

New Survey/Questionnaire Functionality

In order to support requests from customers to be able to create surveys with varying and potentially many questions, there are three new data types: Question Description, Survey Definition, and Survey Presentation.

Background

We were approached by customers who wanted to display a variable list of data fields to users based on other information in the record. Such as “For Product A, show questions 1, 2, and 3. For Product B, show questions 5, 6, and 7.”

For small question sets that can be defined and managed by system admins, this can be easily handled by setting field visibility dependency conditions. But as the number of questions grows, the number of fields needed becomes unwieldy. If there are 30 potential questions, then 30 fields would need to be created.

The number of question fields could be cut down by reusing some of the fields. This can be done by making the fields links to a Questions table. However this means that the question and the answer are stored in separate fields, which may again require a large number of fields. This issue becomes worse if different data types may be needed for the different questions, as this requires multiple possible answer fields for each question.

One sample build using our previous functionality had six fields for every potential question: one field to display the question, four fields for different answer types (text, choice, multi-choice, and date), and one field to hold the combined question and answer for search purposes. With up to 30 potential questions on a single questionnaire, this would have required 180 fields to be created and maintained in the table. This was judged unfeasible.

One customer opted to use a different approach by creating a separate subtable for each product. This approach worked for them because each questionnaire had a large number of questions but they had fewer than five different questionnaires and they were fairly static.

Most previous methods of setting up questions for surveys have depended on admin users to set up and maintain the questions, since they required fields and layouts to be defined.

But there are many times when it is ideal for business managers to be able to define the questions, potential answers and question sets. So one of the requirements of the new functionality was to make it possible for non-admin users to be able to create and maintain questions, their answers, and to associate them with question sets, without any admin intervention.

This functionality is still being further enhanced in terms of reporting, mass editing, and other capabilities. This document describes what is available now, as well as what will soon be available.

Benefits

Customers can now create and manage complex surveys or questionnaires without needing admin level training or admin level privileges. Questions, question sets, answers, and surveys can be easily specified in an efficient manner. Instances of question sets and answers can be saved for future reference.

Regular users can manage sets of an unlimited number of questions without creating fields for each question.

Individual questions may be given an identifier so their answers can be searched and reported on and they may be displayed in table views.

The same questions may be used in multiple question sets and may behave differently in each set (required in some, ordered differently, and so on).

A set of questions and their answers may be stored in one table for reuse and pulled into another table based on some matching criteria.

Sets of questions may be made visibility dependent on specific answers so you can build a decision tree structure if desired.

Different kinds of surveys can easily be combined into a single survey table with a “survey type” field defining the question set to display.

Sample Questionnaire Requirements

Following is an example from some customers’ complex requirements that drove some of the features of this enhancement.

To create a SR (Service Request) via the customer web portal, customers and field employees must fill in a questionnaire (Software Problem Report, or SPR for short).

- a. Each SPR contains a set of questions. These questions must be manageable by business users, not EW admins. There might be as few as three questions or as many as 25 for a given product.
- b. Each product is associated with an SPR. It should be possible to link multiple products to a single SPR.
- c. There are some questions which are common across multiple products but not all products e.g. JRE Version, TRA Version etc. Hence, it should be possible to link a question with multiple SPRs.
- d. When creating a new SR, customer should be able to fill in the SPR in following ways:
 - i. Manually fill in all responses to the questions presented for that productOR
 - ii. Choose from a list of “Saved SPR profiles” and have the system automatically pre-fill the responses to the questions from the saved SR profile.
- e. Customer should be able to create a “Saved SPR Profile” in following ways:
 - i. Create a new profile from scratch and fill in the responses for the questions OR
 - ii. Copy an existing “Save SPR profile” and then make changes where necessary OR
 - iii. After filling in the SPR questions while creating a new SR, click a “Save as new SPR profile” button which saves the responses as a new SPR profile.
- f. Customer should be able to edit a “Saved SPR profile” in following ways:
 - i. Directly edit the “Saved SPR Profile” records to change the previous values.
 - ii. If a saved profile was used to pre-fill a SPR, then click a “Save changes back to SPR profile” button to update the SPR profile that was used for pre-filling the SPR.
- g. Saved profile should record attributes that are not defined as SPR questions e.g. product name, product version, customer’s problem environment (e.g. Prod, Dev, etc).
- h. Customer should be able to save multiple SPR Profile configurations (for same or different products) in their profile (such as “RV dev”, “RV test”, etc).
- i. Allow the customer to save the SPR profile for personal use or sharing with other team members of his company.

