

Web Service – HTML Table

An Example Application, from Concept to Completion

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Introduction

There are many different ways a developer could go about defining, organizing, documenting, designing, and building a program of any scale. This document provides one example of a simple, structured approach to defining and building a single, small-scale web service.

The approach represented by this document demonstrates a method that begins by defining the service concept in very general terms. Then, basic requirements are outlined into service representations, events, decisions, and responses. Gradually, through successive iterations, elements are elaborated into specific details that ultimately result in program code.

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Concept

HTML Table - A user-viewable web service that marks-up user content with HTML table tags. User defines an arbitrary number of rows and columns. User enters content into corresponding form controls. User retrieves marked-up content.

Requirements (generalized, outline form)

representations

- service request interface
- service description message
- user prompts or instructions
- user input controls
 - number of rows and columns
 - cell content text
 - finished HTML text

events

- submit number of rows and columns
- submit cell content text
- copy finished HTML text

decisions

- initial, default state
- build rows and columns with text inputs
- build rows and columns with user content

responses

- present initial, default service interface
- present content entry interface
- present finished text interface

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Requirements (generalized, What/How matrix form)

	WHAT	HOW
<i>representation</i>	service request interface	HTML
<i>representation</i>	service description message	text
<i>representation</i>	user prompts or instructions	text
<i>representation</i>	user input controls <ul style="list-style-type: none"> • number of rows & columns • cell content text 	text fields textarea fields
<i>representation</i>	finished HTML text	textarea field
<i>event</i>	submit number of rows and columns	post request
<i>event</i>	submit cell content text	post request
<i>event</i>	copy finished HTML text	client menu
<i>decision</i>	initial, default state	no row, column, or content variables present
<i>decision</i>	build rows and columns with text inputs	send row and column variables to row-building function
<i>decision</i>	build rows and columns with user content	send row, column, and content variables to row-building function
<i>response</i>	present initial, default service interface	HTML template with row and column entry fields
<i>response</i>	present content entry interface	HTML template with content cell entry fields
<i>response</i>	present finished text interface	HTML template with textarea containing finished HTML text

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Requirements (formalized)

Service Request Interface

Hyperlink to Service Request URL

Introduction screen

Head

Document Title

Body

Page Heading

Message text describing service

User prompt text to enter rows and columns

Form to define table dimensions

Form action URL

Form control to select number of rows

Form control to select number of columns

Form control to submit form data

Content Entry screen

Head

Document Title

Body

Page Heading

User prompt text to enter content into cells

Form to enter content

Form action URL

Form controls to enter content in each cell

Form control to submit form data

Service Results screen

Head

Document Title

Body

Page Heading

User prompt text to copy text to Clipboard

Text of user content with HTML markup

Hyperlink to Service Request URL

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Requirements (formalized and enumerated)

1.0 Service Request Interface

- 1.1 Hyperlink to Service Request URL

2.0 Introduction screen

2.1 Head

- 2.1.0 Document Title

2.2 Body

- 2.2.0 Page Heading
- 2.2.1 Message text describing service
- 2.2.2 User prompt text to enter rows and columns
- 2.2.3 Form to define table dimensions
 - 2.2.3.0 Form action URL
 - 2.2.3.1 Form control to select number of rows
 - 2.2.3.2 Form control to select number of columns
 - 2.2.3.3 Form control to submit form data

3.0 Content Entry screen

3.1 Head

- 3.1.0 Document Title

3.2 Body

- 3.2.0 Page Heading
- 3.2.1 User prompt text to enter content into cells
- 3.3.2 Form to enter content
 - 3.3.2.0 Form action URL
 - 3.3.2.1 Form controls to enter content in each cell
 - 3.3.2.2 Form control to submit form data

4.0 Service Results screen

4.1 Head

- 4.1.0 Document Title

4.2 Body

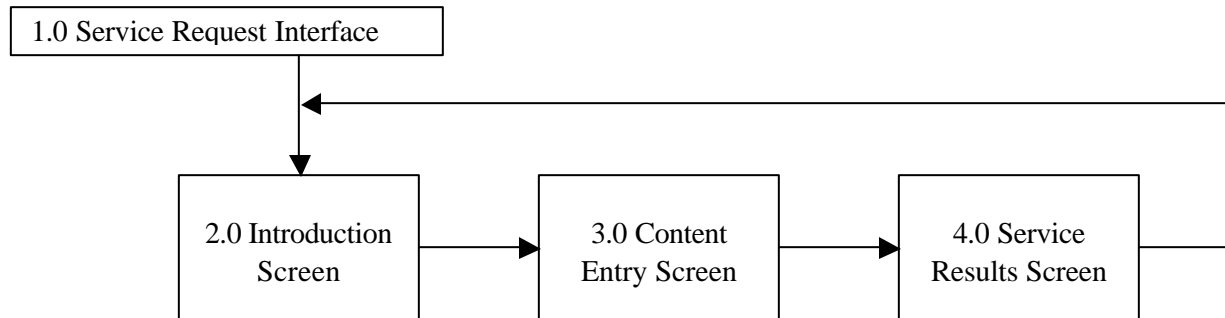
- 4.2.0 Page Heading
- 4.2.1 User prompt text to copy text to Clipboard
- 4.2.2 Text of user content with HTML markup
- 4.2.3 Hyperlink to Service Request URL

