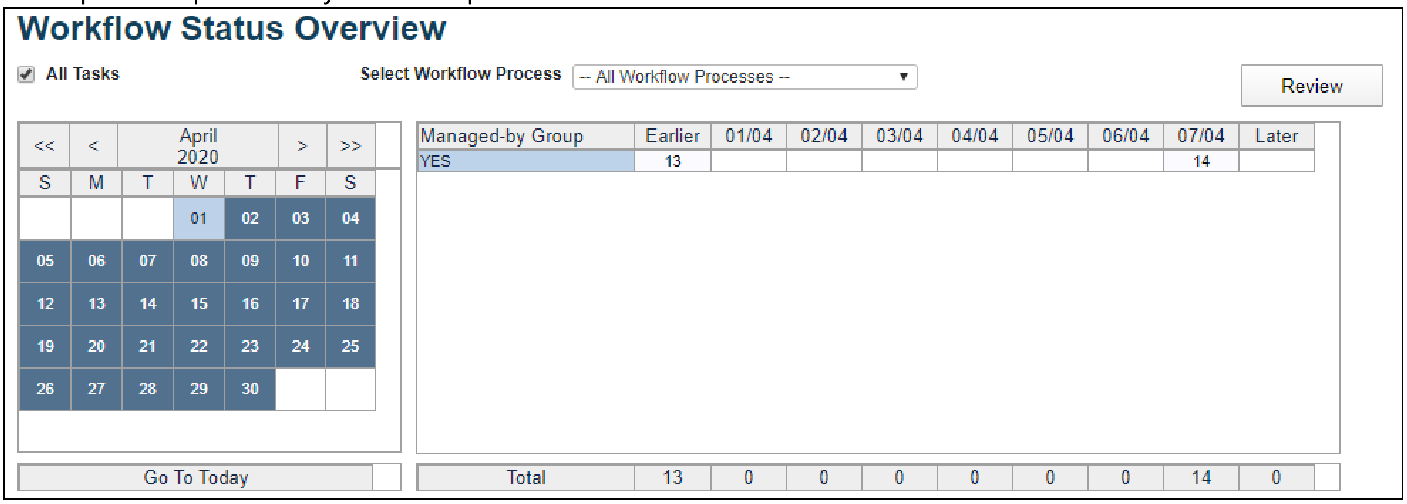
In the example shown above the DBIPROP Field Properties table and the DBIRULE Table can be linked using the first and third segments of the DBIRULE key (DBIRU.ID) to form the key of the Properties table DBIPROP.

| DBIRULE Key Structure | DBIPROP Key Structure |
|---|---|
| Filename*Formname*Fieldname | Filename*Fieldname |

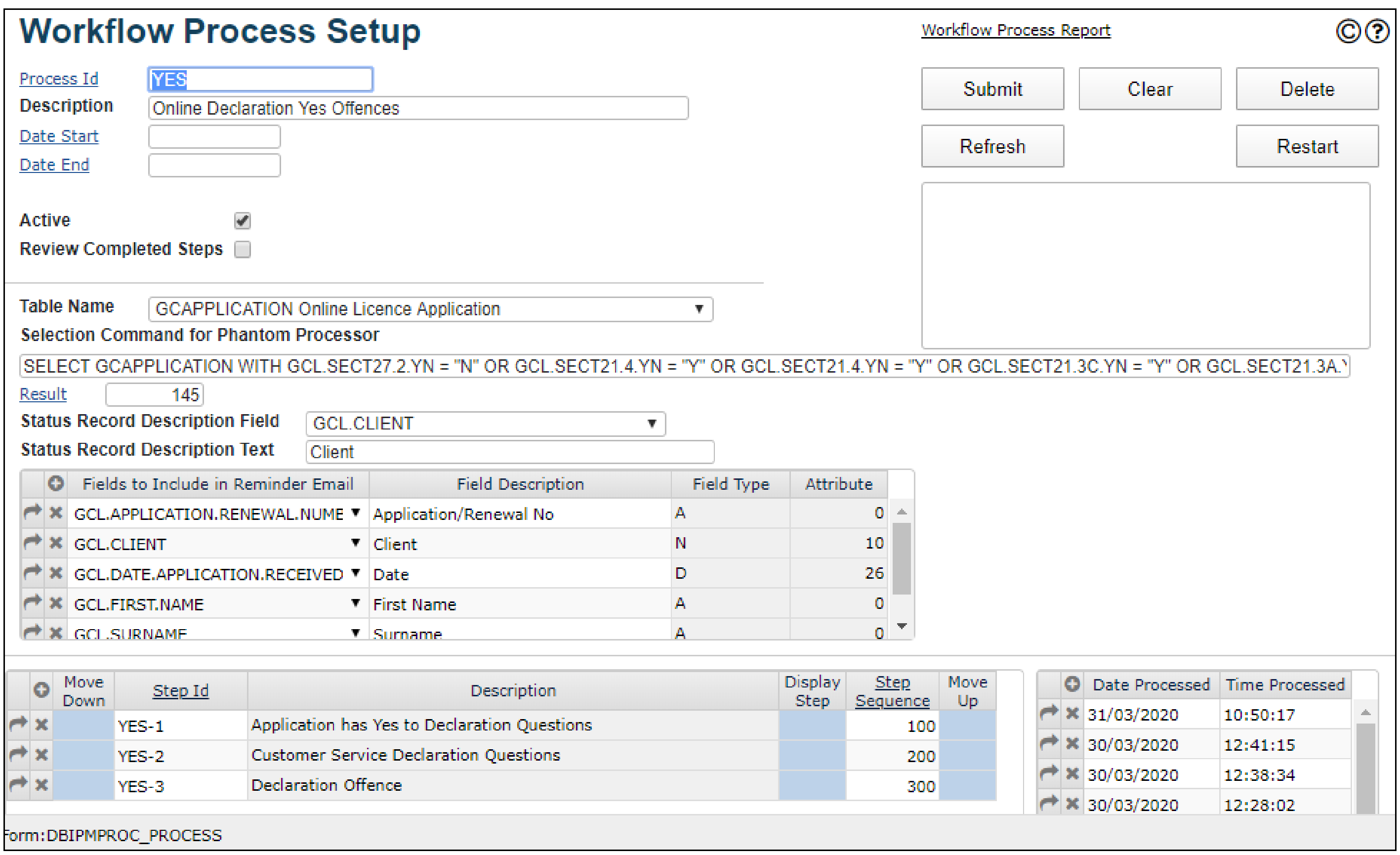
The lower part of the Table Link Maintenance form allows the developer to select field names from the linked table, in this example DBIPROP, and see the display of the field values from DBIPROP, thus proving that the linking definition is correct.