- j. The completed SPRs submitted by customer when reporting a problem should be available under the new SR.
- k. Support Staff should be able to create and manage the SPRs themselves without EW admin involvement.
- l. In the staff interface, agents should be able to query on any SPR answers, e.g. give me all SRs created for product=ActiveDataBase and Version=5.3 and Database Name=MySQL and Database Version=11g and Database Platform=Windows.
- m. If an existing SPR is modified by support staff and questions are added/removed to/from the SPR, it should not affect the completed SPRs that were previously submitted by the customers and associated with the SRs.
- n. Multiple data entry types should be available as responses to specific questions – single or multiline free text, single or multiple selections from a dropdown list, radio groups, and checkboxes.
- o. Some questions may need to be dependent for visibility on the answers to previous questions in the SPR.
- p. A question whose answer is required for one product might be reused for another product but not be required in that product's SPR.

The enhancement as designed meets all of these requirements! Notice that the emphasis here was on gathering information to solve a service request, not on reporting. However, the most general application of this functionality may be for surveying customers and others, so enhancements to report on the information in these new data types effectively, will be soon to follow in a future release.

NEW DATA TYPES

To meet these requirements, three new data types were created that work in conjunction with each other:

1. Question Description – allows users to define questions and answer types in a normal table record
2. Survey Definition – allows users to select the questions for a particular questionnaire, define their order, visibility dependencies, and requirements
3. Survey Presentation – stores an instance of a questionnaire or survey for a given record. It is used to define which survey definition applies, to display a set of questions defined by the selected survey definitions, and to store the combined questions and answers.

What follows is an explanation of each of these new data types and how they are used in their simplest manner.

Question Table and Question Description Field

Generally, you are going to want to set up a table to hold all of the questions that will be defined. The first step is to create this table, which will inherit the usual EW default fields. In addition, you can simply add one new field of the type “Question Description Field.” You may also want to add a field for Question Name or some other identifying fields to help you find questions that are related to specific concepts. You may also want to have a field that describes the type of answer or the usage of the question, since the details of the question cannot be seen from the table view – in the table view you see the question itself, but not its potential answers. But such fields are not absolutely necessary. Below is an example of a table view of a Survey Questions table in which we defined a “Name” field to summarize the point of the question.

★ Survey Questions

Status: 23 record(s) found, 1 pages (Search: all Survey Questions). [Click here to re-count records.](#)

New	Mass Edit	Delete	Views	Sort
<input type="checkbox"/>	Edit	ID	Name	Question
<input type="checkbox"/>		12	Timeliness	Timeliness of Support
<input type="checkbox"/>		13	Rate Support	How would you rate the knowledge of our support staff?
<input type="checkbox"/>		14	Rate Quality	Rate the overall quality of the support you received
<input type="checkbox"/>		15	Rate Satisfaction	Rate your overall satisfaction with the support experience
<input type="checkbox"/>		16	Comments	Please provide any comments

There are no special options in the field wizard for this data type. Give it a name like Question and assign the permissions for the field to those groups who should be able to create/edit questions, and then give those same people the right to create and edit records in the Questions table.

Creating a Question Record

Each question will be defined in a separate record in this table. The question description field will appear as an “Edit Question” button where this field is placed:

Clicking the ‘Edit Question’ button brings up the question wizard. This dialogue is similar to a field wizard, in that it allows the user to select the data type of the answer, the choices for the answer, and so on.

