3

Document Hierarchies

Structurally, a Document Hierarchy dominates the configuration and operations of a *Taskmaster Rules* application.

Chapter 3 explores all aspects of the Document Hierarchy and of its ***Document Hierarchy Setup*** window, and describes the hierarchy's contributions to ***setup*** and ***runtime*** procedures. Chapter 3 covers these topics:

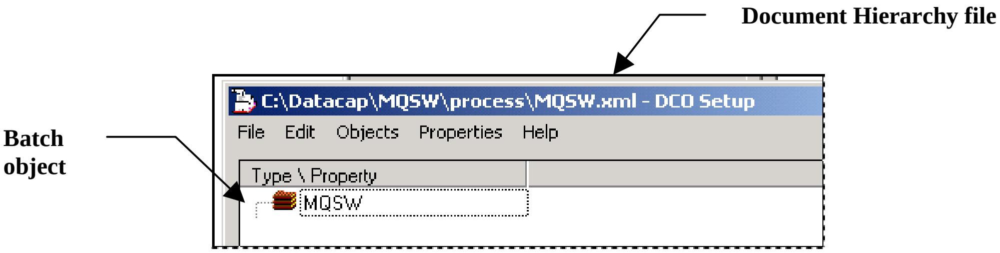
Introduction

A Document Hierarchy is an application's principle organizing edifice (Chapter 2).

The Document Hierarchy supports **objects** at four **levels:**

> At the top, a single **Batch** object is a processing container that moves from task to task as it gathers new files and information, and assembles documents made up of pages, and pages made up of fields and the values they contain.
>
> **Document** objects are children of the **Batch** object, and occupy the hierarchy's second level. A **Document** object is strictly an organizational entity: pages of various types and numbers combine to form a document; one or more documents make up a batch.
>
> A **Page** object represents a type of page that can be processed by a workflow's jobs and tasks. The **Page** object of a ***source*** page has children that are **Field** objects. Other **Page** objects represent fillers such as *Attachments* and *Separators*. A **Document** object consists of **Page** objects of various types.
>
> **Field** objects belong to the **Page** object of a ***source*** page - a page that accumulates user-entered values that are to be recognized, verified, validated and exported.

In the beginning, the Document Hierarchy of the fictional *MQSW* application has one object – its *MQSW* **Batch** object:

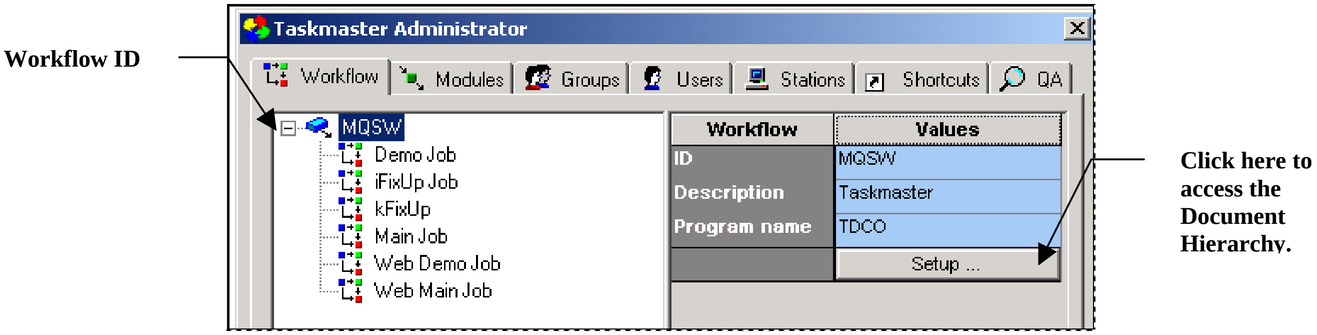

Document Hierarchy file
Batch object
C:\Datacap\MQSW\process\MQSW.xml - DCO Setup
File Edit Objects Properties Help
Type \ Property
MQSW

Document Hierarchy Setup Window – *MQSW Application*
MQSW Batch Object

✓ ***Pay close attention!*** "MQSW" is also the name of the application's single workflow (for details, see Chapter 2). The name is automatically assigned to the Document Hierarchy's **Batch** object, ***and*** to the file (**mqsw.xml**) that contains every object of the Document Hierarchy, and these objects' properties.

This assignment establishes an unbreakable bond between the workflow and the Document Hierarchy. The same bond links the workflow's jobs - and their tasks – to the Document Hierarchy.

If you change the Workflow ID in the ***Taskmaster Administrator's*** *Workflow* tab (illustrated on the next page), the **Batch** object's name changes accordingly. However, the name of the Document Hierarchy file (.xml) does ***not*** change. As Page 9 explains, you can use the **Save as** feature of the ***Document Hierarchy Setup*** window's **File** menu to create a new file with the modified title.



```
MQSW
    Demo Job
    iFixUp Job
    kFixUp
    Main Job
    Web Demo Job
    Web Main Job
```

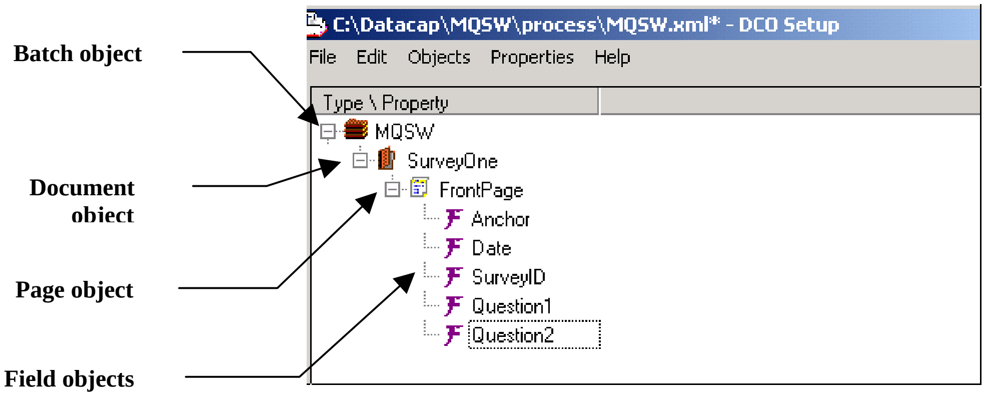
Workflow	Values
ID	MQSW
Description	Taskmaster
Program name	TDCO

Workflow ID

Click here to access the Document Hierarchy.

MQSW Taskmaster Administrator – *Workflow tab*

The *MQSW* application's Document Hierarchy expanded gradually and carefully. Midway through its definition, the hierarchy had these objects:



```
MQSW
    SurveyOne
        FrontPage
            Anchor
            Date
            SurveyID
            Question1
            Question2
```

Batch object

Document object

Page object

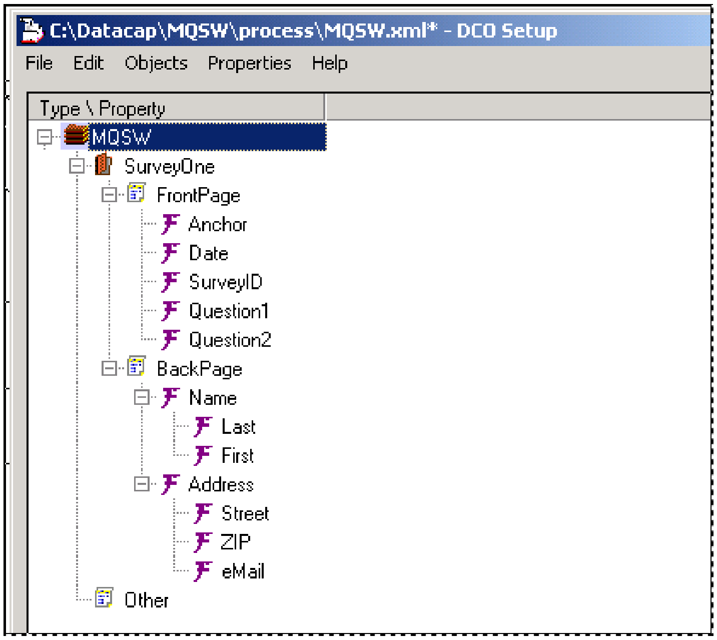
Field objects

Document Hierarchy Setup Window-
MQSW Document Hierarchy (midway)

Eventually, this Document Hierarchy added:

- A second **Page** object (*Back*) to the *SurveyOne* **Document** object
- *Name* and *Address* **Field** objects to the *Back* **Page** object.
- Child **Field** objects to the *Name* and *Address* parents.
- The *Other* **Page** object to the *MQSW* **Batch** object to help with the pages in a processing batch before they are identified according to Page Type (Page 24)

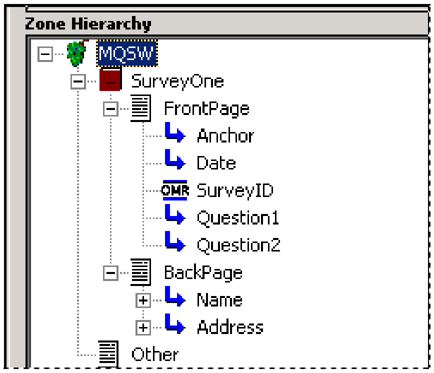
The illustration at the top of the following page depicts the complete *MQSW* Document Hierarchy.



- MQSW
  - SurveyOne
    - FrontPage
      - Anchor
      - Date
      - SurveyID
      - Question1
      - Question2
    - BackPage
      - Name
        - Last
        - First
      - Address
        - Street
        - ZIP
        - eMail
  - Other

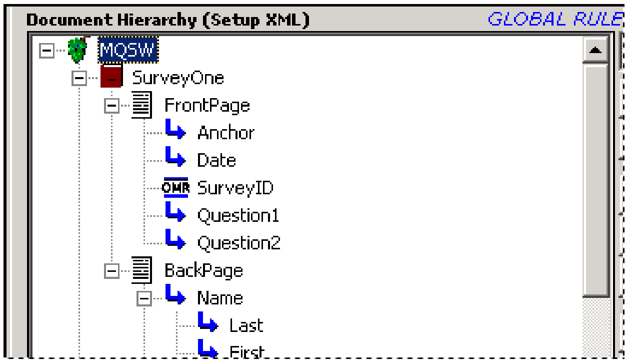
Document Hierarchy Setup Window-
<u>MQSW Document Hierarchy (complete)</u>

- ☛ The full scope of a workflow's Document Hierarchy appears in both panels of the ***Rule Manager Window***:



- MQSW
  - SurveyOne
    - FrontPage
      - Anchor
      - Date
      - OMR SurveyID
      - Question1
      - Question2
    - BackPage
      - Name
      - Address
  - Other

Zones & Fingerprints Panel –*Zone Hierarchy sector*

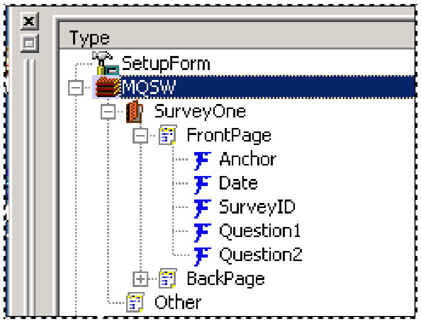


- MQSW
  - SurveyOne
    - FrontPage
      - Anchor
      - Date
      - OMR SurveyID
      - Question1
      - Question2
    - BackPage
      - Name
        - Last
        - First

Rules Panel – *Document Hierarchy sector*

Icons in both panels open the ***Document Hierarchy Setup*** window. (Chapter 4 investigates fingerprints; Chapter 5 shows you how to define rules. For complete explanations of all icons and features of the ***Rule Manager Window***, consult the *Rule Manager Reference.)*

The development of a workflow's **Task Projects** also requires immediate access to the objects of the Document Hierarchy (see Chapter 6.)



Batch Pilot Window – *Batch View area*

✓ Just as important, perhaps, is your designation of the Document Hierarchy file's name and extension - **mqsw.xml**, in this case - as a specification in three strategic ***setup*** locations within the *Taskmaster Rules* application. The table below lists these locations.

<Document Hierarchy>.xml

Location	Setting
Document Hierarchy Setup window	**Title bar:** File ID
Rule Manager Setup dialog	**Document Hierarchy Setup (XM) File**: file name and pathway
Batch Pilot Task Settings dialog – *General* tab	**Setup DCO File**: file name and pathway. This is a ***required*** setting for each Task Project and, by extension, each Task Definition (Chapter 6).

