

Chapter 4

Defining Field Specifications

Objective

This lesson introduces you to field specification (or *field spec*) entities. You will learn how to use the FieldSpec Editor to define field specs. These definitions save you time when creating data servers with the DB Server Editor and creating data windows with the Window Editor. Defining reusable field spec entities also helps you ensure consistency in your database definitions.

Overview

In many cases, the different data servers in your application contain similar, if not identical fields. For example, phone numbers—whether they are home, business, fax, or cellular numbers—are usually the same length. Other common examples are key fields like customer, account, and employee codes that might be used to relate your data in many files. You can either define the properties of these common fields each time you create a new data server, or you can create a template, or field spec, that you reuse in each data server that needs it.

A field spec is essentially a set of properties (such as validation and formatting rules), that are related to a field, but are independent of a particular data server. Thus, when defining data servers you can use the same property values for common fields and any change made to a field specification is automatically propagated to all data servers that use that field spec.

Also, as you will see in the “Creating and Using Windows” chapter, a data window initially created with the Window Editor’s Auto Layout feature, uses field definitions and properties specified in field specs in a data server.

Careful design of your field properties can save you time when later defining data servers and designing data-entry windows.

Exercise

In this exercise, you will create generic Phone and Customer ID field specs that you will use to describe fields in a data server. You will further refine the definitions in order to save time in future data server and window definitions.

Creating and Modifying Field Specifications

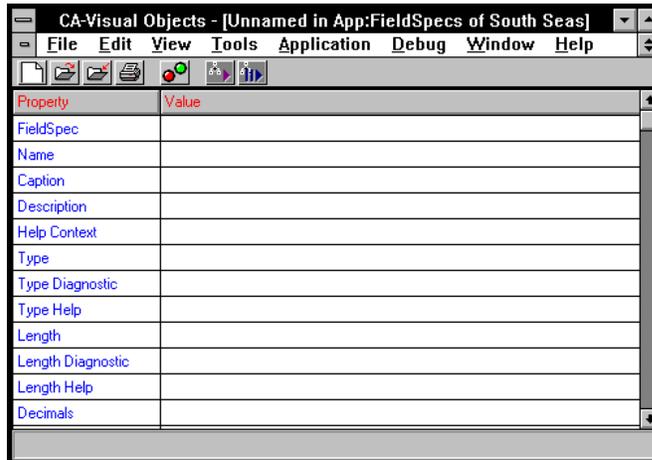
Invoking the FieldSpec Editor



The FieldSpec Editor allows you to create and modify field specifications. To invoke the FieldSpec Editor:

1. Open the South Seas application by double-clicking its button in the Application Browser.
2. Create a new module by clicking on the New Module toolbar button.
3. In the resulting Create Module dialog box, type **App:FieldSpecs** and choose OK.
4. Select the FieldSpec Editor command from the Tools menu (or click the Open Entity toolbar button and select FieldSpec Editor).

The FieldSpec Editor window is displayed:



Notice how similar this window is to the FieldSpec Properties window in the DB Server Editor. One difference is that there are no properties whose names have the FS prefix (for example, Name, Caption, Description, and Help Context) in the DB Server Editor. The FieldSpec Editor also has its own toolbar and status bar.

Creating a Field Spec

To create a field spec entity, you must specify at least four properties: FieldSpec, Name, Type, and Length, as follows:

1. Select the FieldSpec property and type **PHONEFS**.
2. Press Enter.

PhoneFS is the name of the field specification. (It must be unique among all field spec definitions.)

3. Select the Name property and type **PHONE_FS**.
4. Press Enter.

Phone_FS is the symbolic name of the field specification. It must be unique in your application.

5. Select the Type property and choose Character from the drop-down list box.

The Length property is automatically set to 10 which happens to be just fine!



6. Save your field spec by clicking on the Save toolbar button.

The basic minimal Phone field spec definition is complete.



7. Clear the FieldSpec Editor by choosing the New FieldSpec command from the File menu (or the corresponding toolbar button).
8. Repeat the previous steps for a CUST_IDFS field spec with CUST_ID_FS as the symbolic name. Set the Type to Character and specify a length of 5.
9. Close the FieldSpec Editor by double-clicking on its system menu.