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Specifications (conforms to enumerated requirements)

Program Name: HTML_Table
File Name: HTML_Table.php
Contents: PHP program script



1.0 Service Request Interface

1.1 Hyperlink to Service Request URL
anchor text: HTML Table
anchor href: http://www.industrex.com/services/HTML_Table.php

2.0 Introduction screen

2.1 Head

2.1.0 Document Title
title: HTML Table - Set Your Size

2.2 Body

2.2.0 Page Heading
heading 1: HTML Table - Set Your Size

2.2.1 Message text describing service
paragraph: Automatically format your content into professionally written HTML table code. It's as easy as 1-2-3!
ordered list: Pick the number of rows and columns you need.
Copy and paste your content into the on-screen text boxes.
Copy the finished HTML into your Clipboard.

2.2.2 User prompt text to enter rows and columns
paragraph: Enter number of ROWS and COLUMNS, then press "Next" to enter your content.

2.2.3 Form to define table dimensions

2.2.3.0 Form action URL
action: http://www.industrex.com/services/HTML_Table.php
method: post

2.2.3.1 Form control to select number of rows
control: input
type: text
name: rows

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2.2.3.2 Form control to select number of columns

control: input

type: text

name: columns

2.2.3.3 Form control to submit form data

control: button

value: Next

3.0 Content Entry screen

3.1 Head

3.1.0 Document Title

title: HTML Table - Enter Your Content

3.2 Body

3.2.0 Page Heading

heading 1: HTML Table - Enter Your Content

3.2.1 User prompt text to enter content into cells

paragraph: Paste your content into each cell. When finished, press the "Next" button to generate your HTML table.

3.2.2 Form to enter content

3.2.2.0 Form action URL

action: http://www.industrex.com/services/HTML_Table.php

method: post

3.2.2.1 Form controls to enter content in each cell

control: input

type: text

name: content[row][column]

3.2.2.2 Form control to submit form data

control: button

value: Next

4.0 Service Results screen

4.1 Head

4.1.0 Document Title

title: HTML Table - Copy Your Table

4.2 Body

4.2.0 Page Heading

heading 1: HTML Table - Copy Your Table

4.2.1 User prompt text to copy text to Clipboard

paragraph: Your finished HTML is displayed below. You may copy it to your Clipboard for use in other applications.

4.2.2 Text of user content with HTML markup

code: HTML table text

4.2.3 Hyperlink to Service Request URL

anchor text: HTML Table

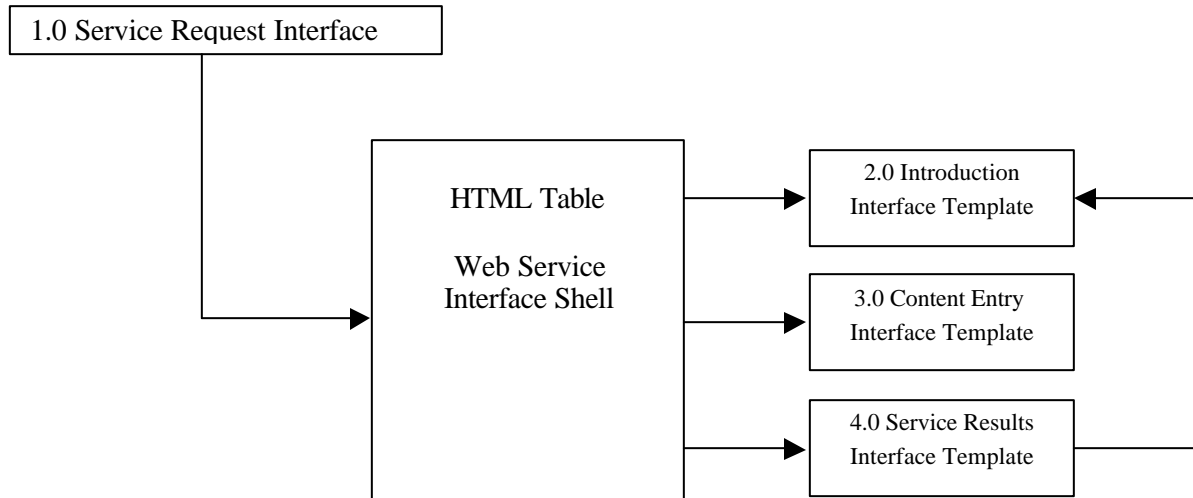
anchor href: http://www.industrex.com/services/HTML_Table.php