## Workflow Example – Online Declaration of Yes Offences

The top menu option *Workflow Status* provides the dashboard for workflow.

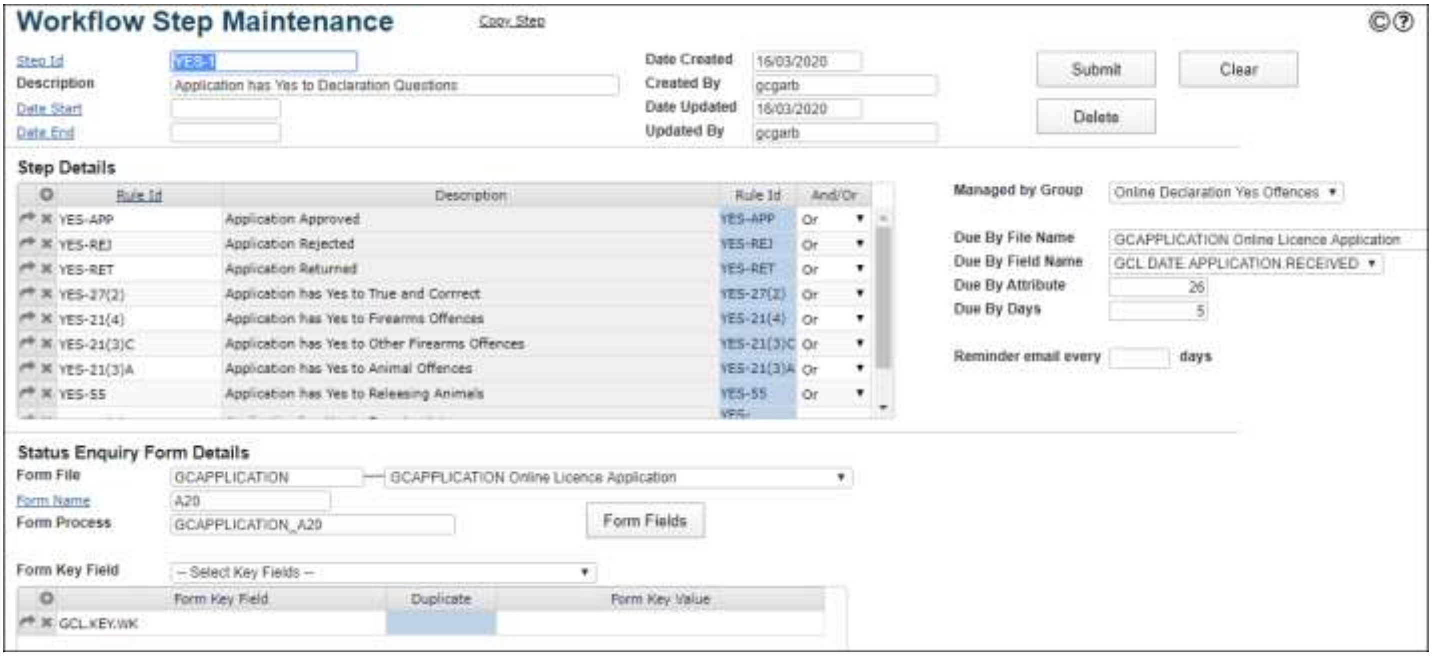



This shows the one active workflow process ‘YES’. The details of this workflow process can be viewed and maintained via the menu option *Processes.*




There are three steps.

YES-1, the initial step, assesses whether the application meets any of the applicable criteria.




The *Selection Command* for this process has been set up to select only those records in GCAPPLICATION that meet the basic criteria for the workflow. That is the applicant has answered 'Yes' to one of the *Declaration* questions (or 'No' in the case of the first question).

This selection could be achieved just by the rules that are in the initial process step YES-1 but by embedding the selection criteria in the select command the phantom processing time is minimized.

The rules in step YES-1 effectively pinpoint the question or questions that trigger a review of the application. The first three rules are to weed out applications that have already been approved, rejected or returned.

1. Is the application already approved?
2. Is the application already rejected?
3. Is the application already returned?

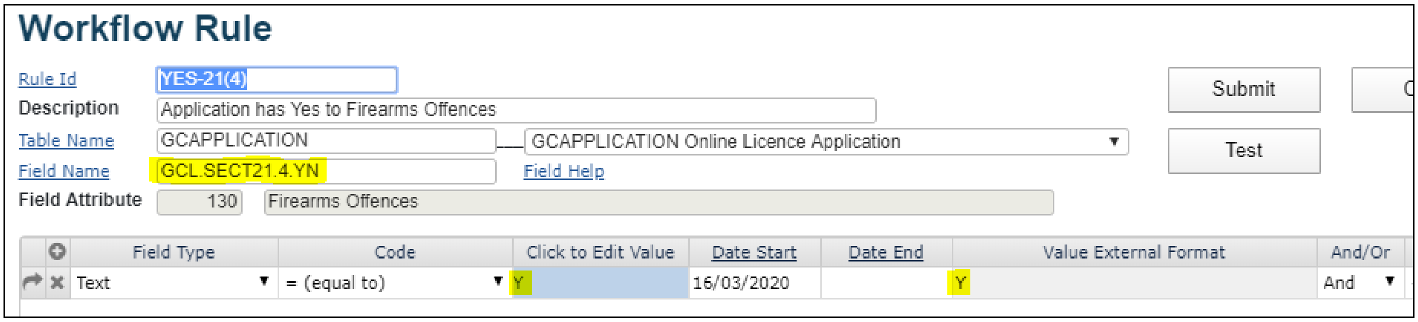
If so then the workflow step is passed.