Planning Data Server Field Properties

In the “Working with Data Servers” chapter, you imported an existing .DBF file into the DB Server Editor. For each field of the .DBF file, a field spec entity, and its associated properties, were automatically defined. However, the auto layout feature fills in only the most basic properties, such as Name, Type, Size, and Caption. It creates these properties using field information from the database.

This is a powerful feature and a time saver for most of your fields, but some things cannot be determined by the DB Server Editor. For example, the Picture property for phone numbers or the fact that a Customer ID code is always required (because it is a key field) are not available from the DBF import process.

Also, because some field names are cryptic, the resulting generated properties may not be intuitive. So, let’s plan ahead and modify several properties, including captions and messages, to make them more meaningful, as follows:

1. Open the PhoneFS field spec entity from the App:FieldSpecs Entity Browser.

The FieldSpec Editor window is displayed.

2. Select the Picture property, type **@R (999)999-9999** and press Enter.

To offer field-level help to your users, specify the Help Context property as follows:



3. Select the Help Context property. Type **Phone_Numbers** and press Enter.
4. Save your new field spec by choosing the Save toolbar button.
5. Close the FieldSpec Editor by double-clicking on its system menu.

Typically, key fields like Customer or Employee codes are required in order to relate one file to another. To do this, perform the following steps:

6. Open the Cust_IDFS field spec entity by double-clicking on its button in the Entity Browser.
7. Select the Required property, and select Yes from the drop-down list box.

Whenever the Cust_IDFS field spec is used and does not meet the above requirement, an error message is displayed indicating the failure. Make this message more informative by specifying your own message, as follows:

8. Select the Required Diagnostic property and type **The Customer ID code is MANDATORY!**.

Note: When defining an application-wide field spec, be careful of descriptions, captions, and messages. Instead of using “Enter the employee’s phone number,” you should be more generic and say “Enter the phone number.”



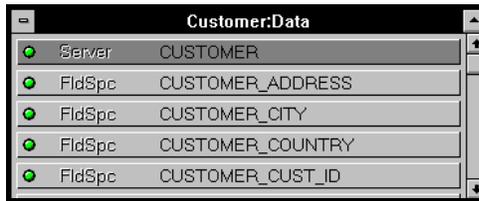
9. Save your new field spec by choosing the Save toolbar button.
10. Close the FieldSpec Editor by double-clicking on its system menu.
11. Close the Apps:FieldSpec Entity Browser by double-clicking on its system menu.

Attaching a Field Spec to a Data Server Field

Now, let's redefine the data server field specifications using your newly defined field specs.

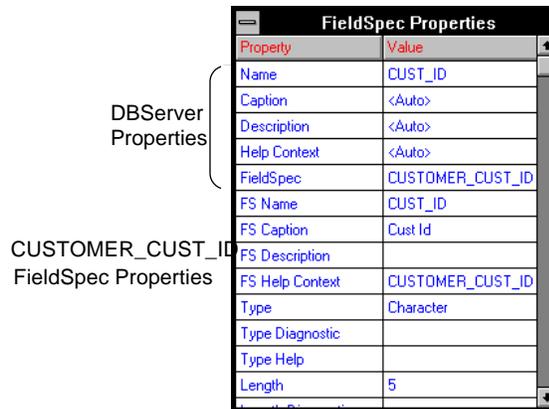
1. Open the Customer:Data module by double-clicking on its button from the Module Browser.

The following Module Browser appears:



2. Open the DB Server Editor by double-clicking on the Customer server entity.
3. Click the CUST_ID field in the Include list box.

The FieldSpec Properties window displays the field spec properties for this field:



Let's apply your field spec definitions to the Customer data server's Cust_ID field, using the following procedure:

1. In the FieldSpec Properties window, select the FieldSpec property. From the drop-down list box, select CUST_IDFS.
2. Click on the Caption property and type **Cust ID:**.
3. Scroll down through the FieldSpec Properties window to see the Required and Required Diagnostic properties.