How to Access the 1040EZ Training Application

Chapter 3 uses examples taken from the fictional *MQSW* application to highlight the steps you take to construct and modify a new Document Hierarchy. To observe the results of this procedure first-hand, you can open the applicable components of the *1040EZ* training application.

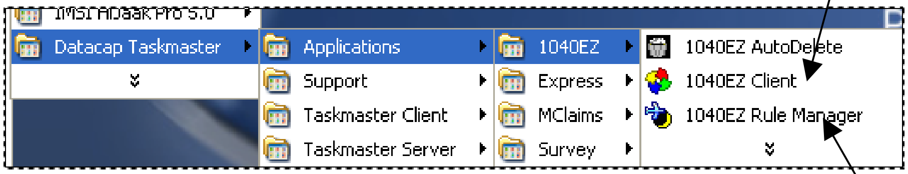
1040EZ has all features of today’s *Taskmaster* applications – and is nearly indestructible! It is also instantly available…just follow the steps below.

To open *1040EZ:*

Step **Action**

1. Select **Datacap Taskmaster** from th**e Programs** options of your Windows Start button.

2. Open the **Applications** folder and **1040EZ** sub-folder.

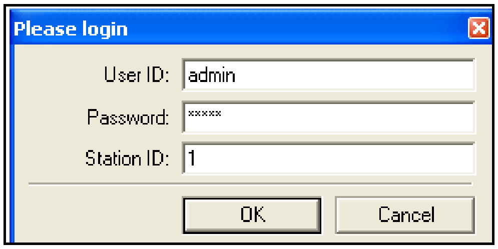


1040EZ Client

Rule Manager

3. Double-click on the **1040EZ Client** icon.

4. Enter your administrative Security codes in the fields of the ***Login*** dialog.



User ID: admin
Password: *****
Station ID: 1

5. Click on the OK button. The 1040EZ ***Taskmaster Window*** will appear on your screen.

Document Hierarchy Setup Window

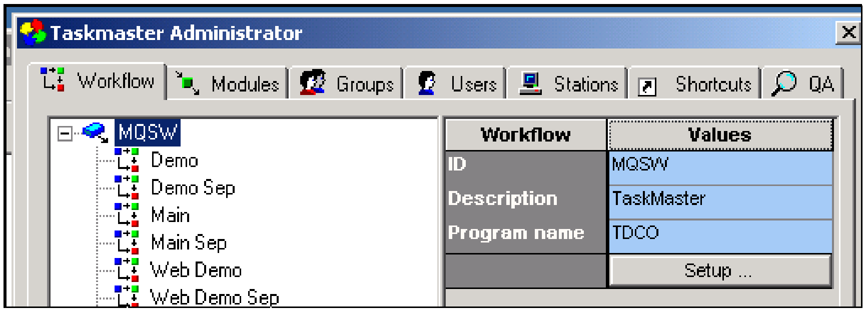
This section describes the menus and tools of the ***Document Hierarchy Setup*** window, and the layout of the window's Objects Table. The section that begins on Page 15 shows you how to use the window's features to construct, review and modify a workflow's Document Hierarchy.

How to Access the Document Hierarchy Setup Window

There are three direct routes to the ***Document Hierarchy Setup*** window:

The Setup button of the ***Task Master Administrator's*** *Workflow* tab opens this window ***if***:

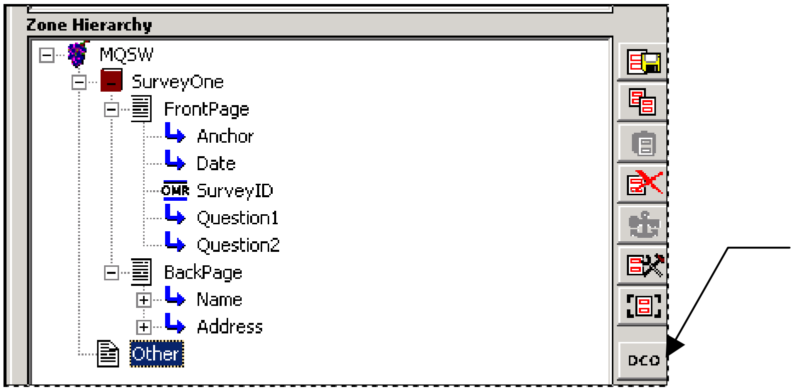
- ♦ You highlight the Workflow ID in the list of the Workflow Hierarchy's components on the left-hand side of the tab; ***and***
- ♦ Enter "TDCO" (without the quotation marks!) in the **Program Name** field on the right.
- ♦ Click on the Apply button at the bottom of the tab.



Workflow	Values
ID	MQSW
Description	TaskMaster
Program name	TDCO

MQSW Task Master Administrator – *Workflow tab*

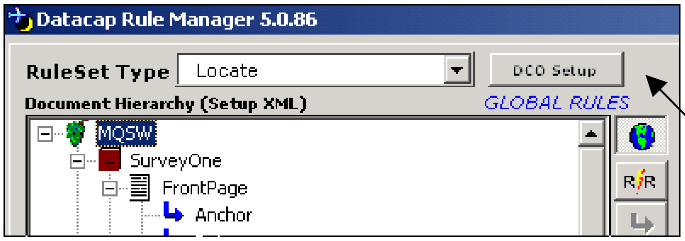
You can click on the **DCO** icon at the bottom of the **Zone Hierarchy** sector of the ***Rule Manager Window's*** *Fingerprints & Zones* panel:



Click here

Rule Manager Window – *Fingerprints & Zones panel*

Or you can press the DCO Setup button at the top of the ***Rule Manager Window's*** *Rules* panel:



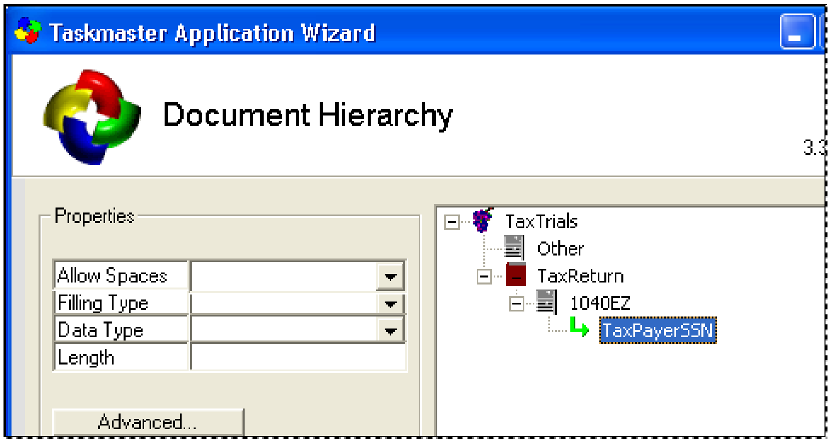
RuleSet Type: Locate

Press this button.

Rule Manager Window – *Rules panel*

- ✓ ***Very important(1)!*** Each route leads to the same ***Document Hierarchy Setup*** window, and to listings of the same Document Hierarchy file (**<batch>.xml**). Although most features of the window are available regardless of the route you take, you can define a new Document Hierarchy ***only*** when you access the window from the *Workflow* tab of the application's ***Taskmaster Administrator.*** This restriction protects the link between a workflow and its Document Hierarchy by preventing the accidental deletion of the file and its contents when you access the window from *Rule Manager*.

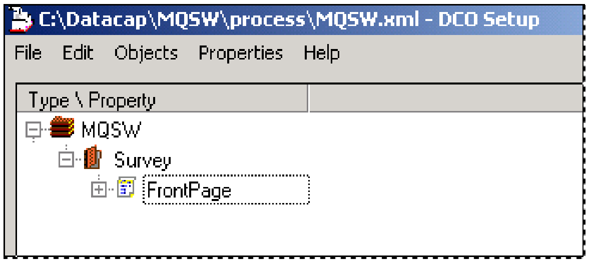
- ✓ ***Very important(2)!*** When you set up a new application, the Taskmaster Application Wizard provides a streamlined but limited version of the ***Document Hierarchy Setup*** window. The *Application Wizard Guide* explains its features and procedures.



Application Wizard – *Document Hierarchy Setup*

Menus of the Document Hierarchy Setup Window

The ***Document Hierarchy Setup*** window has five menus:


C:\Datacap\MQSW\process\MQSW.xml - DCO Setup
File Edit Objects Properties Help
Type \ Property
MQSW
Survey
FrontPage

Document Hierarchy Setup Window - *Menus*

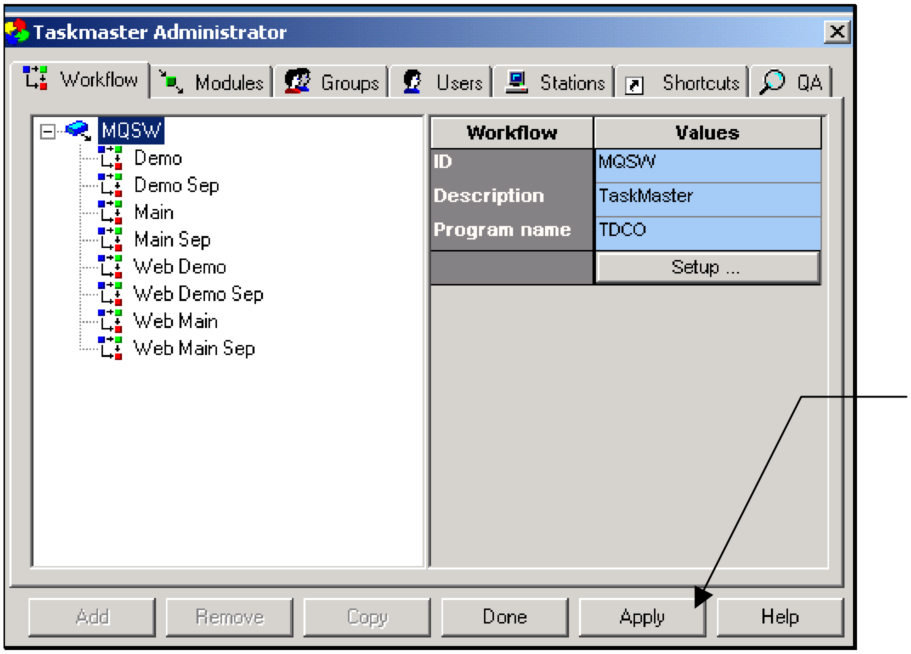
File Menu

The **File** menu has these options:

Item	Shortcut Keys	Description
New	Ctrl + N	Creates a new Document Hierarchy and assigns the current Workflow ID as the name of the **Batch** object. ***Be very careful!*** This step deletes all objects of the current Document Hierarchy. However, changes brought about by your selection of **File/New** are ***not*** permanent until you click on the Apply button at the bottom of the ***Taskmaster Administrator*** (illustrated on the next page.)
Open	Ctrl + N	Accesses the ***Open*** dialog so you can access a Document Hierarchy file (.xml) other than the current file from your application's **Process** directory (Chapter 2). Under ordinary circumstances, a workflow requires only one Document Hierarchy (and file). During setup and testing – and perhaps training – you may want to define multiple hierarchies with varying objects, and save each as a separate .xml file available to the workflow.
Save	Ctrl + N	Saves the contents of the workflow's Document Hierarchy – its objects and their properties – to the hierarchy's .xml file. **File/Save** also updates the file with any changes you've made.

File Menu (continued)

Item	Shortcut Keys	Description
Save as…	*n/a*	Saves the contents of the current Document Hierarchy to a new or different .xml file. ***Alert!*** The link between the workflow and this Document Hierarchy file is not permanent until you click on the Apply button at the bottom of the ***Taskmaster Administrator*** or respond *Yes* to Task Master Client's ***Save*** inquiry.
Exit	Ctrl + N	Closes the ***Document Hierarchy Setup*** window after asking if you'd like to save any changes.



- MQSW
  - Demo
  - Demo Sep
  - Main
  - Main Sep
  - Web Demo
  - Web Demo Sep
  - Web Main
  - Web Main Sep

Workflow	Values
ID	MQSW
Description	TaskMaster
Program name	TDCO
	Setup ...

Be sure to press this button!

