Web Development

Chapter 11. Maintaining state through multiple forms

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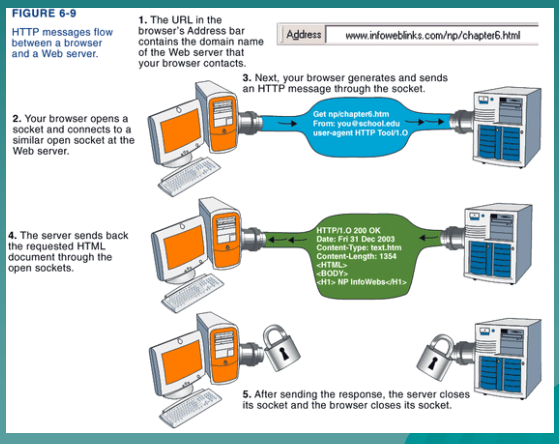
HTTP – stateless protocol

HTTP is a **stateless protocol**
→Once a web server completes a client's request for a web page, the connection between the two goes away.
→There is no way for a server to recognize that a sequence of requests all originate from the same client.



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What Are Multiple-Form Web Sessions?

- A multiple-form Web session leads the user through a series of HTML forms that work together and pass data from form to form.
- E.g.
  - To build a shopping cart or on-line survey.
  - To save user authentication information from page to page
  - To store persistent user preferences on a site

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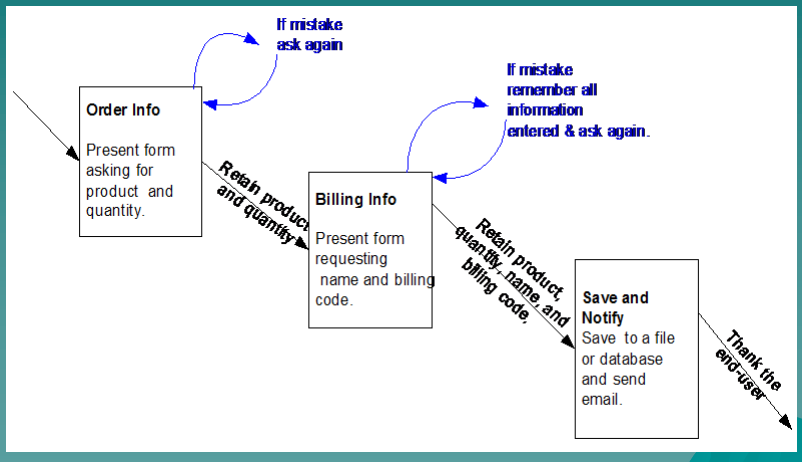
Example Multiple Screen Session



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How to maintain the state through multiform?

- Use tricks to keep track of state information between requests (session tracking)
  - Using hidden form fields
  - URL rewriting: every local URL on which the user might click is dynamically modified to include extra information
    - http://www.example.com/catalog.php?userid=123
  - Using cookies: a bit of information that the server give to a client → depends on the client
  - Using session

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Content

1. Hidden fields
2. User browser cookies
3. PHP session

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1. Hidden fields

- Hidden fields are part of HTML forms
  - Not displayed but value can be accessed in receiving script like any other variable.

```
<input type="hidden" name="preference" value="Likes Power Tools">
```

Variable name that will be available to your PHP program

Variable's value in the PHP program

  - Can still be viewed by user's who view source.

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A Full Script Example

- Consider an example script sets a hidden field
  - Implements the Order Info form
  - on submit sends data to order2.php

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PHP Script – order.html

```
1. <html><head><title>Order Product</title></head><body>
2. <form action="order2.php" method="post">
3. <h1> Hardware Product Order Form</h1>
4. <br><p class="highlight">
5. We have hammers, handsaws, and wrenches on special today!
6. </p>
7. <input type="hidden" name="sample_hidden" value="Welcome!">
8. <br>Enter Item: <input text type="text" size="15"
   maxlength="20" name="product">
9. Enter Quantity: <input text type="text" size="15"
   maxlength="20" name="quantity"><br>
10. <br><input type="submit" value="Click To Submit">
11. <input type = "reset" value="Reset">
12. </form></body></html>
```