As stated earlier, field spec entities are independent of the data server. You can use any field spec which is currently defined in your application. In this case, the PhoneFS field spec entity has most of what we need for both the Phone and Fax phone number field.

4. From the Include list box in the DB Server Editor, select the Phone field.
5. In the FieldSpec Properties, select the FieldSpec property. From the drop-down list box, select PHONEFS.
6. Click on the Caption property and type **Phone:**.
7. Scroll down through the FieldSpec Properties window to locate the Picture property.

The picture clause from the Phones FieldSpec is displayed.

8. Repeat the steps 4 through 7 for the Fax field, applying the PhoneFS FieldSpec and setting the caption to Fax:.
9. Save your new DB server definition by choosing the Save toolbar button.

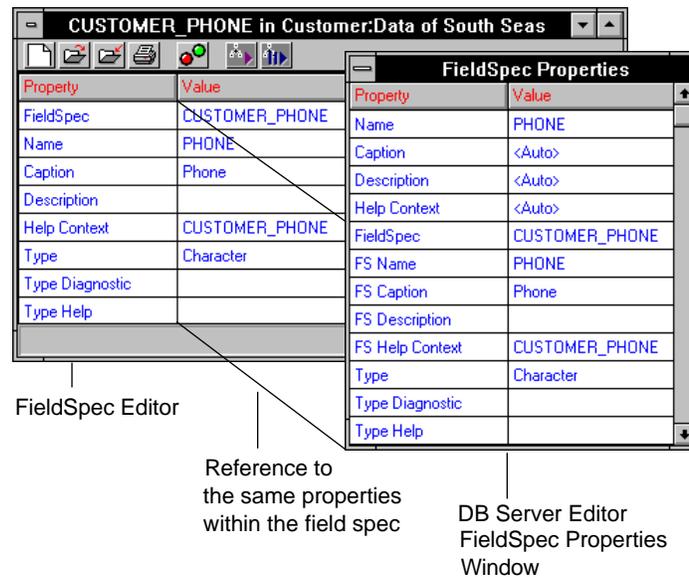


Creating Field Specs from the DB Server Editor

It is important to realize that the field properties shown within the DB Server Editor include five properties that relate to the field itself (Name, Caption, Description, Help Context, and FieldSpec). The remaining properties belong to the specified field spec entity.

The sixth to ninth properties have names that begin with “FS” to emphasize that these are properties of the field spec, rather than of the DB server field.

Any modification of the properties from the FieldSpec property line to the bottom of the list affects the field spec entity directly. You can define both data server and common field specs using the same tool.



Although this lesson has focused on the importance of the reusability of field specs, many field specs are unique to a given database. For these, the DB Server Editor offers the convenience of having access to all of the fields and their attached field spec, in one place.

Let’s close the DB Server Editor and review the benefits of defining reusable field specs, as follows:

1. Close the DB Server Editor by double-clicking on its system menu.
2. Close the Entity Browser by double-clicking on its system menu.

A field spec is required to define each field of every data server. Each field spec contains more than 20 properties usable by the data server. As you will see in the “Creating and Using Windows” chapter, data windows make use of data servers’ field spec properties. Note that three of those properties (Caption, Description, and Help Context) are hierarchical in nature and may be redefined for use by the window. For more detailed information about these properties, see “Using the Window Editor” in the *IDE User Guide*.

Whether you are prototyping or in production, the earlier in the sequence you define the field specs, the earlier you’ll gain consistency and reusability.

For example, the South Seas Adventures application uses the PhoneFS FieldSpec for the Phone and Fax fields in the Customer data server. This server is used in three data windows (new, edit, and subform customer windows). The choice is clear—you can define a property (like Picture) once, in a field spec used by both fields, twice for the two DB server fields, or six times in different windows. Defining it once saves time, and makes it easier to make changes in the future.

Summary

In this lesson, you have created reusable field spec definitions using the FieldSpec Editor. You have replaced data server-specific field specs with generic field specs. Additionally, you have learned about the relationship between field specs, data server field specifications, and field spec entities.

Now that you are familiar with data servers and field specifications, you can move on to the next lesson, which shows you how to apply these concepts when creating data windows.