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Design

Program Name: HTML_Table
File Name: HTML_Table.php
Contents: PHP program script
Program Flow:
start program
 initialize program variables
 if rows & columns request variables exist
 build content entry screen
 set instructions to content entry prompt
 build table with content entry cells
 else if user content request variables exists
 build service results screen
 set instructions to copy text prompt
 build table with content
 else
 build introduction screen
 set message to introduction
 set instructions to row/column prompt
print results
stop program



Program Variables: \$rows
\$columns
\$title
\$message
\$userPrompt
\$cellContent
\$display

Program Functions: \$buildTableRows()
\$buildEntryFields()

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1.0 Service Request Interface

1.1 Hyperlink to Service Request URL

```
<a href="http://www.industrex.com/services/HTML_Table.php">HTML  
Table</a>
```

2.0 Introduction screen

2.1 Head

2.1.0 Document Title

```
$title = "Set Your Size"  
<title>HTML_Table - $title</title>
```

2.2 Body

2.2.0 Page Heading

```
<h1>HTML_Table - $title</h1>
```

2.2.1 Message text describing service

```
$message = "<p>Automatically format your content into  
professionally written HTML table code. It's as easy as 1-  
2-3!</p>
```

```
<ol>
```

```
<li>Enter the number of rows and columns you  
need.</li>
```

```
<li>Type or paste your content into the on-screen  
text boxes.</li>
```

```
<li>Copy the finished HTML into your  
Clipboard.</li>
```

```
</ol>"
```

2.2.2 User prompt text to enter rows and columns

```
$userPrompt = "<p>Enter number of ROWS and COLUMNS, then  
press "Next" to enter your content.</p>"
```

2.2.3 Form to define table dimensions

2.2.3.0 Form action URL

```
<form action="href="http://www.industrex.com/  
services/HTML_Table.php" method="post">
```

2.2.3.1 Form control to select number of rows

```
<input type="text" name="rows" size="4" value="" />
```

2.2.3.2 Form control to select number of columns

```
<input type="text" name="columns" size="4" value="" />
```

2.2.3.3 Form control to submit form data

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```
<button type="submit">Next >></button>
```

3.0 Content Entry screen

3.1 Head

3.1.0 Document Title

```
$title = "Enter Your Content"  
<title>HTML_Table - $title</title>
```

3.2 Body

3.2.0 Page Heading

```
<h1>HTML Table - $title</h1>
```

3.2.1 User prompt text to enter content into cells

```
$message = ""  
$userPrompt = "<p>Type or paste your content into each  
cell. When finished, press the "Next" button to generate  
your HTML table.</p>"
```

3.2.2 Form to enter content

3.2.2.0 Form action URL

```
<form action="href="http://www.industrex.com/  
services/HTML_Table.php" method="post">
```

3.2.2.1 Form controls to enter content in each cell

```
<textarea name="content[0][0]" rows="4"  
cols="20"></textarea>
```

3.2.2.2 Form control to submit form data

```
<button type="submit">Next >></button>
```

4.0 Service Results screen

4.1 Head

4.1.0 Document Title

```
$title = "Copy Your Table"  
<title>HTML_Table - $title</title>
```

4.2 Body

4.2.0 Page Heading

```
<h1>HTML Table - $title</h1>
```

4.2.1 User prompt text to copy text to Clipboard

```
$message = ""  
$userPrompt = "<p>Your finished HTML is displayed below.  
You may copy it to your Clipboard for use in other
```

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```
applications.</p>"
```

4.2.2 Text of user content with HTML markup

```
$userTable = HTML table text  
<code>$userTable</code>
```

4.2.3 Hyperlink to Service Request URL

```
<a href="http://www.industrex.com/services/  
HTML_Table.php">New Table</a>
```

or

```
<form>  
    <button type="submit"> New Table</button>  
</form>
```

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Construction

Writing the code...