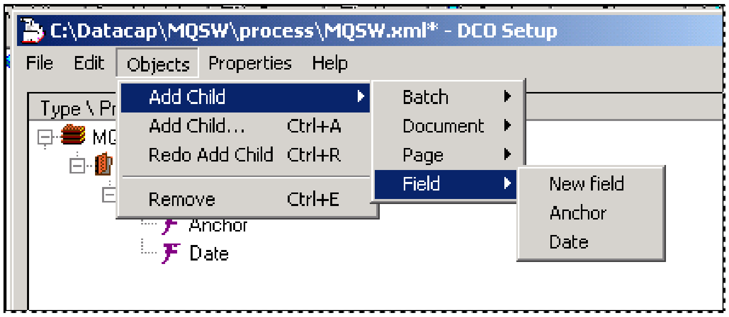
Taskmaster Administrator

Edit Menu

The items in this menu are ***not active.***

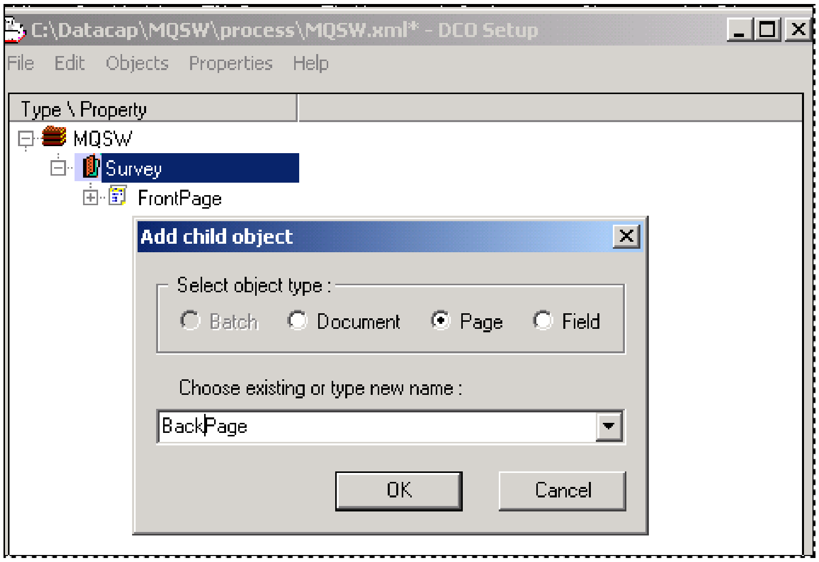
Objects Menu

Items in this menu add and remove objects to each level of the Document Hierarchy ***except*** the top **Batch** level.



Document Hierarchy Setup Window – *Objects Menu*
Add Child >

Item	Shortcut Keys	Description
Add Child >	*n/a*	Sets up a new object on the level you select, or copies an existing object and places it on the same level. In the illustration above, selecting **New Field** will add a new **Field** object to the highlighted **Page** object (the hidden *Front* page, in this case. You cannot, however, add an *Anchor* or *Date* field to the *Front* **Page** object because they are already that page's children. (You could add an *Anchor* or *Date* field to another **Page** object; for details, see Page 26). When you use this menu item to insert an object, you'll give the object a name ***after*** it appears as a member of the hierarchy (Page 31).
Add Child	Ctrl + A	Opens the ***Add Child Object*** dialog (illustrated on the next page.). Alternatives in the **Select Object Type** field determine the level of the child component; in this case, we're adding a *page* to the *Survey* **Document** object.
Redo Add Child	Ctrl + R	Repeats the previous **Add Child** procedure by inserting an object just below the object you previously added. **Redo Add Child** does not give the object a name – that's your responsibility.
Remove	Ctrl + E	Deletes an object and its properties from the Document Hierarchy and from the Document Hierarchy file (.xml).


C:\Datacap\MQSW\process\MQSW.xml* - DCO Setup
File Edit Objects Properties Help
Type \ Property
MQSW
Survey
FrontPage
Add child object
OK
Cancel

Select object type : ○ Batch ○ Document ● Page ○ Field

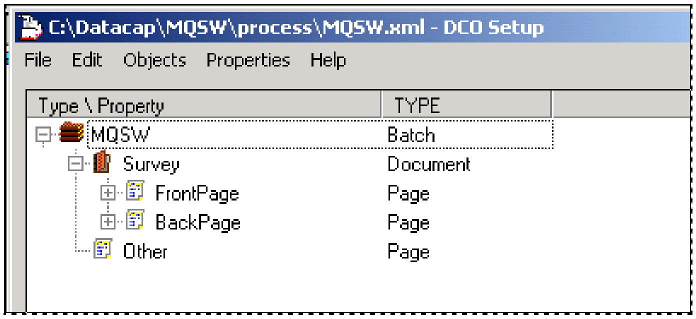
Choose existing or type new name : BackPage

Document Hierarchy Setup Window -
<u>Add Child Object dialog</u>

Properties Menu

Every **object** of the Document Hierarchy has a set of **properties**:

- Some are default properties, assigned automatically when you add the object to the **Document Hierarchy**. For example, every object has a **Type** property, with a value of *Batch*, *Document*, *Page* or *Field* (see the example below).


C:\Datacap\MQSW\process\MQSW.xml - DCO Setup
File Edit Objects Properties Help

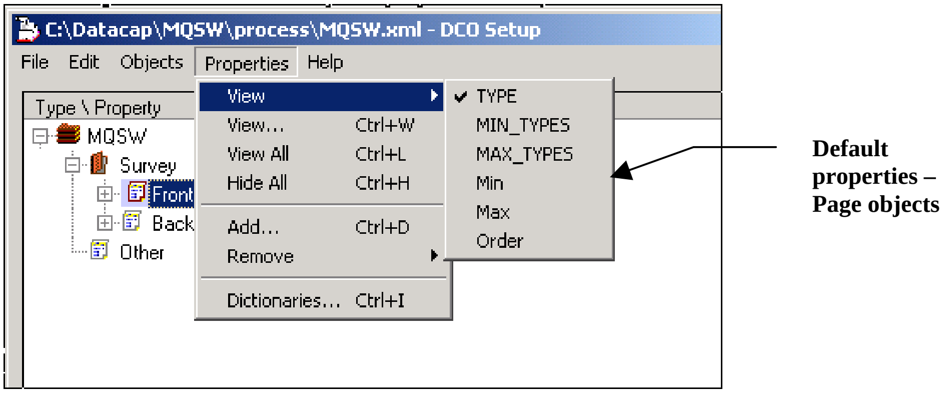
Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page
BackPage	Page
Other	Page

Document Hierarchy Setup Window

- Others are ***setup*** properties you assign when you construct the Document Hierarchy.
- Certain objects acquire ***runtime*** properties (aka “variables”) when tasks process them.

✓ Upcoming sections describe the default properties of objects at each level of the Document Hierarchy; Page 31 shows you how to add your own ***setup*** properties.

The following page reviews the items of the **Properties** menu.



Document Hierarchy Setup Window -
Properties menu

Document Hierarchy Setup Window – Properties menu

Item	Shortcut Keys	Description
View >	*n/a*	Lists the highlighted object's properties: selecting a property adds a column to the window's **Objects Table**, and lists the current value of the property for ***any*** object at this level which shares the property. In the examples above and on the previous page, the value of the **Page** object's **Type** property is a ***template*** property that appears not only for the *Front* page but for all pages in the hierarchy. (The properties in the illustration above are all default properties of a **Page** object.)
View	Ctrl + W	Presents the same list of properties but as a series of items with check boxes. Activating a check box adds a column to the Objects Table.
View All	Ctrl + L	Expands the Objects Table to include columns for all properties of all objects ***at the level*** of the object you've highlighted.
Hide All	Ctrl + H	"Hides" the properties of all objects ***at the level*** of the object you've highlighted. For some applications, the scope of the ***Document Hierarchy Window's*** Objects Table can grow until it becomes somewhat unwieldy. This handy option immediately limits the table's contents.

Document Hierarchy Setup Window – Properties menu (continued)

Item	Shortcut Keys	Description
Add	Ctrl + D	Accesses the ***Add Property*** dialog. You can use this dialog to add a property to the object of the Document Hierarchy that you've highlighted, or to ***all*** objects at the level of the object you've highlighted (Page 31).
Remove	*n/a*	Lists those properties of the object you've highlighted that may be deleted. ***Alert 1!*** You cannot delete certain default properties. ***Alert 2!*** You cannot delete more than one object at a time. Page 34 reviews deletion techniques.
Dictionaries	Ctrl + I	Retrieves the ***Dictionaries*** dialog. You can use this dialog to construct a "dictionary" of acceptable values for the object you've highlighted. ***Alert!*** Before you attempt to set up a dictionary, be sure to review and follow the steps on Page 35.

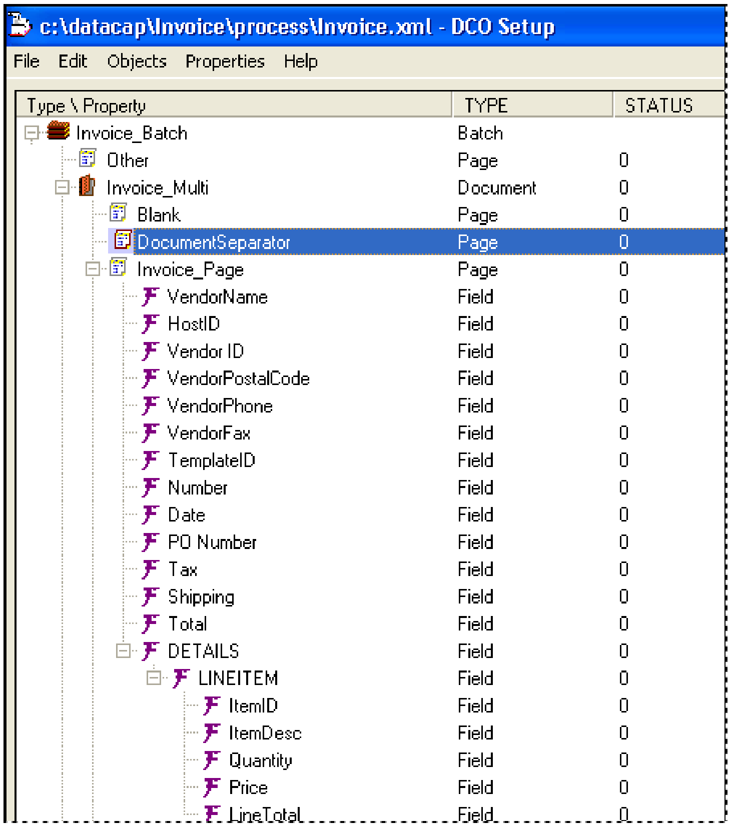
Help Menu

This menu leads to a dialog with technical information about the ***Document Hierarchy Setup Window.***

How to Construct a Document Hierarchy

The definition of a workflow’s Document Hierarchy is a straightforward, almost effortless procedure ***as long as*** you spend time beforehand carefully examining the makeup and contents of the form that the workflow and its jobs will process.

Taskmaster for Invoices is a pre-configured application that handles invoices submitted by multiple vendors. Although the specifics of these invoices usually differ in format and content, the application’s Document Hierarchy reveals a basic structure of common objects at all four levels: **Batch**, **Document**, **Page** and **Field**:

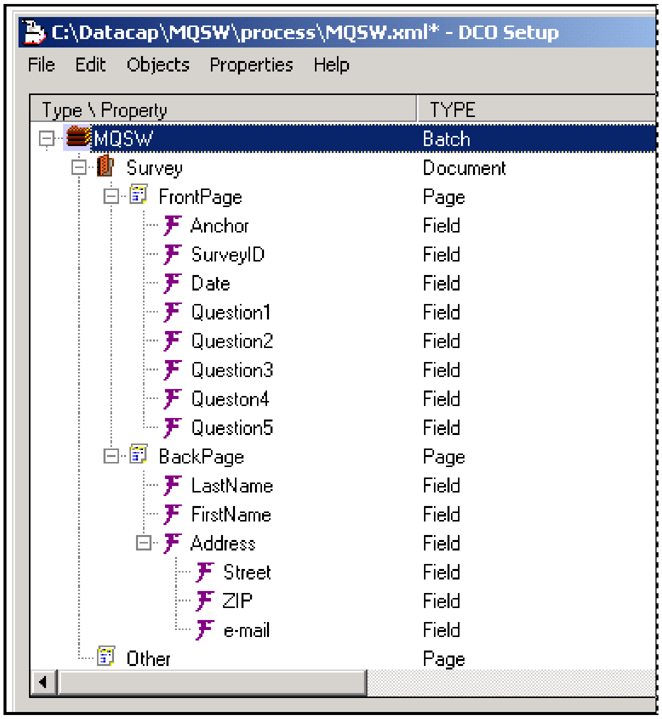


Type \ Property	TYPE	STATUS
Invoice_Batch	Batch	
Other	Page	0
Invoice_Multi	Document	0
Blank	Page	0
DocumentSeparator	Page	0
Invoice_Page	Page	0
VendorName	Field	0
HostID	Field	0
Vendor ID	Field	0
VendorPostalCode	Field	0
VendorPhone	Field	0
VendorFax	Field	0
TemplateID	Field	0
Number	Field	0
Date	Field	0
PO Number	Field	0
Tax	Field	0
Shipping	Field	0
Total	Field	0
DETAILS	Field	0
LINEITEM	Field	0
ItemID	Field	0
ItemDesc	Field	0
Quantity	Field	0
Price	Field	0
LineTotal	Field	0

Document Hierarchy Setup Window -
<u>Invoice.xml</u>

✓ Chapter 4 explains how this shared structure serves as the *Invoices* application’s **Global Fingerprint**; Chapter 5 describes how a set of **Global Rules** applies to the Global Fingerprint’s objects. These chapters also review the design of custom fingerprints for individual invoices, and the definitions of custom rules.