The remainder of the rules evaluate which declaration question has been answered in the affirmative.

4. Does the application have a 'Yes' response to any of the declaration questions?

If so then this is an application that falls into the scope of this workflow. The application moves to the second step of the workflow, YES-2.

The rules that are part of the first step YES-1 are of the form:

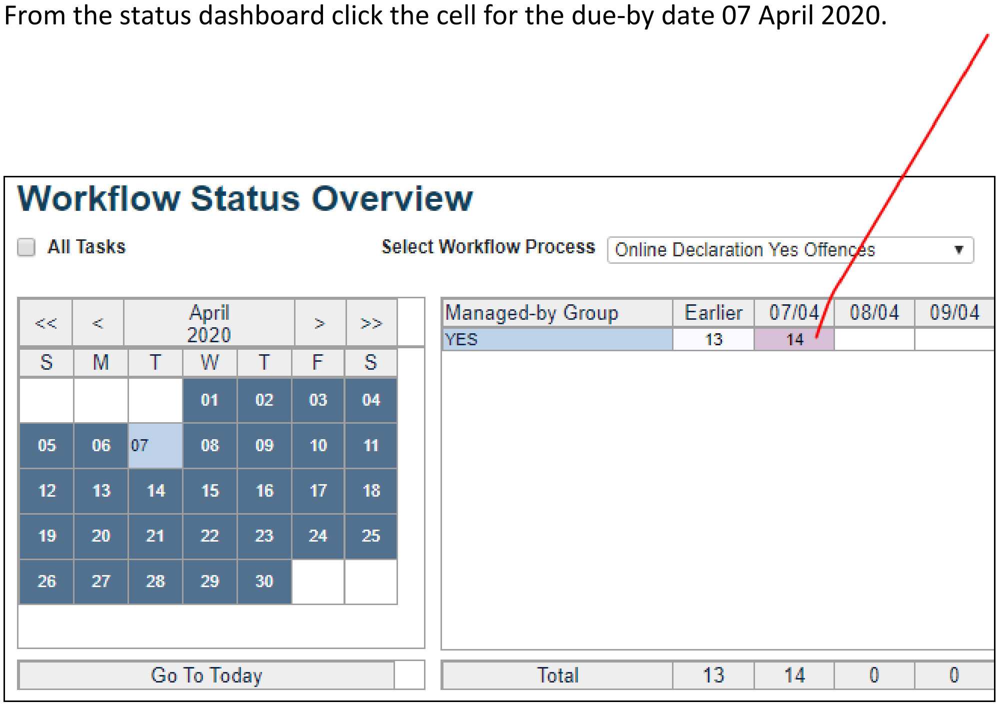



*Is the value in the GCAPPLICATION field equal to 'Y'?*

For example, as shown above, has the applicant responded 'Yes' to the question:

> "In the previous 10 years have you been found guilty of an offence under the Firearms Act 1996 that is in accordance with section 84 of that Act, an offence that may be (or is required to be) prosecuted on indictment? Section 21(4) Game & Feral Animal Control Act 2002."

From the status dashboard click the cell for the due-by date 07 April 2020.




This opens a form listing all the applications for that date. Note that you will only see application for steps that are managed by a *Managed-by Group* of which you are a member.

## Workflow Status Enquiry

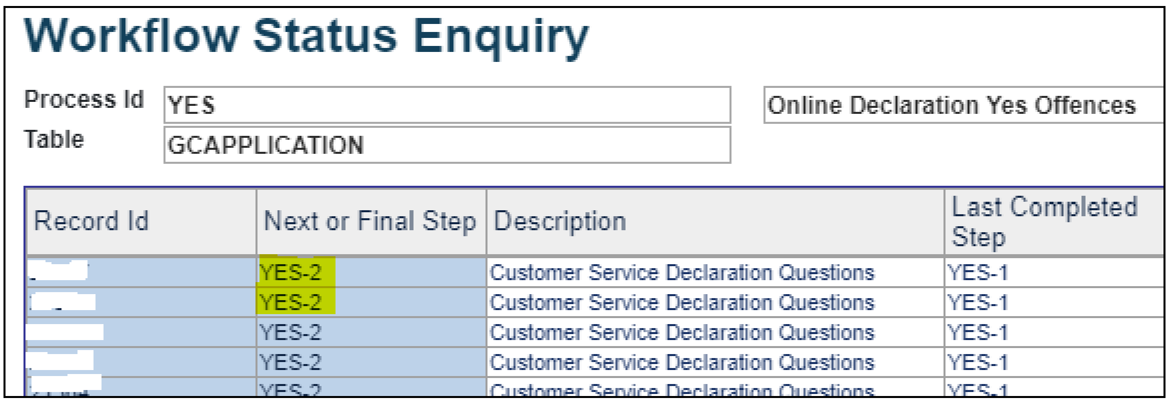
Process Id: YES | Online Declaration Yes Offences

Table: GCAPPLICATION

Close

| Record Id | Next or Final Step | Description | Last Completed Step | Description | Date Completed | Time Completed | Managed by Group | Due By Step | Due By Date |
|---|---|---|---|---|---|---|---|---|---|
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-3 | 07/04/2020 |
| | YES-2 | Customer Service Declaration Questions | YES-1 | Application has Yes to Declaration Questions | 31/03/2020 | 10:50:16 | YES | YES-2 | 07/04/2020 |

Click on the highlighted cell in column 1 that relates to a selected application. There are two rows corresponding to the two remaining steps for this transaction. These steps could be managed by different groups, in which case you may only see one row, if you were a member of only one of those groups.