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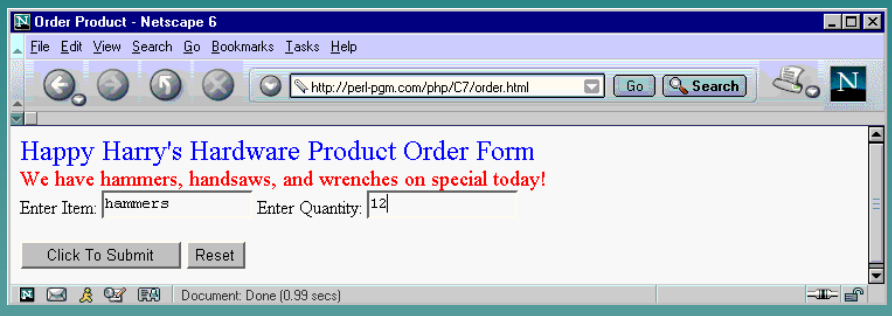
The Output ...

The previous code can be executed at
http://webwizard.aw.com/~phppgm/C7/order.html



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Receiving Hidden Fields in Web Sessions

- Your scripts can receive data from hidden fields like any other data.
  - Suppose the following is stored at: order2.php

```
1. <html><head><title> Order Product 2 </title> </head>
2. <body>
3. <form action="order3.php" method="post">
4. <?php $sample_hidden = $_POST["sample_hidden"];
5. $product = $_POST["product"];  $quantity =
   $_POST["quantity"];
6. print "<p class="highlight">";
7. print "Hidden value=$sample_hidden </p><br>";
8. print "You selected product=$product and
   quantity=$quantity";
```

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Receiving PHP Script

```
9. print "<br><br><input type=\"hidden\" name=\"product\"
   value=\"$product\"> ";
10. print "<input type=\"hidden\" name=\"quantity\"
   value=\"$quantity\">";
11. print "<input type=\"hidden\"
   name=\"sample_hidden\"value=\"$sample_hidden\">";
12. print 'Please enter your name:';
13. print '<input type="text" size="15" maxlength="20"
   name="name">';
14. print ' and billing code: (5 digits)';
15. print '<input type="text" size="5" maxlength="5"
name="code">';
16. print '<br> <input type=submit value="Process Order">';
17. print '<input type=reset>';
18. ?></form></body></html>
```

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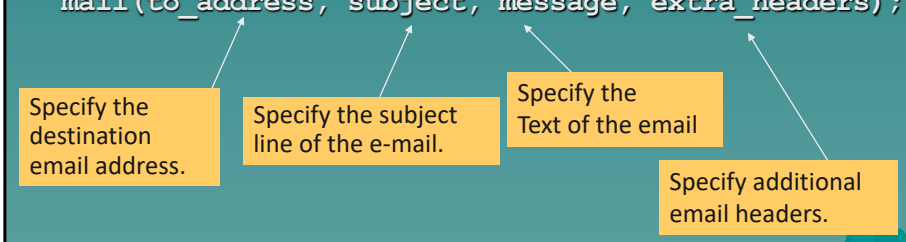
Sending email from PHP scripts

- Sometimes it is useful to send email from a PHP script:
  - PHP uses mail() that by default sends e-mail via the Simple Mail Transfer Protocol (SMTP).

```
mail(to_address, subject, message, extra_headers);
```



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Consider the following example …

```
1. $dest='orders@hardwareville.com';
2. $subject = 'New Hardware Order';
3. $message = 'Enclosed is a new order for 12
   hammers.\n Thanks.';
4. $extra = 'From: harry@hardwareville.com';
5. mail( $dest, $subject, $message, $extra );
```

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Consider the following full example …

- Implements save and notify
- Called from order2.php and saved at order3.php
- Can access variables $product, $quantity, and $sample_hidden sent as hidden fields from the Billing Info form.

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The following PHP Script …

```
1. <html><head><title>Order Product 3</title> </head><body>
2. <?php
3. $sample_hidden = $_POST["sample_hidden"];
   quantity=$_POST["$quantity"];
4. $product = $_POST["product"]; $name=$_POST["name"];
5. $email='orders@hardwareville.com';
6. $body = "New Order: Product=$product Number=$quantity
   Cust=$name Code=$code";
7. print '<font size=4>';
8. print "<br>Sending e-mail to order handling department at
   $email ... </font>";
9. print "<br>The e-mail body is <i>: $body. </i>";
10. $from = 'harry@hardwareville.com';
11. $subject = "New order from $name";
12. mail($email, $subject, $body, "From: $from");
13. print '<br><font color="blue"> E-mail sent. Thanks for
   ordering. </font>';
14. print "<br>By the way, sample hidden=$sample_hidden";
15. ?></body></html>
```