The fictional *MQSW* application is the product of the Taskmaster Application Wizard (Chapter 2) and processes a mix of marketing surveys. Although individual surveys differ in content and format, each survey is a form which shares basic design elements with every other survey form that the company distributes. The application’s Document Hierarchy, on the following page, was completed only after considerable discussion, evaluation, and testing by *MQSW* system specialists – ***and*** by members of the company's executive team.



Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page
Anchor	Field
SurveyID	Field
Date	Field
Question1	Field
Question2	Field
Question3	Field
Queston4	Field
Question5	Field
BackPage	Page
LastName	Field
FirstName	Field
Address	Field
Street	Field
ZIP	Field
e-mail	Field
Other	Page

Document Hierarchy Setup Window - MQSW.xml

The instructions below and on the following pages show you how to assemble a Document Hierarchy that reflects the requirements of a core form, and of the batches that process documents and pages based on this form. The discussions on these pages use the *MQSW* and *Invoice* applications for examples and illustrations.

✓ ***Remember:*** If you use the Taskmaster Application Wizard to construct an application, the wizard helps assemble a complete Document Hierarchy.

How to Add Objects to a Document Hierarchy

You cannot add a **Batch** object to an existing Document Hierarchy.

Upcoming sections show you how to add objects at the hierarchy's other levels:

- Document objects: Page 21
- Page objects: Page 24
- Field objects: Page 26.

Page 31 explains procedures for adding, removing and modifying ***setup*** properties and their values.

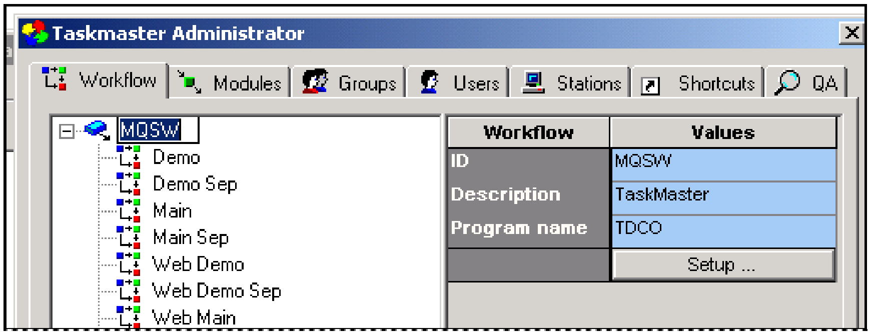
Definition #1: Batch Object

A Document Hierarchy belongs to the **workflow** component of a *Taskmaster* application's Workflow Hierarchy. This opening stage links an existing workflow to the **Batch** object of the new Document Hierarchy, and creates the Document Hierarchy file (.xml).

Step **Action**

1. Open your application's Taskmaster Client; select **Workflow** from the **Settings** menu to access the *Workflow* tab of the ***Taskmaster Administrator.***

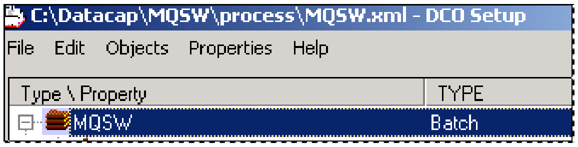
2. Because a Document Hierarchy is a property of a ***single*** workflow, you'll highlight the applicable **Workflow ID** in the components list on the left. This assumes that you've previously defined the Workflow Hierarchy – ***or*** that the Taskmaster Application Wizard provided you with a default Workflow Hierarchy (Chapter 2).



Workflow	Values
ID	MQSW
Description	TaskMaster
Program name	TDCO

3. Be sure that the value in the **Program Name** field on the right is "TDCO" (without the quotation marks!)

4. Click on the Setup button: the ***Document Hierarchy Setup*** window will appear on your screen with a single **Batch** object that bears the name of the workflow. ***Important!*** This is the only title that you cannot directly change: instead, you have to return to the *Workflow* tab and modify the Workflow ID.



Type \ Property	TYPE
MQSW	Batch

5. Check, too, that the name of the Document Hierarchy file (.xml) is the name of the **Batch** object and of the Workflow ID. ***Alert!*** Although you can use the **File** menu's **Save as** option to can change the file's name (Page 9), such a step does not change the Workflow ID or the name of the **Batch** object.

6. The example in Step #4 displays the default value of the **Batch** object's default **Type** property. To confirm this value, highlight the object's name and select *TYPE* from one of the **View** items of the **Properties** menu (Page 12).

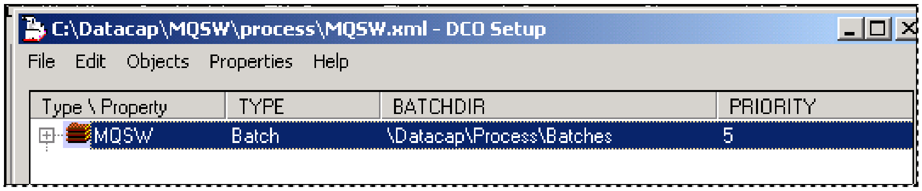
How to Define the Document Hierarchy’s Batch Object (continued)

Step	Action
7.	Select **Exit** (Ctrl + Q) from the ***Document Hierarchy Setup*** window’s **File** menu to close the window and the new file – and to return to the ***Taskmaster Administrator’s*** *Workflow* tab.
8.	Highlight the Workflow ID once again and click on the tab’s Setup button. Confirm that the correct **Batch** object appears at the top of the new Document Hierarchy, and that the correct file is listed in the title bar of the ***Document Hierarchy Setup*** window.

✓ The separate *Application Wizard Guide* shows you how the Taskmaster Application Wizard sets up a single Document Hierarchy. However, *your* application may need a second workflow and, therefore, a second Document Hierarchy. (The pre-configured *Taskmaster for Medical Claims* application, for example, employs a *HCFA* Workflow and a separate *UB* workflow. And each has its own Document Hierarchy.)

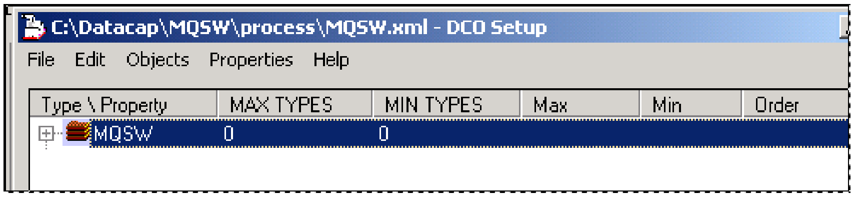
Default Properties of the Batch Object

If you highlight the name of the hierarchy’s **Batch** object and select **View All** from the **Properties** menu, the window’s **Objects Table** will look something like this:



Type \ Property	TYPE	BATCHDIR	PRIORITY
MQSW	Batch	\Datacap\Process\Batches	5

Default Properties of the Batch Object - *left columns*



Type \ Property	MAX TYPES	MIN TYPES	Max	Min	Order
MQSW	0	0			

Default Properties of the Batch Object – *right columns*

The table on the next page describes the **Batch** object’s default properties and their values. (Page 31 shows you how to add properties to an object ***and*** how to manipulate the order of their appearance in the Objects Table.)

Default Properties of the Batch Object (continued)

Property	Value	Description
TYPE	*Batch*	The nature of the object. You ***cannot*** change this value.
STATUS	*Numeric*	A number representing the processing status assigned to the batch.
BATCHDIR	//Datacap/<application>/ batches	The name and path of the application's **batches** directory.
PRIORITY	5	An optional value that will be assigned to all batches to indicate their processing priorities. **Priority** values range from "1" (*high*) to "5" (*low*). This value is superseded by the value assigned to the **Priority** property of individual jobs (Chapter 6).
MAX_TYPES	0	The ***maximum*** number of document ***types*** that can be part of the ***runtime*** **Batch** object, one level below in the Document Hierarchy. Specifying that *MAX_TYPES = 3* for a **Batch** object means that a batch cannot have more than three documents of different types. "0" indicates that there is no maximum – and is the customary value for this setting. However, this property can be a key parameter in the definition of an application's **Document Integrity**.
MIN_TYPES	0	The minimum number of document ***types*** that ***must*** be children of the ***runtime*** **Batch** object… one level below in the Document Hierarchy. "0" indicates that there is no minimum. A value of "3", for example, means that the batch ***must*** include documents of at least three different types.
Max	*n/a*	*Not applicable to **Batch** objects.*
Min	*n/a*	*Not applicable to **Batch** objects.*
Order	*n/a*	*Not applicable to **Batch** objects.*

Additional Default Properties

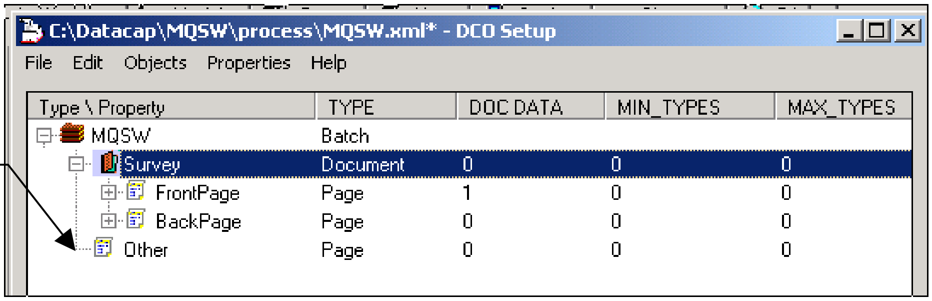
The previous pages describe a **Batch** object's core properties – properties that appear as columns in the Objects Table. However, the Document Hierarchy file (.xml) does list other properties that you can include as default properties. For assistance, consult your Taskmaster Implementation Specialist. For a closer look at this file, use a Text Editor such as *Notepad.*

Definition #2: Document Objects

Documents form the upper layer of batch organization. A typical *Recognition* task such as Assemble or RuleRunner (Chapter 8) identifies pages in a batch according to Page Type, then assigns every page to a document. Properties of the Document Hierarchy's **Document** object – ***including*** its child **Page** objects - determine the makeup of each document in a batch.

The structure of the *MQSW* Document Hierarchy (at the top of the next page) shows a **Batch** object with one **Document** object (*Survey*), and a **Document** object that consists of two **Page** objects (*Front* and *Back*).

✓ Note, too, that the **Batch** object has a **Page** object all its own: *Other*. When a Main job's opening task – typically, a Scan task – creates the batch, it sets up an organizational page for every scanned image, and assigns *Other* as the Page Type of every page. Soon afterwards, a Recognition task will distinguish between *Front* and *Back* pages (in this case), and will assemble documents accordingly.