## Workflow Status Enquiry

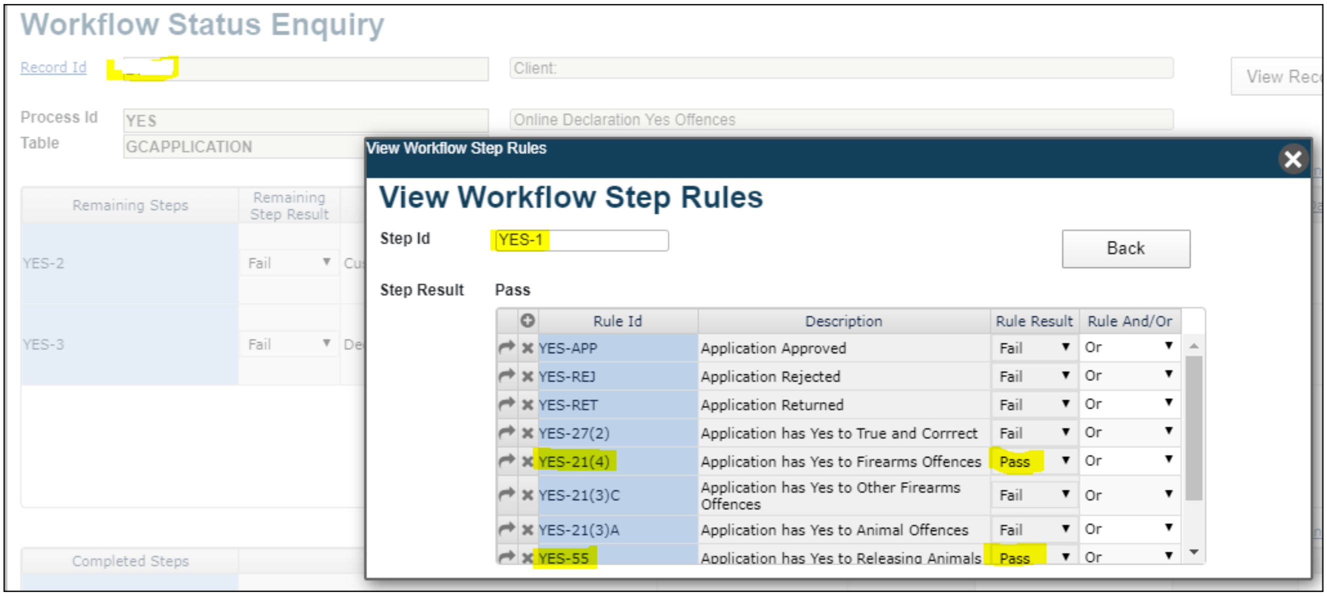
Process Id: YES | Online Declaration Yes Offences

Table: GCAPPLICATION

| Record Id | Next or Final Step | Description | Last Completed Step |
|---|---|---|---|
| | YES-2 | Customer Service Declaration Questions | YES-1 |
| | YES-2 | Customer Service Declaration Questions | YES-1 |
| | YES-2 | Customer Service Declaration Questions | YES-1 |
| | YES-2 | Customer Service Declaration Questions | YES-1 |
| | YES-2 | Customer Service Declaration Questions | YES-1 |

The Workflow Status Enquiry form opens with details for the applications. There are two grids on the form, one for remaining steps and one for completed steps.

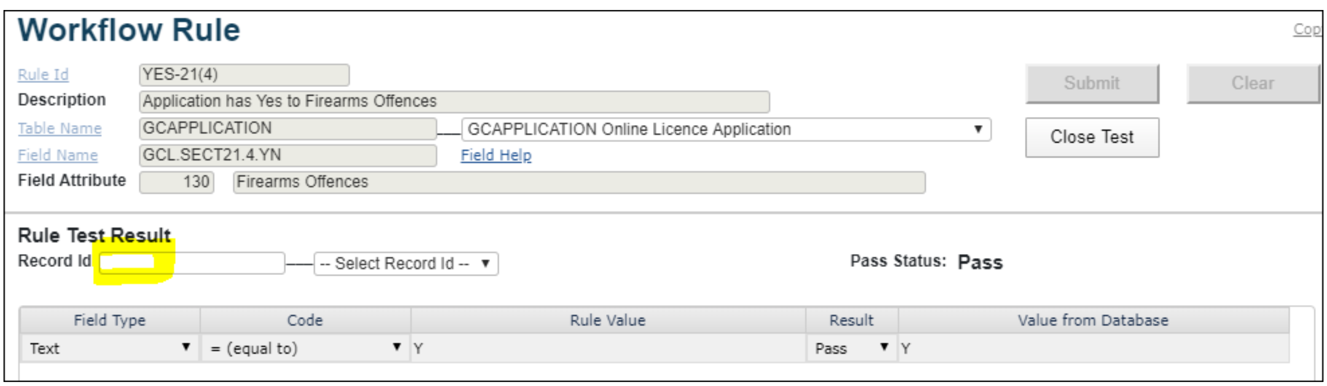
Click on the column 1 (highlighted in blue) of the completed step YES-1. This opens a form that displays the rules that are linked to this step with rule result and the whether the rules apply in a conjunctive or disjunctive manner. Note in this example that the step is considered completed because all rules are disjunctive and two of the rules have a pass result.