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Would have the following output …

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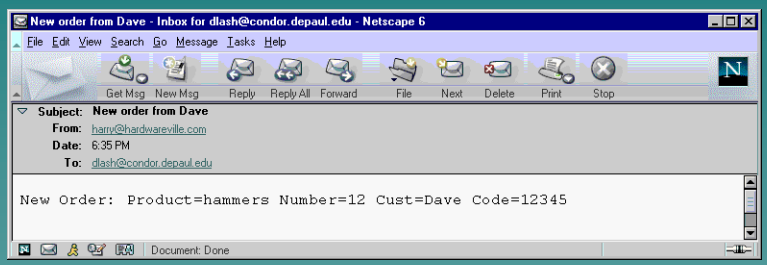
Would have the following output …



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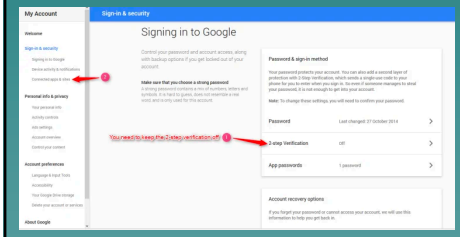
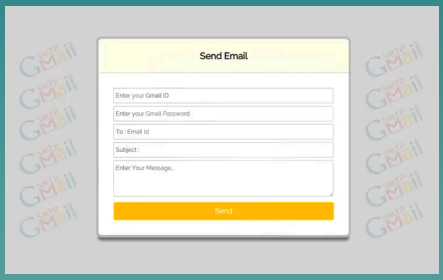
Send Email via Gmail SMTP Server in PHP

- https://www.formget.com/send-email-via-gmail-smtp-server-in-php/





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Content

1. Hidden fields
2. User browser cookies
3. PHP session

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Using Browser Cookies …

- Cookies are small pieces of data that a Web application can save when a user visits the Web page.
  - Stored on the visitor's hard drive
  - a Web page script can read the previously stored browser cookie data

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Understanding Cookie Limitations

- Users can easily disable the cookies feature.
- People move around.
- Users may delete cookies.
- PHP sets limit on cookies

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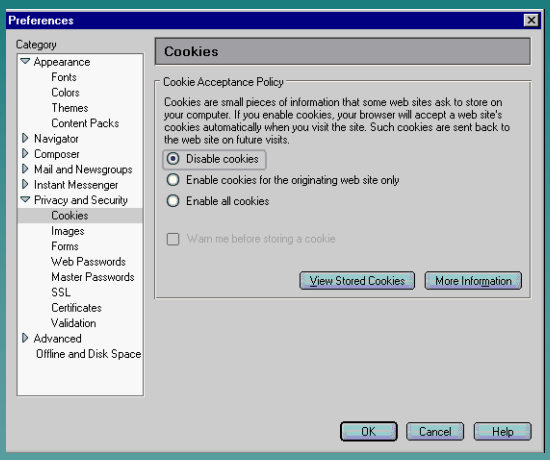
The disable cookie screen in Netscape



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Setting and Reading Cookies

- Cookies can be set in memory or on hard disk
  - Set on hard disk are deleted when browser closes
  - Can use the setcookie() script

```
- setcookie('Customer_name', 'Denise');
```

Directs browser to create a cookie

Specify the cookie's name

Specify the cookie's value

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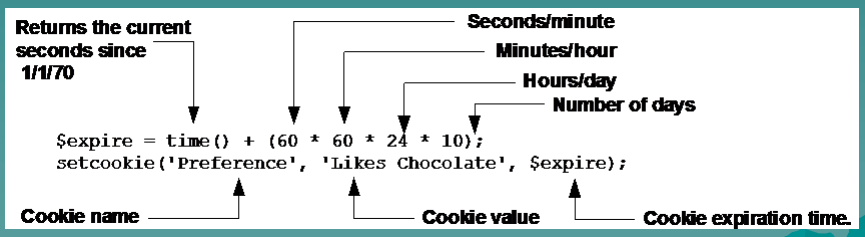
Setting A Cookie on a Hard Drive

- You need to use the time() function when want to set a cookie on a hard drive.



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A full example of setting a cookie….