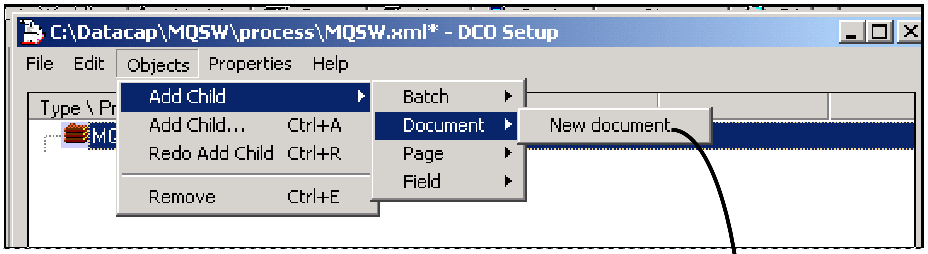
Type \ Property	TYPE	DOC DATA	MIN_TYPES	MAX_TYPES
MQSW	Batch			
Survey	Document	0	0	0
FrontPage	Page	1	0	0
BackPage	Page	0	0	0
Other	Page	0	0	0

"Other" page

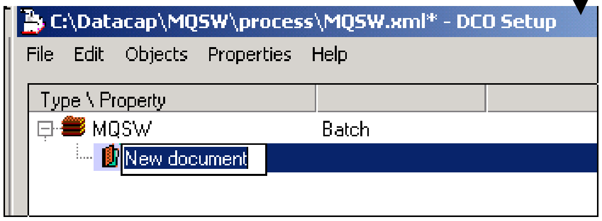
MQSW Document Hierarchy – *Document Properties*
<u>Survey Object</u>

To add a **Document** object to your Document Hierarchy:

Step	Action
1.	Highlight the hierarchy's **Batch** object.
2.	Select **Add Child** from the **Objects** menu – or right click and select this option.
3.	Select **Document - then New Document** (see the illustration on the next page.)

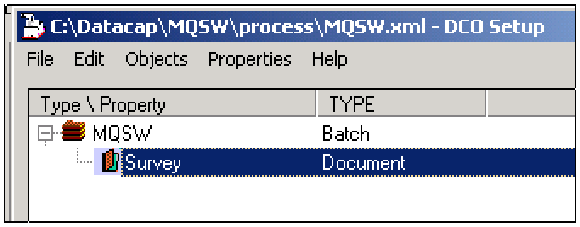


Document Hierarchy Setup Window -
Add Document Object (1)



Type \ Property	
MQSW	Batch
New document	

Document Hierarchy Setup Window -
Add Document Object (2)



Type \ Property	TYPE
MQSW	Batch
Survey	Document

Document Hierarchy Setup Window -
Add Document Object (3)

To Add a Document Object (continued)

Step	Action
4.	Replace “New document” with the name of your **Document** object.
5.	Select **Save** from the **File** menu to save this important change to the Document Hierarchy.
6.	Highlight the **Document** object’s Name (*Survey*, in the example above); select either **View** item from the **Properties** menu- and the *TYPE* option.
7.	Be sure that the Objects Table lists *Document* as the new object’s **TYPE** property.

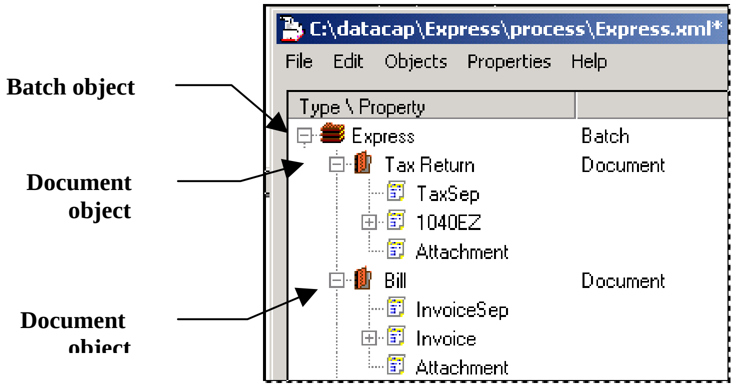
Default Properties of a Document Object

If you highlight the new **Document** object's name and select **View All** from the **Properties** menu, these default properties will appear as columns in the Objects Table:

Property	Default Value	Description
TYPE	Document	The nature of the object. You ***cannot*** change this value.
STATUS	0	A numeric value indicating the processing status of a document's represented by this **Document** object.
DOC DATA	0	Specifies a constant value such as "Unit Field Invoices" or declares a variable such as *Date.* A task can add this constant to the **Document Data** lines of its Page file (Chapter 7), or assign values to the variable and enter the values in the file's **Document Data** lines.
Min	0	The minimum instances of any object that occupies the **Page** level, one level below the **Document** level.
Max	0	The maximum instances of any object that occupies the **Page** level, one level below the **Document** level.
Order	0	If a Document Hierarchy has multiple documents, an integer assigned to this property determines its processing order within the batch.

✓ *Taskmaster Express* is a pre-configured application with a Document Hierarchy that features two **Document** objects: *Tax Return* and *Bill.*

Each **Document** object, in turn, has three **Page** objects:



Type \ Property	
Express	Batch
Tax Return	Document
TaxSep	
1040EZ	
Attachment	
Bill	Document
InvoiceSep	
Invoice	
Attachment	

Express Document Hierarchy

Definition #3: Page Objects

Most – but not all - **Page** objects are children of **Document** objects.

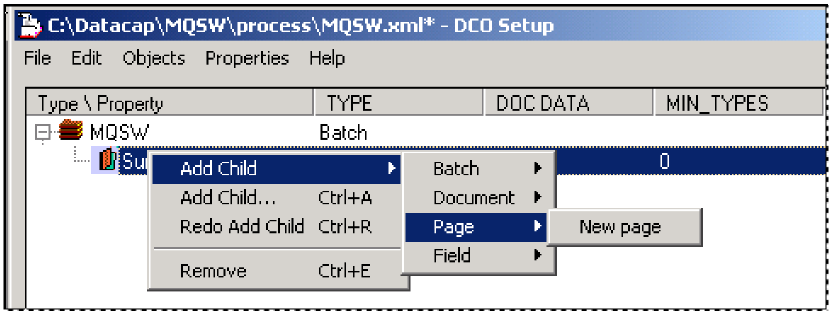
To add a **Page** object to a **Document** object:

Step **Action**

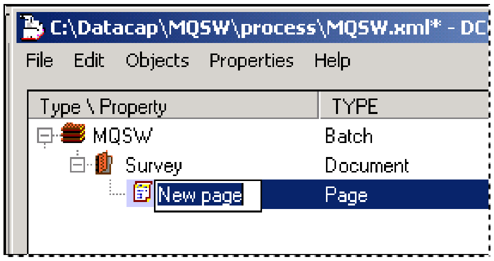
1. Highlight the **Document** object.

2. Select an **Add Child** item from the **Objects** menu (or right-click on the Document ID).

3. Select **Page** and **New page** from the alternatives.



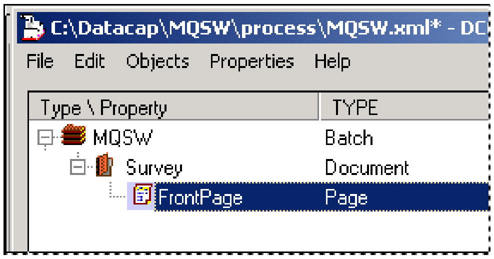
4. Enter the name of the new **Page** object.


C:\Datacap\MQSW\process\MQSW.xml* - DC
File Edit Objects Properties Help

Type \ Property	TYPE
MQSW	Batch
Survey	Document
New page	Page

To Add a Page Object (continued)

Step	Action
5.	Select **Save** from the **File** menu.
6.	Confirm that **Page** is the new object's **TYPE** property.


C:\Datacap\MQSW\process\MQSW.xml* - DC
File Edit Objects Properties Help

Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page

✓ Although a **Page** object is usually the child of a **Document** object, most applications assign an *Other* **Page** object to the hierarchy's **Batch** object. This allows rules that govern the Scanning process (Chapter 6 and Chapter 7) to organize a new batch into a series of pages, right from the start.

Default Properties of a Page Object

If you highlight a new **Page** object's name and select **View All** from the **Properties** menu, these default properties will appear as columns in the Objects Table.

In the descriptions below, "current page" refers to a page that is being processed and is represented by a particular **Page** object.

Property	Default Value	Description
TYPE	Page	The nature of the object. You ***cannot*** change this value.
STATUS	0	A *numeric* value to indicate the processing status of the current page represented by this **Page** object.
IMAGEFILE	<blank>	The name and path of the current page's Image file (.tif).
DATAFILE	<blank>	The name and path of the current page's Data file (Chapter 6).
TEMPLATE IMAGE	<blank>	The name and path of the Image file that is part of the fingerprint that has been matched to the current page.
Min	0	The minimum instances of any object that occupies the **Field** level, one level below the **Page** level.
Max	0	The maximum instances of any object that occupies the **Field** level, one level below the **Page** level.

Properties of a Page object (continued)

Property	Default Value	Description
Order	1/0	An integer that determines the processing order of pages of this type within the document. “1” is automatically assigned to the **Document** object’s first **Page** object.

☛ ***A Word about Pages***. A *Taskmaster* application makes a clear distinction between a document’s ***source*** pages and its ***supplementary*** pages.

- A ***source*** page is a page with **fields** that contain user-entered **values**. **Field** objects are the children of the **Page** object of a ***source*** page. When processing a batch, a job’s *recognition* task identifies each ***source*** page; locates its fields; and reads and interprets the values in these fields.
- ***Supplementary*** pages separate multi-page documents (*Separator* pages) or are *Attachments* to a ***source*** page.

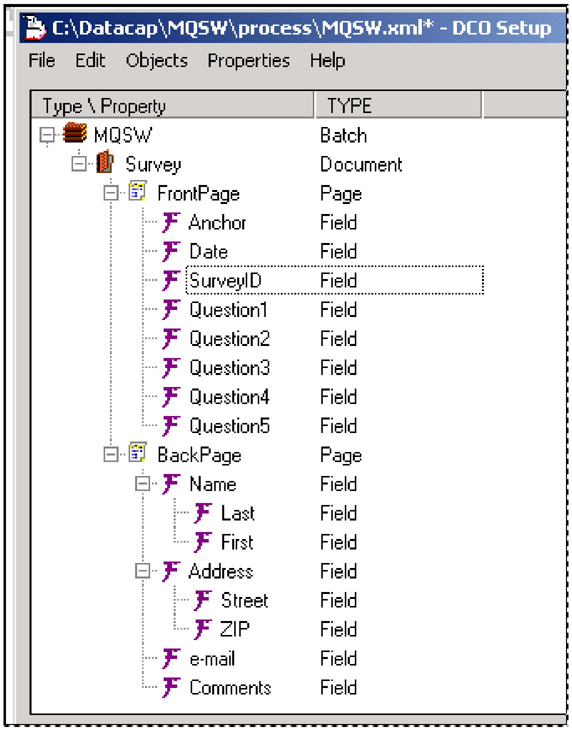
The *MQSW* Document Hierarchy has a single *Survey* **Document** object, with two **Page** objects representing the document’s ***source*** pages: *FrontPage* and *BackPage*. Here, documents do not include ***supplementary*** pages.

In contrast, the Document Hierarchy of the *Invoice* application (Page 15) identifies one ***source*** page (with plenty of fields!) and three ***supplementary*** pages. *DocumentSeparator* separates the documents in a batch; *PageSeparator* separates invoices in a document; and the *Attachments* are addenda to the invoices.

Definition #4: Field Objects

Field objects represent the fields of a ***source*** page – or sometimes serve to hold important ***runtime*** data associated with a document or with a batch.

Eventually, the *MQSW* Document Hierarchy will end up with these **Field** objects:



```
Type \ Property          TYPE
MQSW                     Batch
  Survey                 Document
    FrontPage            Page
      Anchor             Field
      Date               Field
      SurveyID           Field
      Question1          Field
      Question2          Field
      Question3          Field
      Question4          Field
      Question5          Field
    BackPage             Page
      Name               Field
        Last             Field
        First            Field
      Address            Field
        Street           Field
        ZIP              Field
      e-mail             Field
      Comments           Field
```

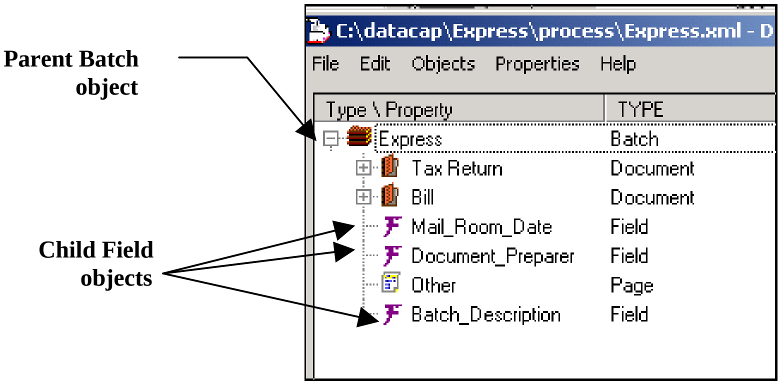
MQSW Document Hierarchy

✓ Pay ***very close*** attention to the fields of the *BackPage*. Some are represented by **Field** objects that are children of the parent **BackPage** object. Others, however, are children of a parent **Field** object. The *Last* and *First* **Field** objects, for example, are children of the *Name* **Field** object. Similarly, the *Street* and *ZIP* fields belong to the *Address* field.