General Tab

On the General tab there are options for Question Text, Answer Type, and Name.

GeneralOptionsDisplay

NextFinishCancel

Enter question text

*Question Text

Select answer type

Answer Type
Short Text

If you want to search among answers to this question, give it unique name that will be used in search dialog; otherwise leave this field empty. Note: Making too many questions searchable may slowdown the system.

Name

NextFinishCancel

Question Text

The question text is the text that will actually be displayed when a user is presented with the survey.

Answer Type

The answer type allows you to select the type of answer from any of the standard data types: Choice, Currency, Date, Date/Time, Email, Floating Point, Integer, Multi-choice, Percentage, Short Text, Telephone/Fax, Text, and Time.

Select answer type

If you want to search among answers to this question, give it unique name that will be used in search dialog, or leave empty otherwise. Making too many questions searchable may slowdown system.

Next Finish Ca

Answer Type

- Text
- Choice
- Currency
- Date
- Date/Time
- Email
- Floating Point
- Integer
- Multi-Choice
- Percentage
- Short Text
- Telephone/Fax
- Text
- Time

An answer type of Choice or Multi-Choice allows you to select/edit an existing choice list or create a new choice list.

Select answer type

You can populate this question with values from an existing choice list. If none of the available choice lists meet your needs, create a new set of values by clicking [Create Choice List](#).

Answer Type

Choice

Select Choice List

Create Choice List Edit Choice List

Note: The standard choice lists are not available for Question Description choice and multi-choice answer types. You are only allowed to use those lists that have been created through the Question Description wizard. Like standard choice fields, once a choice list has been created for a question it can be used in other questions. Once a question has been saved the answer type cannot be changed.

Note: Any user given permission to create and edit questions will have the ability to create and edit the choice lists for any questions. These should be trusted users, though they do not need to be administrators.

Name

The Name field is optional, but is necessary if you want to be able to reference/search/report on the values in this question's answers as a separate field wherever the surveys are presented. Once a question has been named, that name cannot be changed. If the Name is left blank initially, it can still be filled in later.

It is only advisable to name a question if you will want to 1) display its answer in a table view, 2) search on its answer, or 3) include its value in a report. The named questions create virtual fields that will appear on search dropdowns and elsewhere, which can be confusing if you do not actually plan to use them.

Options Tab

Depending on the answer type selected, different options will be displayed on the Options tab, similar to the options in a normal field wizard. Below are the options for a Choice Answer Type.

General Options Display

Back Next Finish Cancel

Define the type of input aid for this field. You can display each of the available values next to a radio button or arrange the values in a drop-down list. You can sort the values by their order in the choice list or alphabetically.

Display values as:

☐ Radio buttons

☒ Drop-down list

in as in choice list order

Back Next Finish Cancel

Note: The ability to make a question required or visibility conditional is not handled within the Question Description wizard - it is defined when creating a Survey Definition.

Display Tab

The Display tab has the standard options depending on the Answer Type. Individual questions may have input instructions, popup instructions and so on.

Once a question record has been created, it is possible to edit the question or view its options by clicking the Edit Question button again.

Survey Definition Table and Field

Once you have defined your questions table and created some questions, you are ready to combine them into question sets, which will be based on a Survey Definition field.

Typically it will make sense to store the question set definitions in another table called Survey Types or Question Sets or whatever makes sense for your usage. This table will include a record for each Survey Definition or Question Set that defines how the questions behave for that set.

The table should generally include one or more fields that can be matched against one or more fields in the table where you want the questions to appear, to auto-display the correct question set.

For instance, suppose you have named this table Question Sets and you want to ask a different set of questions in a support table depending on which product a user selects. You would have a field in the Question Sets table linked to your products (it may support one or more values, so a particular question set could be linked to multiple products). When a user creates a support case, they will select a product, and the Survey Presentation field in the support case table will be defined to match the product they select to this multivalue linked product field in the Question Set table to pull in the right survey definition value and therefore the correct question set record.