- Suppose a front-end web page asks for some survey information:

```
<input type="text" size="15" maxlength="20" name="custname">
<input type="radio" name="prefers" value="power tools"
                checked > Power Tools?
<input type="radio" name="prefers"
                value="hand tools"> Hand Tools?
<input type="radio" name="prefers" value="air fresheners">
Air Fresheners?
```

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The following script runs when submitted – setcookie.php

```
1.<?php $prefers = $_POST["prefers"];
  $expire=$_POST["expire"]; $custname=$_POST["custname"];
2.   $expire = time() + (60 * 60 * 24 * 30);
3.   setcookie("name", $custname, $expire);
4.   setcookie("preference", $prefers, $expire);
5.?>
6.<html>
7.<head><title>Happy Harry's Hardware Catalog </title></head>
8.<body><font size=4 color="blue">
9.<?php
10.   print "Thanks $custname! ";
11.   print "Let's now look at $prefers... ";
12.?> </font></body></html>
```

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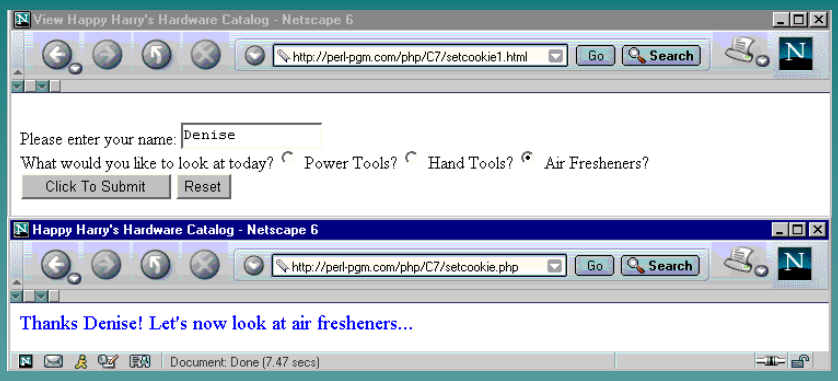
Would output:



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Reading Cookies

- You can read a cookie by using a variable name with the same name as a cookie:
  - print "$cust_name";

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Reading Cookies with REGISTER_GLOBALS Off

- To read a cookie value use the $_COOKIE[] associative array to get the cookie function
- $cust_name= $_COOKIE["cust_name"];

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Example Script that read a cookie – readcookie.php

```
1. <html>
2. <head><title>Happy Harry's Hardware Catalog</title>
3. </head><body>
4. <?php
5.   print '<font color="blue" size=4>';
6.   if (isset($name)){
7.    print "Welcome back to our humble hardware site, $name.";
8.   } else {
9.     print '<font color="red">';
10.    print 'Welcome to our humble hardware site.</font>';
11.  }
12.  if ($preference == 'hand tools'){
13.    print '<br> We have hammers on sale for 5 dollars!';
14.  } elseif ($preference == 'power tools'){
15.     print '<br> We have power drills on sale for 25 dollars!';
16.  } elseif ( $preference == 'air fresheners'){
17.     print '<br> We now carry extra-strength air fresheners!';
18.  } else {
19.     print '<br> <font color="red">';
20.     print 'We have drills and hammers on special today!';
21.  }
22.?></font></html>
```

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Example Script that read a cookie

```
1. <html>
2. <head><title>Happy Harry's Hardware Catalog</title>
3. </head><body>
4. <?php $name = $_COOKIE["name"]; $preference = $_COOKIE["preference"];
5.   print '<font color="blue" size=4>';
6.   if (isset($name)){
7.    print "Welcome back to our humble hardware site, $name.";
8.   } else {
9.     print '<font color="red">';
10.    print 'Welcome to our humble hardware site.</font>';
11.  }
12.  if ($preference == 'hand tools'){
13.     print '<br> We have hammers on sale for 5 dollars!';
14.  } elseif ($preference == 'power tools'){
15.     print '<br> We have power drills on sale for 25 dollars!';
16.  } elseif ( $preference == 'air fresheners'){
17.     print '<br> We now carry extra-strength air fresheners!';
18.  } else {
19.     print '<br> <font color="red">';
20.     print 'We have drills and hammers on special today!';
21.}
22.  ?></font></html>
```