The ease with which you can add a **Field** object means that you have to be careful to highlight the correct ***parent*** of the child you're inserting. Is the parent a **Page** object? A **Field** object? Or, in the case of the **Express** application, the hierarchy's distant **Batch** object!

The illustration at the top of the following page shows you how unique ***field-level*** values will be assigned to every *Express* batch when a task applies rules to three **Field** objects that can't be found anywhere in a **Page** object: *Mail_Room_Date*, *Document Preparer*, and *Batch Description*. (Chapter 5 shows you how to set up RulesSets and rules, and bind them to objects of the Document Hierarchy.)

Now that the hierarchy includes **Field** objects, take a moment to study the identifying icons just to the left of each object, at each level, in the *MQSW* example above and in the *Express* example on the next page.

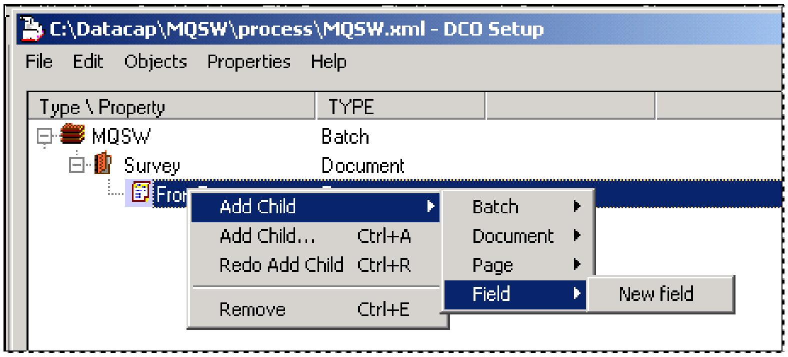


Type \ Property	TYPE
Express	Batch
Tax Return	Document
Bill	Document
Mail_Room_Date	Field
Document_Preparer	Field
Other	Page
Batch_Description	Field

Objects of the Express Document Hierarchy

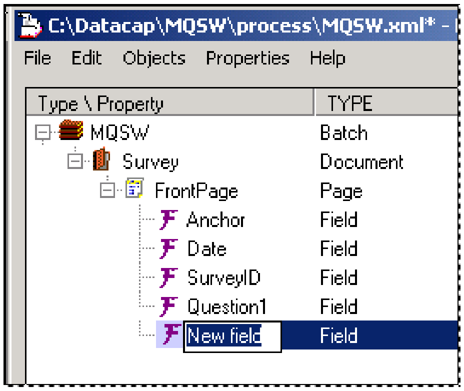
To add a **Field** object to the Document Hierarchy, take these steps:

Step	Action
1.	Highlight the field's parent object – probably, a **Page** object of the Document Hierarchy.
2.	Select an **Add Child** item from the **Objects** menu, or right-click on the parent object you've highlighted.



Type \ Property	TYPE
MQSW	Batch
Survey	Document
Fro	

Step	Action
3.	Select **Field** and **New Field** from the cascading list.
4.	Enter the name of the new **Field** object.



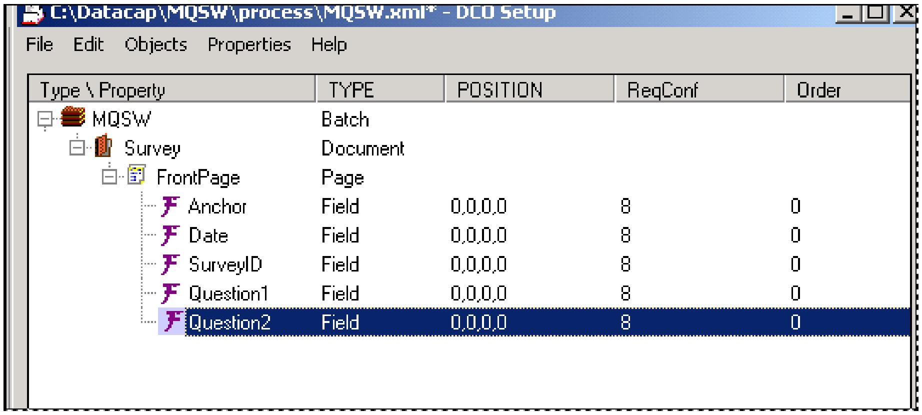
Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page
Anchor	Field
Date	Field
SurveyID	Field
Question1	Field
New field	Field

To Add a Field Object (continued)

Step **Action**

5. Click on the **File** menu's **Save** option.

6. Check the new **Field** object's place within the hierarchy, and its set of properties (described below).



Type \ Property	TYPE	POSITION	ReqConf	Order
MQSW	Batch			
Survey	Document			
FrontPage	Page			
Anchor	Field	0,0,0,0	8	0
Date	Field	0,0,0,0	8	0
SurveyID	Field	0,0,0,0	8	0
Question1	Field	0,0,0,0	8	0
Question2	Field	0,0,0,0	8	0

Default Properties of a Field Object

The default properties of a **Field** object include:

Property	Default Value	Description
TYPE	Field	The nature of the object. You ***cannot*** change this value.
STATUS	0	A *numeric* value indicating the processing status of the field represented by this **Field** object.
POSITION/ Position	0,0,0,0	Placeholders for four coordinates that locate a field of the parent **Page** object. The coordinates define a rectangle: X1 (Left), Y1 (bottom), X2 (Right), Y2(top). Because these are placeholders, each coordinate is "0". A task such as RuleRunner replaces the default "0"s with the four values that locate a field on a specific page. The task then assigns these values to the field's **Position** property, in the Data file (.xml) for that page (**tm000001.xml**, for example.)
Length		The maximum number of characters in the field.

Default Properties of Field Object (continued)

Property	Default Value	Description
ReqConf	8	The ***minimum*** Confidence Rating for fields represented by this **Field** object. A field's actual Confidence Rating is an average of the ratings of *recognized* characters in the field.
Order	0	A number indicating the position of this **Field** object in the workflow's processing queue – relative to other **Field** objects.
Min	0	The minimum instances of any object that occupies the **Field** level, one level below the **Page** level.
Max	0	The maximum instances of any object that occupies the **Field** level, one level below the **Page** level.

How to Add, Remove and Modify Properties

As you grow more comfortable with the ***Document Hierarchy Setup*** window and its tools, you may well decide to enhance your hierarchy by changing values automatically assigned to certain properties – or by increasing the range of an object's attributes by adding new, custom properties.

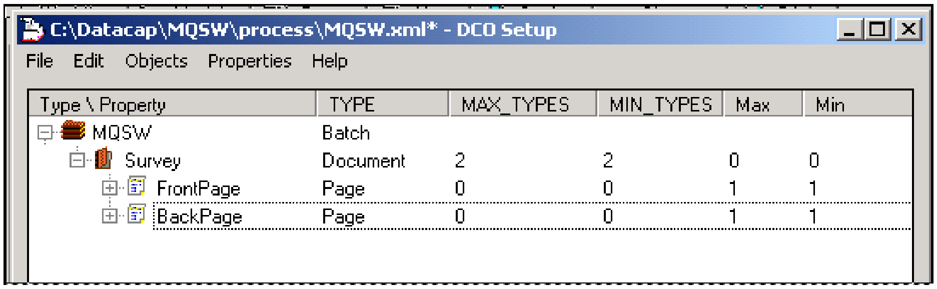
How to Change a Property's Value

Objects at all four levels of the Document Hierarchy have a default set of properties, and each property has a default value – typically, "0". However, you can alter the values of most properties.

✓ ***Remember!*** A property such as a **Field** object's **Position** is a placeholder for ***runtime*** values that are supplied when a task processes as page and its fields. You cannot change these values.

To alter the value of a default property:

Step	Action
1.	Open the ***Document Hierarchy Setup*** window.
2.	Highlight the applicable object.
3.	Use one of the **Property** menu's **View** items (Page 12) to be sure the window includes the property's name as a column in the Objects Table.
4.	Click your cursor on a position a little way to the right of the value you intend to change (see the illustration on the preceding page).
5.	Enter the new value.
6.	Select **Save** from the **File** menu to update the Objects Table with the new value.



Type \ Property	TYPE	MAX_TYPES	MIN_TYPES	Max	Min
MQSW	Batch				
Survey	Document	2	2	0	0
FrontPage	Page	0	0	1	1
BackPage	Page	0	0	1	1

How to Add a Property to an Object of the Document Hierarchy

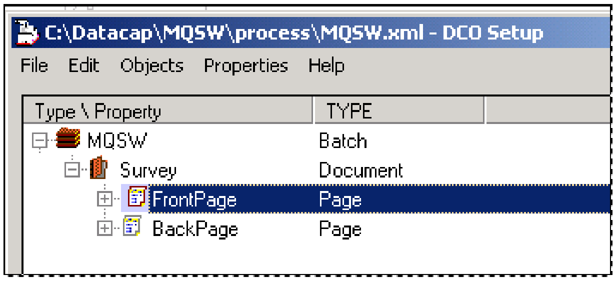
A **property** can be added to an object as part of the Document Hierarchy's ***setup*** procedures – or later, when a task processes the object. Rules and their actions automatically append these later ***runtime*** properties and supply their values (Chapter 5); below are the steps you take to add a ***setup*** property.

Step **Action**

1. Open the **Document Hierarchy Setup** window.

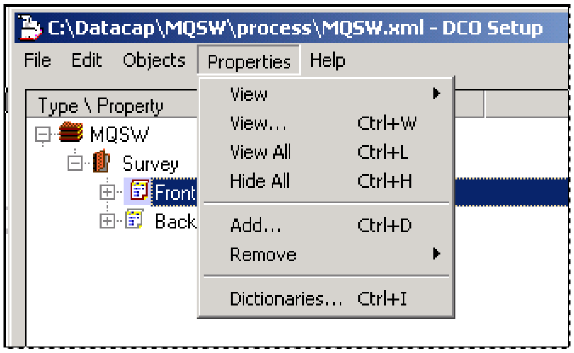
2. Highlight the object to which you will add the property.

3. Use the **Property** menu's **View** items to limit the scope of the Objects Table's columns – perhaps to **TYPE** alone.



Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page
BackPage	Page

4. Select ***Add*** from the ***Properties*** menu (or use the Ctrl + D keyboard combination): the ***Add Property*** dialog will appear on your screen (it's illustrated on the next page.)



5. Enter the **Property Name**.

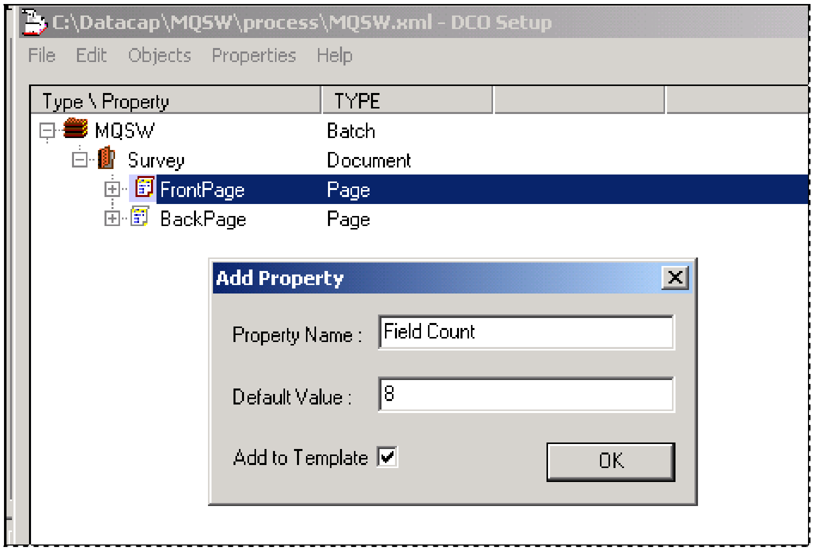
6. Indicate the property's **Default Value** (*optional*).

7. Check the **Add to Template** option if ***all*** objects at this level will share this property. ***Important!*** If you do not select place a check in this checkbox, the property will be an attribute of the highlighted object only.