Or suppose you are using this to present a variety of surveys to customers. You would create a Survey Type table with a record for each survey/set of questions. You might have a choice field for survey type in this table as well.

To present a customer with a particular survey, you could simply give them a hyperlink (in an email or online) to click that sets the Survey type field to the desired value, thus pulling in the matching set of questions.

Setup of Survey Definitions Field

First create the table that will hold the survey definition records.

Then create any fields you want to use to identify the survey or question set in another table and that can be used to pull in the right set of questions.

Then create a new field of type Survey Definition. On the General tab of the field wizard, choose the table where the Question Description field can be found and the specific Question Description field that the questions will be drawn from. The only options presented will be fields of the Question Description type.

General Options Permissions Display

Next Finish Cancel

This label is associated with the field and is seen by most users.

Field Label*

Survey Definition

Use HTML editor

This is the actual name of the field in the database. It may not contain spaces or non-alphanumeric characters. Users generally do not see this name.

Field Name*

survey_definition

By default, field name is constructed by replacing spaces in the field label with "_" characters.

Questions source*

SPR Question : Question

Next Finish Cancel

The other tabs have the standard field options.

Creating a Survey Definition Record

When creating a record in a table with this data type, the user sees a button 'Edit Survey' where this field is placed.

★ Survey Type

Details Communications

Next Finish Finish & New

ID: 11 *Survey Name: Enhancement Preferences

Survey Type: Enhancement

Survey Definition: Edit Survey

Clicking the button brings up the survey wizard. There is only one tab; it resembles the Available Actions / Selected Actions in rules and workflow. All questions defined by the table and field selected in the field wizard will be listed under Available Questions.

Survey Label: Support Case

Available Questions

- Ability to handle your specific business process
- Amount of follow up
- Any other Product Comments?
- Covered the material that was most important to you
- General demo style (fluency, speed, clarity)
- Integration with QuickBooks
- Overall performance
- Overall Performance
- Overall quality of the product
- Price compared to others you are evaluating
- Product expertise and knowledge
- Product Knowledge
- Synchronization with Outlook Contacts
- Understanding of your needs
- Understanding of your needs
- What could the demonstrator have done to make the demo more effective for you?
- What could your sales rep have done to improve your opinion of EnterpriseWizard
- Will you seriously consider purchasing EnterpriseWizard?

Used Questions

- Timeliness of Support
- How would you rate the knowledge of our support staff?
- Rate the overall quality of the support you received
- Rate your overall satisfaction with the support experience
- Please provide any comments

>

<

Change Require

Change Visible

Move Up

Move Down

Note the options for Change Require and Change Visible between the sections. This is where requirement and conditional visibility are defined for any of the questions in the Used Question section.

☒ Only show this question if answer to the question

Test Choice

contains one of these values: :

Maybe
No
Yes

Finish Cancel

Make the question required:

☐ Yes
☐ No
☒ Conditionally, when the

Test Choice

contains one of these values: :

Maybe
No
Yes

Finish Cancel

Note that Conditional Requirements or Visibility can only be based on other used questions with a type of Choice or Multi-choice.

Once you have defined your question sets, you can see the questions listed above the Edit Survey button:

Survey Type:

Support Satisfaction

Survey Definition:

Support Case:
 Timeliness of Support
 How would you rate the knowledge of our support staff?
 Rate the overall quality of the support you received
 Rate your overall satisfaction with the support experience
 Please provide any comments

Edit Survey

When the survey questions are presented to a user, the questions will be displayed in a single column from top to bottom in the order shown here. It is not possible to arrange the questions in multiple columns on the layout. However, it is possible to use two question sets and put each one in a separate column to give a two column display. Here is the result of the setup shown above:

★ Survey

ID: 48
 Survey Type:

Support Satisfaction

Questions
 Related Records
 History

Next
 Finish
 Finish & New

Reset

Timeliness of Support:

Choose one

How would you rate the knowledge of our support staff?:

Choose one

Rate the overall quality of the support you received:

Choose one

Rate your overall satisfaction with the support experience:

Choose one

Choose one
 Very Satisfied
 Somewhat Satisfied
 Neutral
 Somewhat Dissatisfied
 Very Dissatisfied

Please provide any comments:

Survey Presentation

Once you have set up your questions and your survey definitions/question sets, you are ready to start using the questionnaires. This will involve adding a field of the data type Survey Presentation to the table in which you want the questions to appear.

Field Wizard for Survey Presentation Field

General Tab

After specifying the field label, you must provide an Answer Column Prefix. This is used as a prefix for the names of the virtual, searchable fields for any questions that were given a name when they were defined.

The screenshot shows the 'General' tab of the Field Wizard. At the top, there are tabs for 'General', 'Options', 'Permissions', and 'Display'. Below these are buttons for 'Next', 'Finish', and 'Cancel'. The main area contains three sections: 1. 'Field Label*' with a text input containing 'SPR Questions' and a 'Use HTML editor' button. 2. 'Field Name*' with a text input containing 'spr_questions'. 3. 'Answers Columns Prefix*' with a text input containing 'Spr'. Each section has a descriptive text block to its left explaining the field's purpose and constraints.

For example: if the Answer Column Prefix is SPR and there is a question with the name "Version" a virtual, searchable field will be created called SPR_Version.

Options Tab

The Options tab is more detailed for this field type than for the other new types. Here you define a default survey to be used, conditional visibility, and whether a search pop-up should be added to the field.

Default Survey

The screenshot shows the 'Default Survey' section. It has two radio button options. The first option, 'Select Table', is selected and includes a 'Select Column' dropdown and a search icon. The second option, 'Survey defined in', is also selected and includes a 'Survey Type' dropdown, an 'at column' dropdown set to 'Survey Definition', and a 'which matches SS' dropdown set to 'MT: Survey Type in that tab'. Below these are 'Create New Search' and 'Edit Search' buttons. A third radio button option, 'Survey defined in', is unselected and includes a 'Select Column' dropdown and the text 'of current record'.

You have three choices for the default survey.

The first option is a fixed field reference. It will allow you to choose a specific survey definition. After selecting the survey definition table and the survey definition field in that table, you may search and select the survey you wish to display. This is the least common option.

Let's suppose you want to pull in a different set of survey questions based on the value in a Survey Type field in the current record. You can do this using either of the next two options.

With the second option, you find the correct set of questions using a matching saved search against the survey definition table. You have a choice field for Survey Type in both the current Survey table and the table holding the survey definition field. Then you create a Saved Search on the survey definition table. This search uses a variable to match the Survey Type value in the survey definition table against the variable Survey Type field in the current Survey table. It pulls in the matching set of questions for that Survey Type.

With the third option, you don't create a Survey Type field in the current Survey table, you just create a linked set of fields from the table containing the survey definition field that includes both the survey definition field and the Survey Type field from that table. The user selects the Survey type in the same way, which is really a link to the survey definition table, and that pulls in the definition field, and the survey presentation field then populates the questions matching that definition.

From an end user point of view, these two options are interchangeable and provide the same result.

Note: A default behavior must be defined for the field and once the field is saved this is not changeable.

Visibility

This is the standard visibility option, allowing you to determine the visibility of a field based on a choice or multi-choice value.

Pop-up Search

The purpose of the pop-up search option is to enable a user to pull in an already saved set of answers to a specific set of questions, effectively to reuse the answers. This was developed for the original use case where customers were providing environment details in a service request and wanted to store these answers to a saved Environment record to be able to reuse them.