Clicking on the first rule that is flagged as ‘Pass’, rule YES-21(4), opens the rule maintenance form in enquiry mode with the Rule Test section displayed and the selected application key pre-loaded.

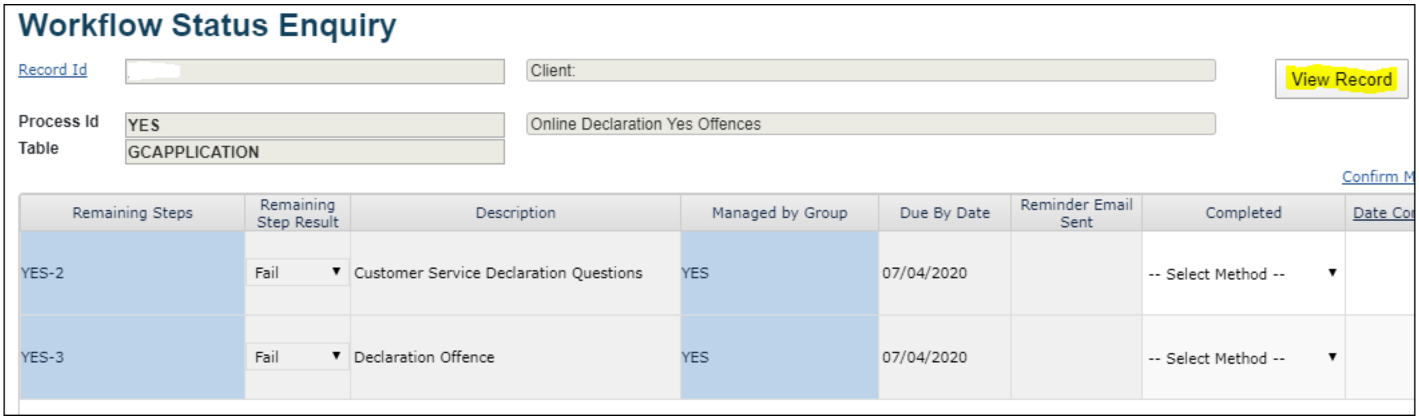
This allows the operator to see the actual value, from the database, of the rule field for this transaction.

In this case, as shown below, the GCAPPLICATION field GCL.SECT21.4.YN has a value of ‘Y’.
Note that other application ids could then be entered in the *Record Id* field in order to enquire on the status of other records, if this is useful to the operator.



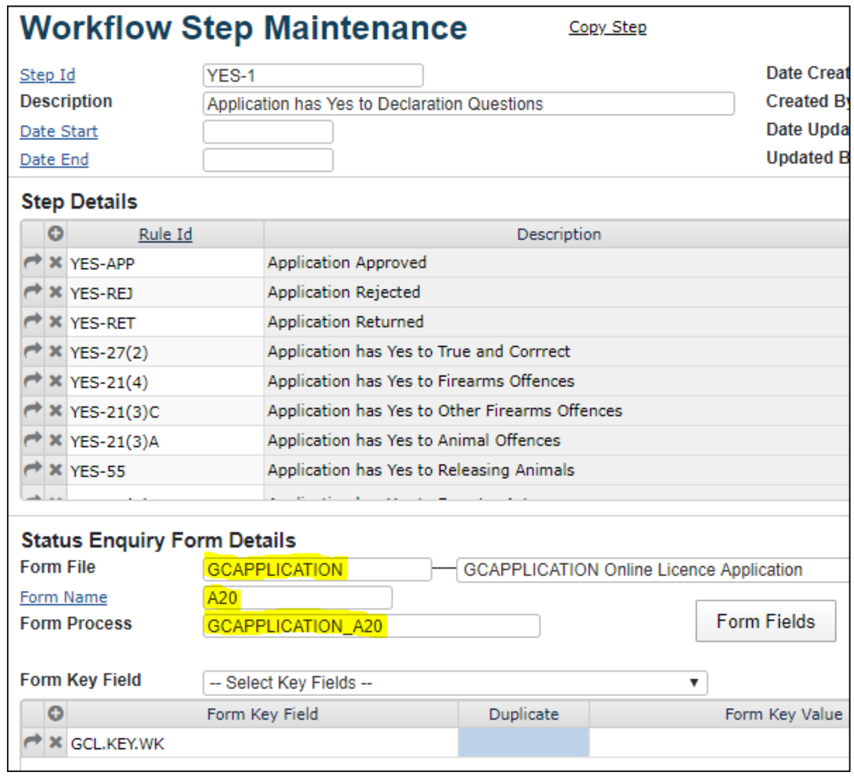

Close this form using the *Back* button.