How to Add a Property (continued)

Step **Action**

8. Click on the OK button to add the property to the object – or to all objects at this level.



Type \ Property	TYPE
MQSW	Batch
Survey	Document
FrontPage	Page
BackPage	Page

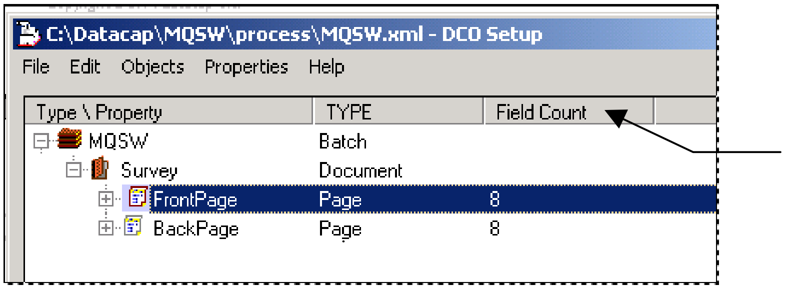
Property Name : Field Count

Default Value : 8

Add to Template ☑

Document Hierarchy Window - *Add Property dialog*

✓ Check, now, that the new property is included in the property list for the object – or objects! – and that it is a column in the ***Document Hierarchy Setup*** window's Object Table:



Type \ Property	TYPE	Field Count
MQSW	Batch	
Survey	Document	
FrontPage	Page	8
BackPage	Page	8

New property

Document Hierarchy Window
New Page-level Property

✓ The property's default value is an important consideration: the. "8" in this example may well be an accurate count for the *FrontPage*, but an inaccurate count for the *BackPage*. To correct such a mistake, you can take the steps outlined on Page 31 to change the **FieldCount** value for the *BackPage* object. Alternatively, you can leave the ***Add Property*** dialog's **Default Value** field empty when you define the new property. This means that you would have to enter a value for each **Page** object directly into the **Field Count** column of the Objects Table.

How to Delete a Custom Property

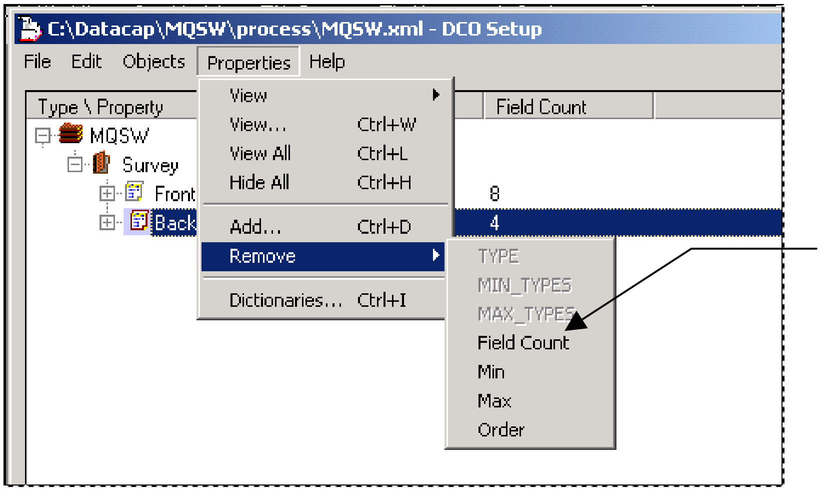
You ***cannot*** delete an object's default properties, or modify their titles.

Similarly, you ***cannot*** change the title of a custom property once you've assigned it to an object, or to all objects at a specific level of the Document Hierarchy (Page 32).

Instead, you can delete the custom property and its current value. If you set up the property as a generic attribute of all objects at this level – if you selected the **Add to Template** option in the ***Add Property*** dialog - removing the property from one object does ***not*** remove it from the others.

To delete a custom property:

Step	Action
1.	In the ***Document Hierarchy Setup*** window, highlight the object to which the custom property belongs.
2.	Select **Remove** from the **Properties** menu.
3.	From the list of available properties, select the property you intend to delete.

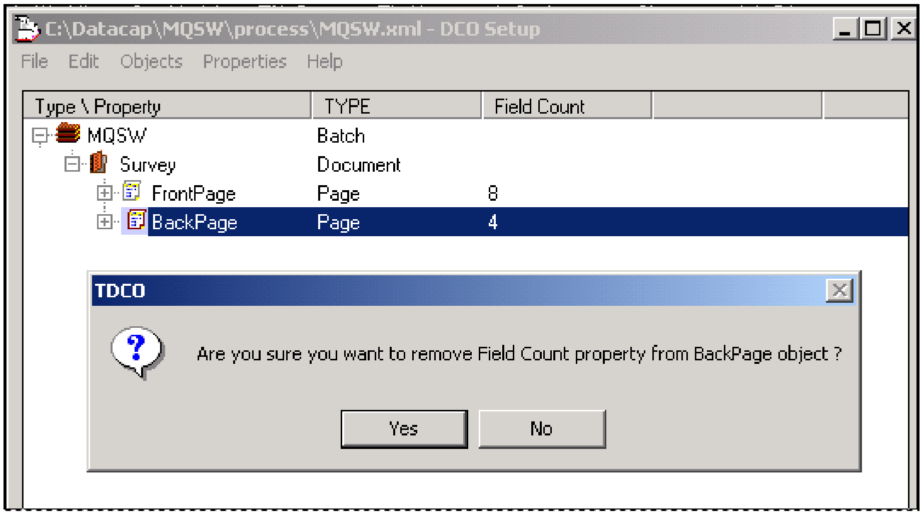


Select this property.

Step	Action
4.	When the warning you see at the top of the next page appears, press the OK button.
5.	Select **Save** from the **File** menu.

Again, highlight the object to which the property once belonged:

- If the property was not generic, you can use the viewing techniques of the **Properties** menu to confirm that it is no longer listed.
- If the property was generic - and remains a property of other objects at this level – be sure that the Objects Table does ***not*** list a value for the object you're working with.


C:\Datacap\MQSW\process\MQSW.xml - DCO Setup
File Edit Objects Properties Help
TDCO
Yes
No

Type \ Property	TYPE	Field Count
MQSW	Batch	
Survey	Document	
FrontPage	Page	8
BackPage	Page	4

Are you sure you want to remove Field Count property from BackPage object ?

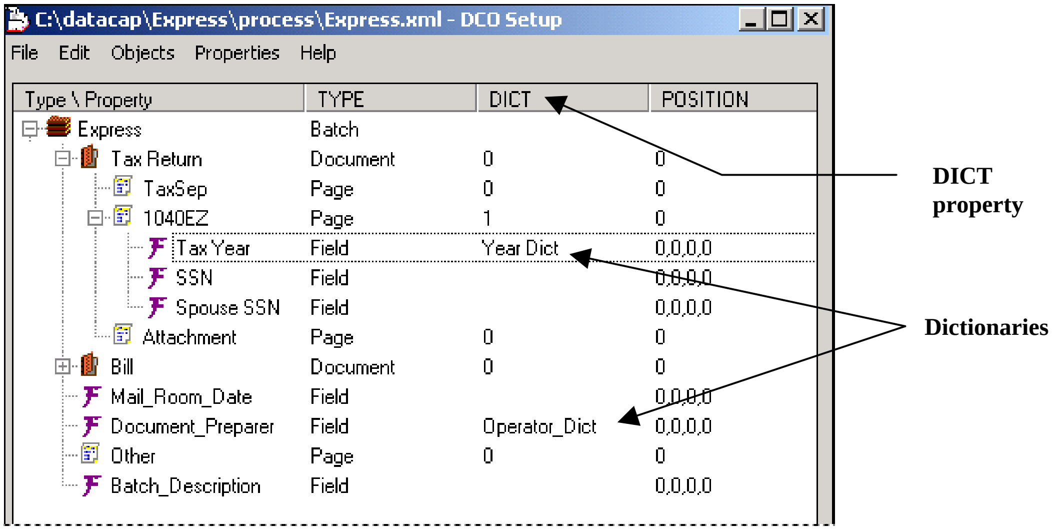
Document Hierarchy Setup Window -
Custom Property Deletion

Dictionaries

Some fields on a ***source*** page that become text fields on a ***Data Entry*** panel can contain a limited set of ***runtime*** values.

The entire set can take the form of a **Dictionary** property assigned to the **Field** object. The dictionary includes all possible and permissible values for the field; usually, these values are in a drop-down list placed strategically within the ***Data Entry*** panel (Chapter 6 and Chapter 7).

The Document Hierarchy of the pre-configured *Taskmaster Express* application employs two dictionaries. One is a list of five years (*1998-2003*); the other contains valid Operator ID’s. The applicable field and the dictionaries’ values take the form of drop-down lists in the application’s ***Data Entry*** panel


C:\datacap\Express\process\Express.xml - DCO Setup
File Edit Objects Properties Help

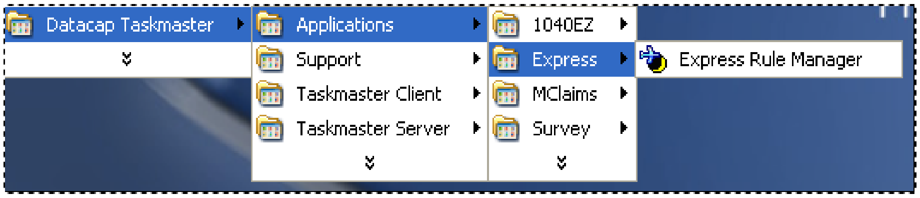
Type \ Property	TYPE	DICT	POSITION
Express	Batch		
Tax Return	Document	0	0
TaxSep	Page	0	0
1040EZ	Page	1	0
Tax Year	Field	Year Dict	0,0,0,0
SSN	Field		0,0,0,0
Spouse SSN	Field		0,0,0,0
Attachment	Page	0	0
Bill	Document	0	0
Mail_Room_Date	Field		0,0,0,0
Document_Preparer	Field	Operator_Dict	0,0,0,0
Other	Page	0	0
Batch_Description	Field		0,0,0,0

DICT property

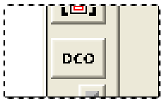
Dictionaries

✓ To access this application's ***Document Hierarchy Setup*** window:

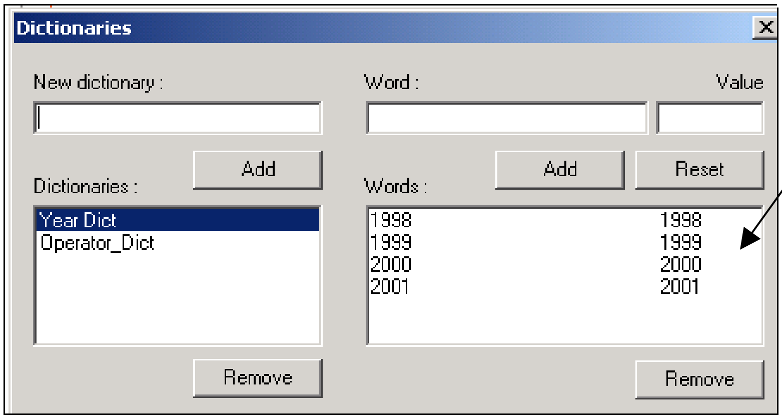
- Select **Datacap Taskmaster** from your Windows Start button's **Programs** options.
- Open the **Applications** folder, and the **Express** sub-folder.



- Click once on **Express Rule Manager**.
- Press the **DCO** icon in the ***Rule Manager Window's*** *Fingerprints & Zones* panel.



✓ If you select **Dictionaries** from the window's **Properties** menu, the ***Dictionaries*** dialog will appear on your screen. In the **Dictionaries** field, the dialog lists the application's two dictionaries; if you select one, its contents are displayed in the **Words** field on the right.