For this kind of situation, the initial set of answers need to be saved into a new record, which can easily be done with an action button running a conversion action. The complete set of survey answers for a question set can be saved in a new record using a standard conversion action – the single Survey Presentation field can be mapped to a Survey Presentation field in another table and all question/answers will populate there.

Given this kind of context, adding the search pop-up lets you choose another table that has a survey presentation field in it and choose the particular survey presentation field, if there is more than one in that table. When used, it will only display records in that table that include the same survey definition as the current record from which the lookup is run. You can also set a view to be used for the lookup of the available records.

Add search pop-up to this field

☒ Do not add search pop-up
☐ Add search pop-up to this field

Search table

where column matches current one.

Use to display items for import

☐ Put from selected record into in current record.

☐ Display mismatch warning to user

Selecting the popup option adds two buttons above the question set called “Load from [table name]” and “Reset”. Clicking the Load.. button brings up a normal linked field lookup to find the matching records (those that use the same survey definition).

O/S Patch or Service Pack:

OS bit-mode (32-/64-bit):

Database Name and Release:

A record can be selected for import:

Status: 2 record(s) found, 1 pages. [Click here to re-count records](#)

Edit	ID	Environment Name	Product Name	Account
	54	Bridget production env	TIBCO Adapter for ActiveDatabase	IBM Global S
	51	Bridget environment	TIBCO Adapter for ActiveDatabase	IBM Global S

And when imported, the question set is refreshed with any answers. Note that if the question set itself has changed in the meantime (suppose new answers were added), the latest questions will be shown.

Under the search pop-up options you can also specify another field to be populated with other information from the imported record. This allows you to pull in the ID of the record in the other table, for instance, along with any other linked fields that you might want from that table.

You may also specify that the user receive a warning if they import a record with a different list of questions from the current definition.

Creating a Survey Record

The survey presentation field displays the questions used in its definition with the appropriate answer fields.

SPR Questions:

Java Runtime Environment (JRE) release:

Administrator release:

BusinessWorks Plug-in:

Designer release:

Rendezvous release:

Run time Agent (TRA) release:

Some test question:

The Reset button will restore the original set of questions (from before the saved record was imported) but leave the answers for any matching questions.

If any questions in a particular survey presentation are named (see discussion of the Name field in section Creating a Question) the virtual fields will be filled in with the appropriate values so that they may be used in a search.

Search: equals, =

Named questions not in a particular survey will have blank values for that record. Note that the survey presentation field itself is not searchable but the entire survey (questions and answers) can be copied into a text field to allow text searching on it.

Example Setup

For the sample questionnaire requirements mentioned in the beginning of this document, the following setup was created using the new data types.

1. SPR Questions - this table has a field of Question Description type. It also has a text field for Question Name. This text field is just for ease of reference elsewhere in the system. It is not actually necessary.
2. SPR Forms - this table has a field of Survey Definition type. It also has a text field for Survey Name. This is so that the surveys can be referenced by name elsewhere in the system.
3. Products - this table has a link to the SPR Forms table. It pulls in the survey name and the survey definition. This is then passed along to SRs and SPR Environments. Note that multiple products could reference the same form.
4. Service Requests - this table has a link to Products which pulls in the survey definition and a field of Survey Presentation type. The survey presentation field uses the survey definition pulled in from the product to determine which survey to display. It also allows a user to select a saved record in the SPR Environment table to import. The user receives a warning if the list of questions (survey definition) has been updated since they saved the environment. There is also an action button to save a filled out survey as a new environment.
5. SPR Environments - this table has a link to Products which pulls in the survey definition and a field of Survey Presentation type. The survey presentation field uses the survey definition pulled in from the product to determine which survey to display. There is also a text field for environment name for ease of reference when pulling the environment into an SR. The environment records are primarily created through conversion from the SR records. This allows users to save their answers to a form and continue to use those answers for future requests.

Other Potential Uses

1. Support questionnaires based on issue type
2. Customer surveys for a variety of purposes
3. Pre-filled case templates
4. Decision Tree questionnaires