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Content

1. Hidden fields
2. User browser cookies
3. PHP session

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PHP Sessions

- PHP supports two functions that enable you to retain data between forms
  - **`session_start()`** – either starts a new session or resumes one if a session exists
    - Run at the start of every script
    - By default creates a unique session ID stored as a cookie
  - **`session_register()`** – registers one or more variables as session variables

```
$name = 'Matthew';
$preference = 'Soccer Equipment';
session_register('name', 'preference');
```

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Example PHP Code

```
1. <?php session_start(); ?>
2. <html><head><title>Order Product</title>
3. </head><body>
4. <form action="sessions2order.php" method="post">
5. <font color=blue size=5> Hardware Product Order Form </font>
6. <br> We have hammers, handsaws, and wrenches.
7. <br>Enter Item: <input text type="text" size="15"
   maxlength="20" name="product">
8. Enter Quantity: <input text type="text" size="15"
   maxlength="20" name="quantity"><br>
9. <?php
10.    $sample_hidden='Welcome Again!';
11.    session_register('sample_hidden');
12. ?>
13. <br><input type="submit" value="Click To Submit">
14. <input type = "reset" value = "Reset" >
15. </body></html>
```

Since PHP 5.4
$_SESSION['sample_hidden ']=$sample_hidden;

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Use the following script to read the session data - sessions2order.php

```
1.<?php session_start() ?>
2.<html><head><title> Order Product 2 </title> </head>
3.<body>
4.<form action="sessions3order.php" method="post">
5.<?php $sample_hidden = $_SESSION['sample_hidden'];
6.  print "<h1> Sample hidden= $sample_hidden</h1>";
7.  print "<br>You selected product=$product and
                              quantity=$quantity";
8.  session_register('product'); session_register('quantity');
9.  print '<br>Please enter your name';
10. print '<input text type="text" size="15" maxlength="20"
                              name="name">';
11. print ' and Billing Code: (5 digits)';
12. print '<input text type="text" size="5" maxlength="5"
                              name="code">';
13. print '<br> <input type=submit value="Process Order">';
14. print '<input type=reset>';
15. print '</form></body></html>';
16. ?>
```

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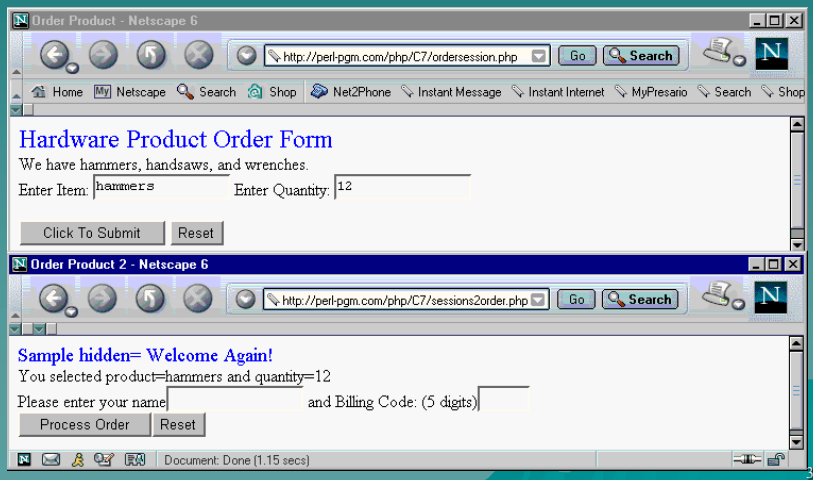
Example output

This script can be executed at:
http://webwizard.aw.com/~phppgm/C7/ordersession.php



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Some session extras

- session_is_registered() - can be used to determine if a variable comes from a session:

```
if (session_is_registered('name')){
    print "got name=$name from session";
} else {
    print "name=$name not set from session";
}
```

PHP 5.4
if(isset($_SESSION[$name]))

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Session Extras - $_SESSION

- Use $_SESSION Associative array when REGISTER_GLOBALS are off in php.ini
  - Do not need to use session_register()

```
session_start();
$_SESSION['sample_hidden'] = 'Welcome!';
```

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Summary

- Hidden fields are HTML form fields you can use to set a variable name and variable value without displaying them on a form.
- Cookies provide a way for Web server applications to store small pieces of data on the user's hard disk.
- PHP session functions provide a convenient way to retain data between PHP scripts.
  - Use `session_start()` and `session_register()` functions to start sessions and define session variables, respectively

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Question?

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