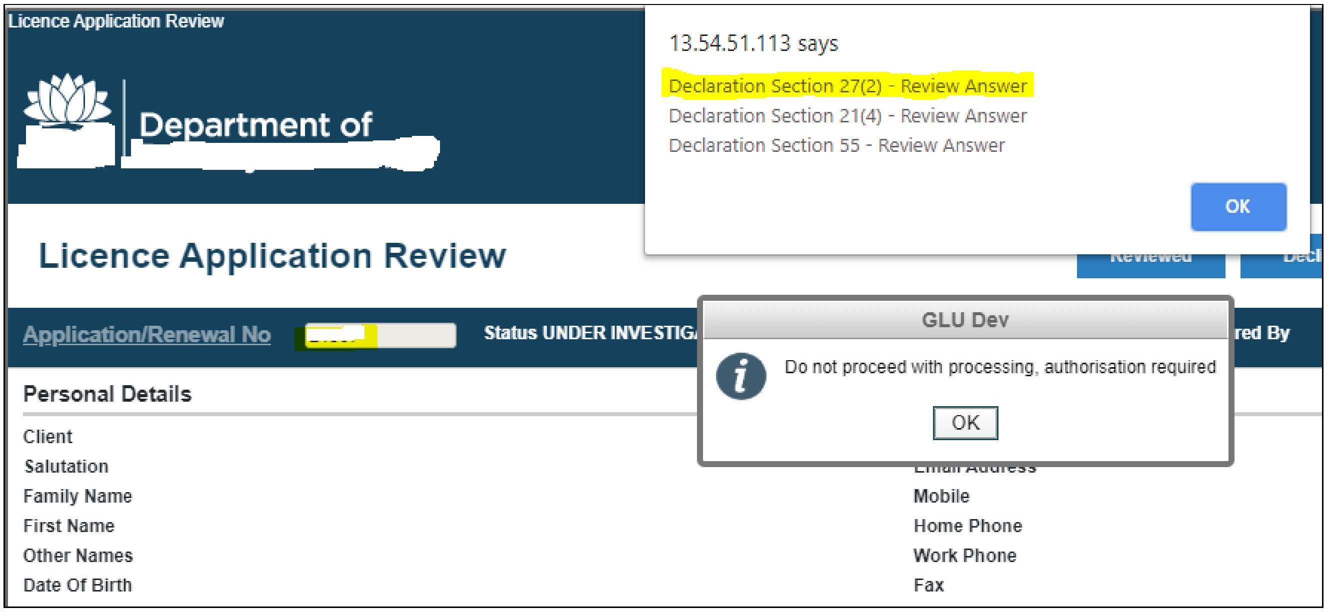
In order to maintain or view the application record click the *View Record* button.



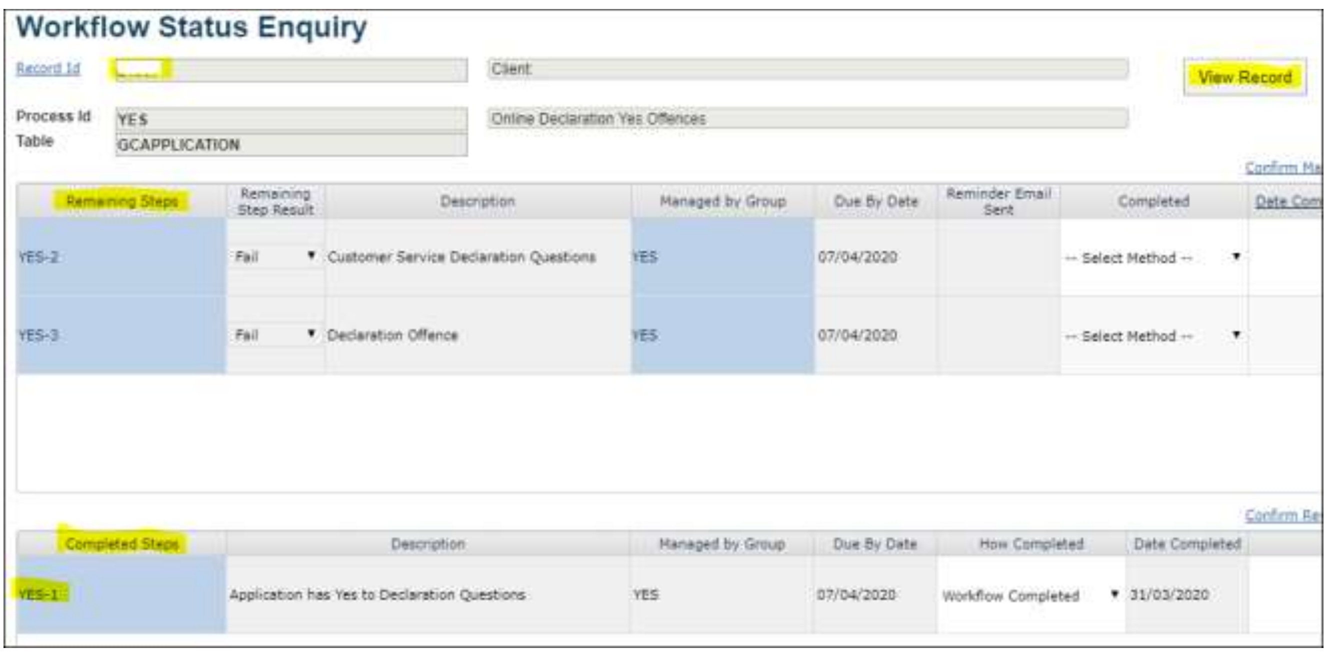

This opens the GCAPPLICATION_A20 form with selected application displayed.

Remember that the name of the form to open is specified on the step record. Any valid form can be set as the form to open.