1.0 Service Request Interface

2.0 Introduction screen

3.0 Content Entry screen

4.0 Service Results screen

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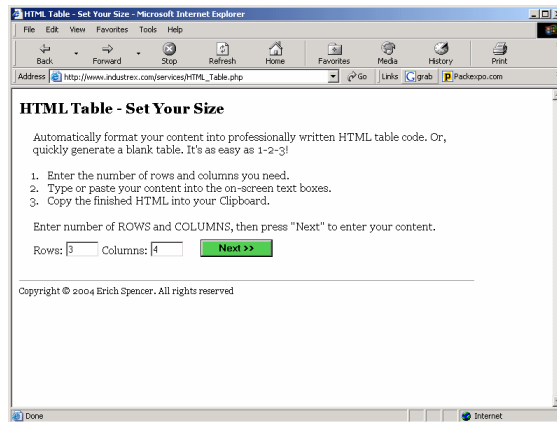
Implementation

The working service, online at the specified interface (URL).

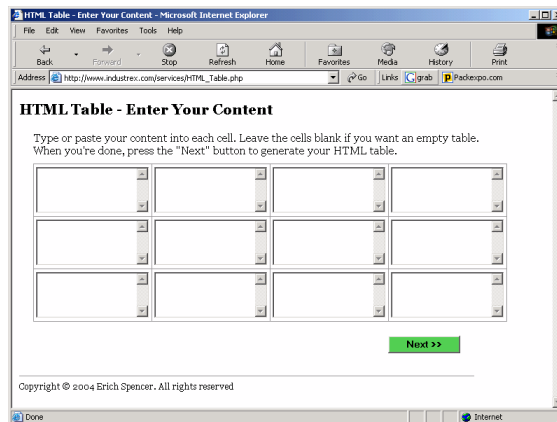
1.0 Service Request Interface

http://www.industrex.com/services/HTML_Table.php

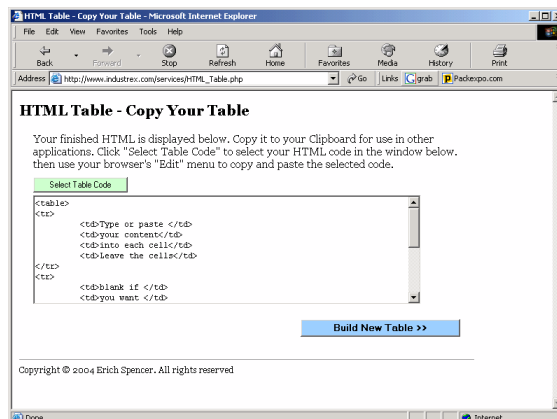
2.0 Introduction screen



3.0 Content Entry screen



4.0 Service Results screen



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Adding Enhancements

Once the web service functions correctly, extending it or adding enhancements should be a simple matter of defining, building, testing, and integrating new components directly into place. The structure of this documented process may be reused in abbreviated form to rapidly detail each new component.

Each additional component may be inserted in place using the enumerated format. New components will introduce new numbers in their respective units. Enhancements to existing components will simply extend the numbered items already listed.

Concept

Alert the user if 0 or empty values submitted for row or column dimensions.

Requirements (generalized, What/How matrix form)

	WHAT	HOW
<i>representation</i>	Message to alert user to send non-zero values for rows and columns	text
<i>event</i>	submit 0 or nothing for number of rows and/or columns	post request
<i>decision</i>	rows or columns empty or 0	evaluate row and column variables for 0, set flag if true
<i>response</i>	present initial, default service interface with alert message	append message to intro message

Requirements (formalized and enumerated)

2.0 Introduction screen

2.2 Body

2.2.1 Message text describing service

[2.2.1.1 Empty row/column value alert](#)

Specifications

2.0 Introduction screen

2.2 Body

2.2.1 Message text describing service

[2.2.1.1 Empty row/column value alert](#)

[Append alert to message content](#)

[paragraph: NOTE: You must define at least one row and column.](#)

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Design

Program Variables: \$emptyValues

2.0 Introduction screen

2.2 Body

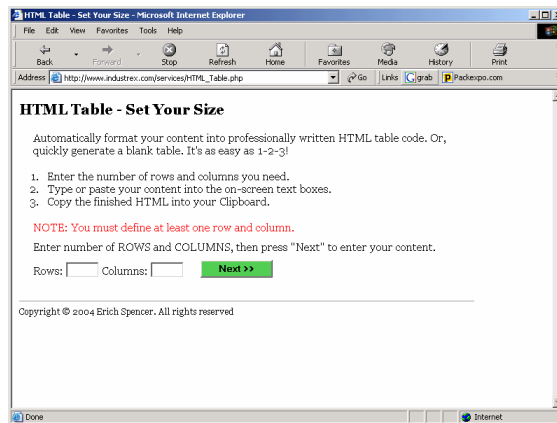
2.2.1 Message text describing service

2.2.1.1 Empty row/column value alert

```
$message .= "<p id=\"error\">NOTE: You must  
define at least one row and column.</p>";
```

Implementation

2.0 Introduction screen



(Repeat the process illustrated above for each enhancement or new component...)