Year Dict
Operator_Dict

1998	1998
1999	1999
2000	2000
2001	2001

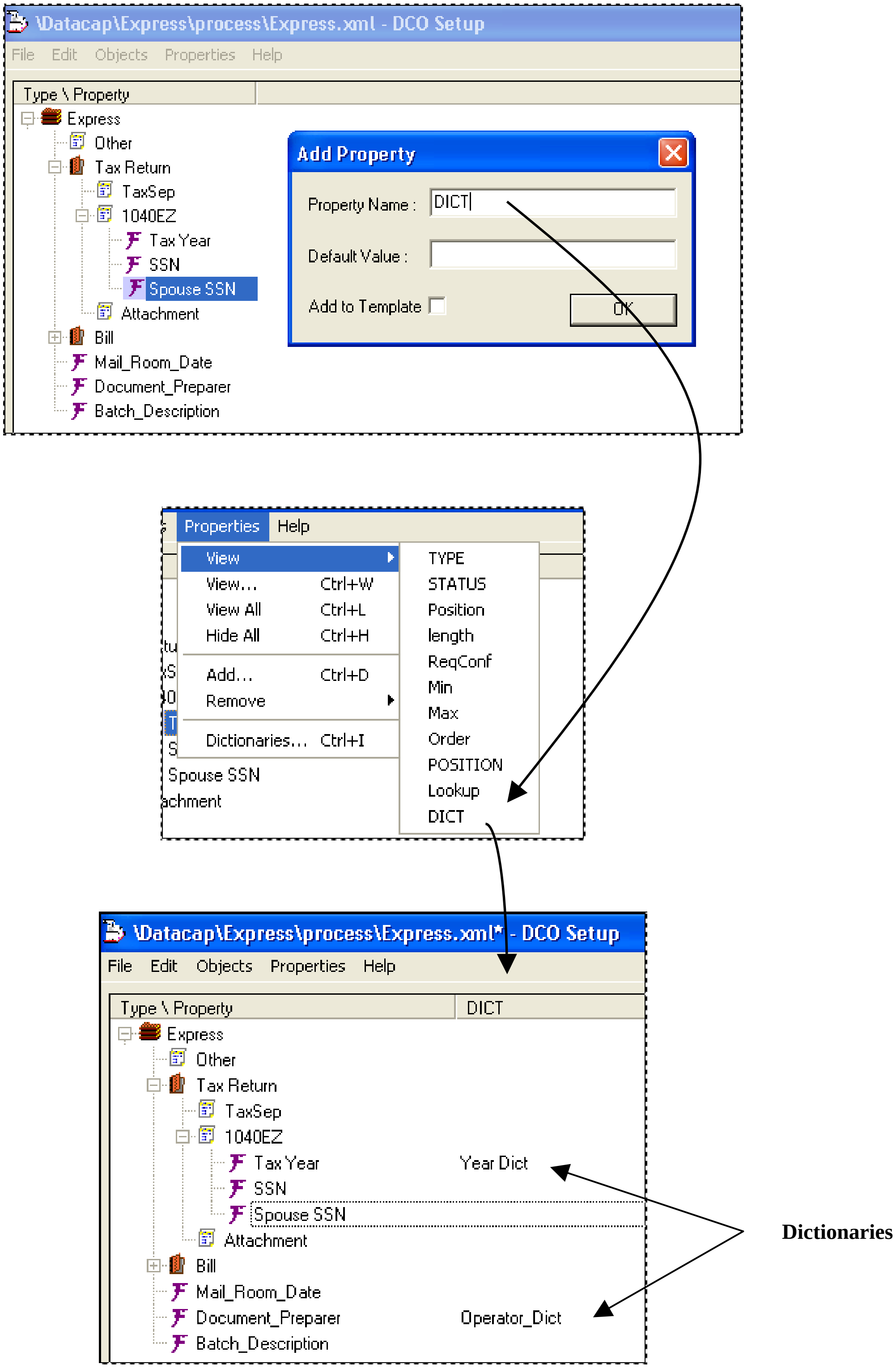
Dictionaries

Contents: words and values

Dictionaries dialog

However, individual dictionaries will not be listed as properties of specific **Field** objects until you:

- Highlight any **Field** object in the ***Document Hierarchy Setup*** window.
- Select **Add** from the window's **Property** menu.
- Enter "DICT" (without the quotation marks) as the **Property Name** and click on the OK button.\
- Select *DICT* from the **View** options of the **Properties** menu.



\Datacap\Express\process\Express.xml - DCO Setup

Add Property

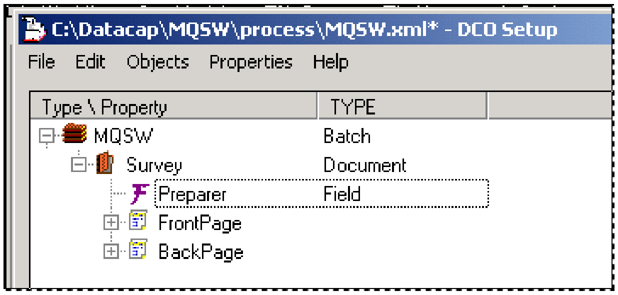
Property Name : DICT

Default Value :

Add to Template □

\Datacap\Express\process\Express.xml* - DCO Setup

Type \ Property	DICT
Express	
Other	
Tax Return	
TaxSep	
1040EZ	
Tax Year	Year Dict
SSN	
Spouse SSN	
Attachment	
Bill	
Mail_Room_Date	
Document_Preparer	Operator_Dict
Batch_Description	



Type \ Property	TYPE
MQSW	Batch
Survey	Document
Preparer	Field
FrontPage	
BackPage	

MQSW Document Hierarchy

To add a similar **Dictionary** property to the *Preparer* **Field** object of the *MQSW* Document Hierarchy, you could take the steps below.

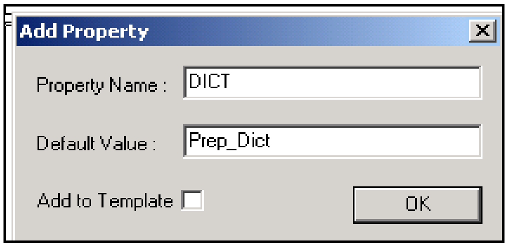
First, of course, this hierarchy needs a new *Preparer* field (Page 26). In the illustration above, this **Field** object is a child of the *Survey* **Document** object – not of a **Page** object!

To add the dictionary:

Step **Action**

1. Highlight the **Field** object.

2. Select **Add** from the **Properties** menu to open the ***Add Property*** dialog:



Property Name : DICT

Default Value : Prep_Dict

Add to Template □

3. Enter the keyword “DICT” (without the quotation marks) as the **Property Name.**

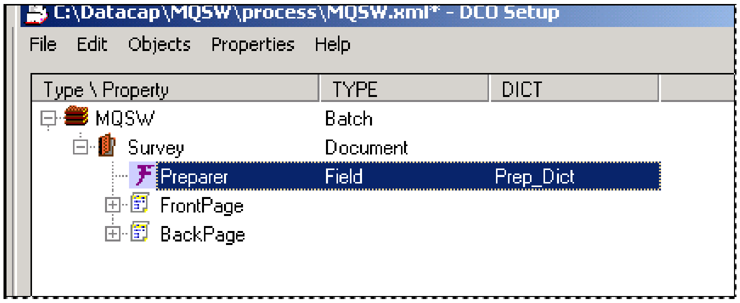
4. Enter the dictionary’s name as the property’s **Default Value.**

5. Do ***not*** select the **Add to Template** option: usually, a dictionary’s values belong to one field.

6. Click on the dialog’s OK button to save the setup of this **Dictionary** property and close the dialog.

7. Select **Save** from the **File** menu of the ***Document Hierarchy Setup*** window.

8. Use the **Properties** menu’s **View** procedures to be sure the **DICT** property is a column of the Object Table, and lists the new dictionary’s name in that column.

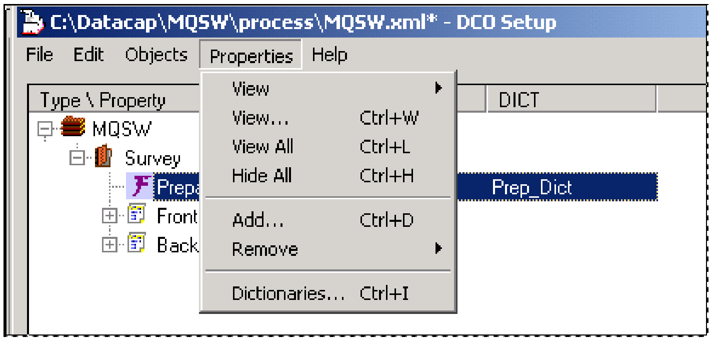


Type \ Property	TYPE	DICT
MQSW	Batch	
Survey	Document	
Preparer	Field	Prep_Dict
FrontPage		
BackPage		

How to Define a Dictionary (continued)

Step	Action

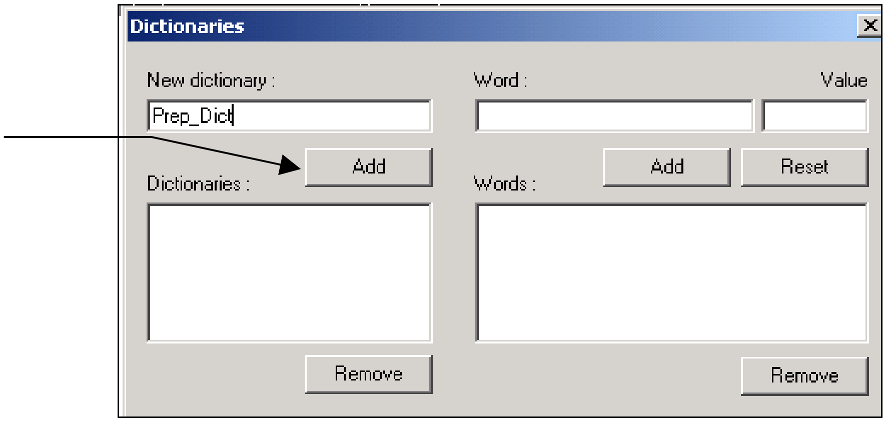
9. Select **Dictionaries** from the **Properties** menu to open the ***Dictionaries*** dialog (see the illustration on the next page.)



10. Enter the Dictionary ID in the **New Dictionary** field. ***Alert!*** This must be the name you specified as the **DICT** property’s default value (#4 above).

11. Click on the Add button to move the Dictionary ID to the dialog’s list of active **Dictionaries**. ***Important!*** This field contains the ID’s of all dictionaries associated with objects of this hierarchy.

Click here.



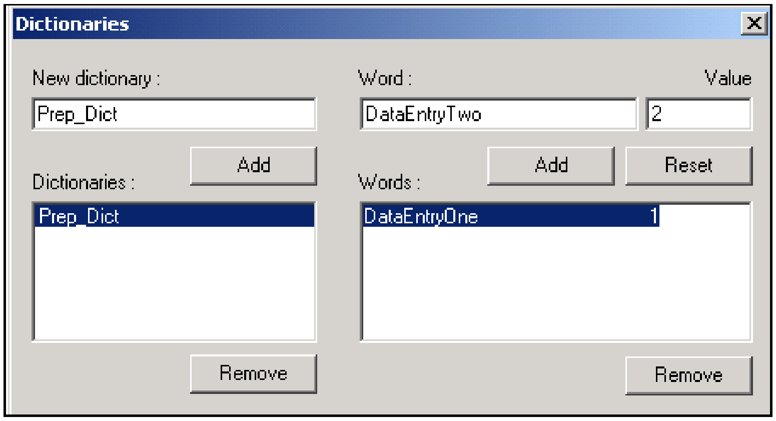
New dictionary : Prep_Dict

Dictionaries dialog

How to Define a Dictionary (continued)

Step **Action**

12. Highlight the **Dictionary ID**. Enter the Dictionary's first value in the **Word** field, and a numeric identifier in the **Value** field.



Dictionaries

New dictionary : Prep_Dict

Word : DataEntryTwo

Value 2

Dictionaries : Prep_Dict

Words : DataEntryOne 1

13. Click on the Add button to move the data to the **Words** list below.

14. When the dictionary is complete, close the dialog. Select **Save** from the Document Hierarchy Setup window's **File** menu to retain the dictionary's values…and its direct link to the *Preparer* **Field** object.

✓ Very important! A Verify task's ***Data Entry*** panel lists the dictionary's Words as selections in a drop-down list for the target field. However, the Export task selects corresponding Values instead of Words to place in an Export file or database.

☛ A dictionary can also contain the values for the check boxes in an Optical Mark Recognition (OMR) field. The *Fingerprints & Zones* panel of the ***Rule Manager Window*** helps you set up the OMR field and its dictionary; the dictionary and its values becomes properties of the corresponding **Field** object of the Document Hierarchy. Chapter 4 explains this process.

Lookup Databases

The *Express* application connects its *SSN* **Field** object to a database of active and valid Social Security Numbers. This link helps the application's Validation procedures check an operator's entry in the application's ***Data Entry*** panel.

The connection between the **Field** object and the database result from the definition of a **Lookup** property for the *SSN* field. Chapter 5 of the *Guide to Taskmaster Web* shows you how to add the property and create the link between database and **Field** object.