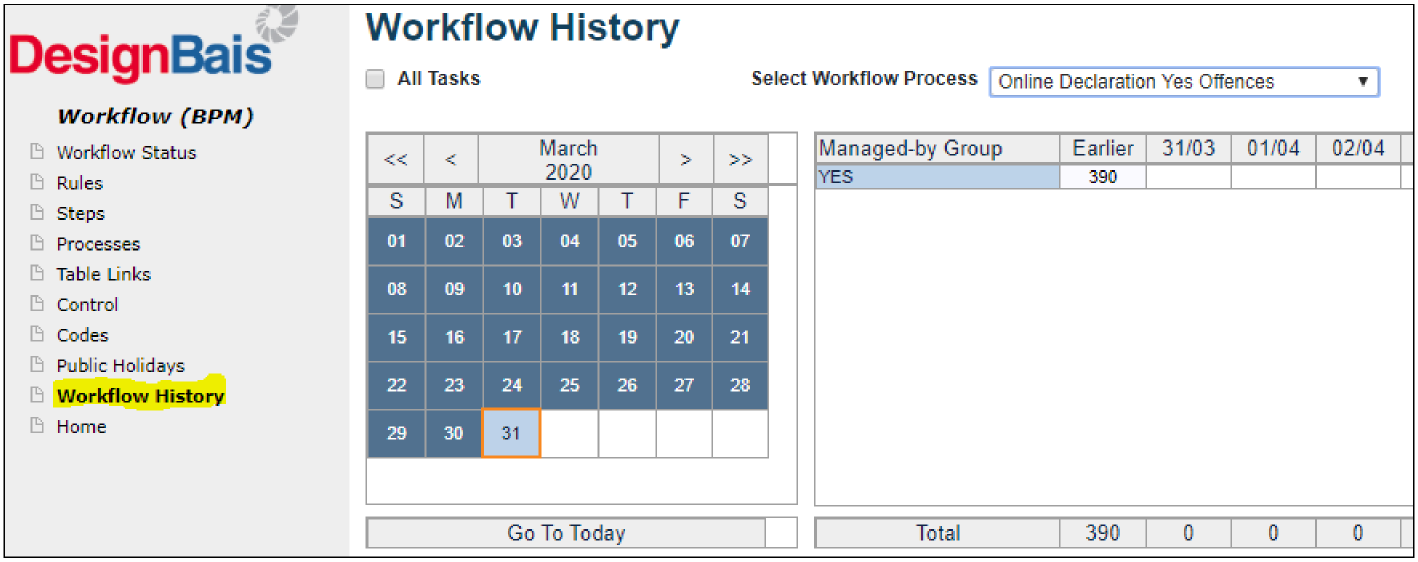





In summary, the operator can view the rules and rule results for both completed and remaining steps, as well as view and maintain the application record. The buttons / fields to click are highlighted below.



Workflow History retains fully completed workflow transactions until they are purged. The number of days to retain transactions is set in the *Control* form.

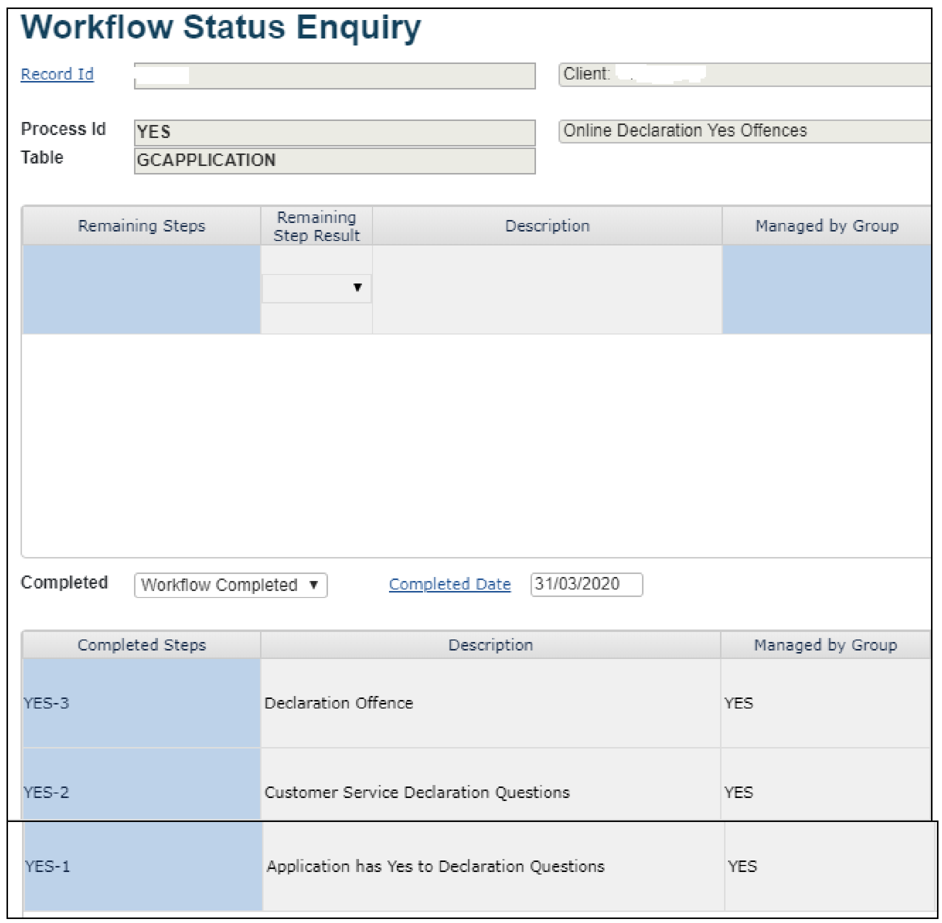



Click either on the managed-by group name or on a selected date.

By the adjusting the display the month on the calendar the applications in the *Earlier* bucket will slide into the displayed due-by date columns.

The list of completed workflow transactions are displayed and a particular transaction can be selected.

The example at the right shows an application which has passed all steps in the workflow.

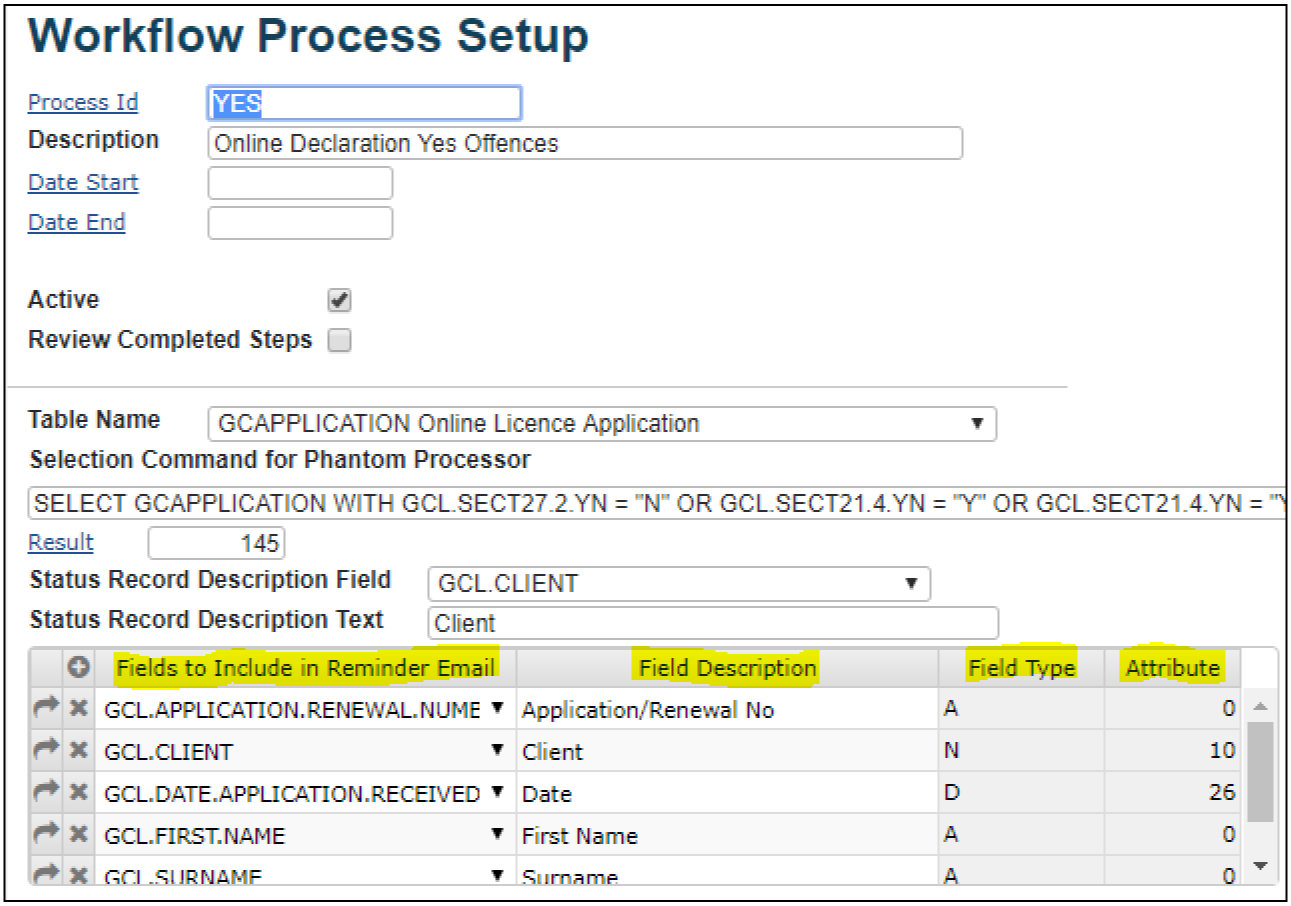


Reminder emails are generated by the workflow phantom process.

An email regarding a particular transaction can be sent as often as required while ever the transaction is overdue.

The interval, in days, between reminder emails can be set. The email will be sent to all members of the Managed-by Group. Individuals within the group can share an email address for workflow purposes. The workflow administrator can suspend reminder emails for individuals if required.

The fields to appear on the email are set in the Workflow Process Setup form. Most fields from the process table (file) can be selected and saved to the list.



Workflow Process Setup

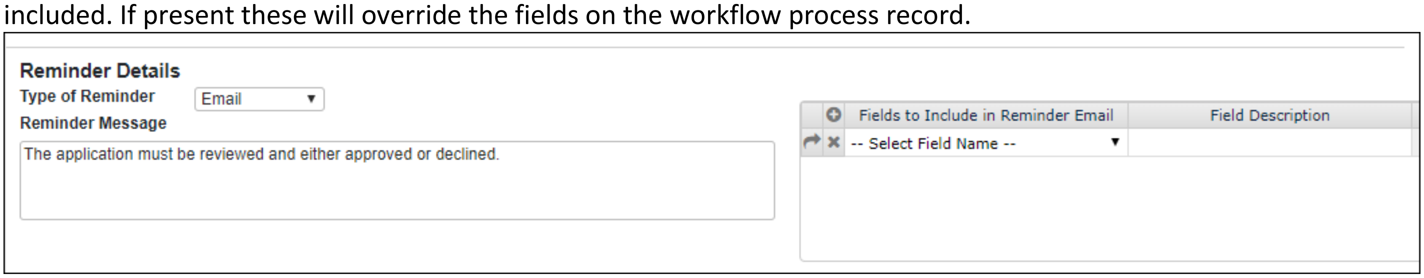
Process Id: YES
Description: Online Declaration Yes Offences
Date Start:
Date End:

Active ☑
Review Completed Steps ☐

Table Name: GCAPPLICATION Online Licence Application
Selection Command for Phantom Processor
SELECT GCAPPLICATION WITH GCL.SECT27.2.YN = "N" OR GCL.SECT21.4.YN = "Y" OR GCL.SECT21.4.YN = "Y
Result: 145
Status Record Description Field: GCL.CLIENT
Status Record Description Text: Client

| Fields to Include in Reminder Email | Field Description | Field Type | Attribute |
|---|---|---|---|
| GCL.APPLICATION.RENEWAL.NUME | Application/Renewal No | A | 0 |
| GCL.CLIENT | Client | N | 10 |
| GCL.DATE.APPLICATION.RECEIVED | Date | D | 26 |
| GCL.FIRST.NAME | First Name | A | 0 |
| GCL.SURNAME | Surname | A | 0 |

In addition a text field is available on the Workflow Step Maintenance form. There is also a list of fields to be included. If present these will override the fields on the workflow process record.



Reminder Details
Type of Reminder: Email
Reminder Message
The application must be reviewed and either approved or declined.

| Fields to Include in Reminder Email | Field Description |
|---|---|
| -- Select Field Name -- | |