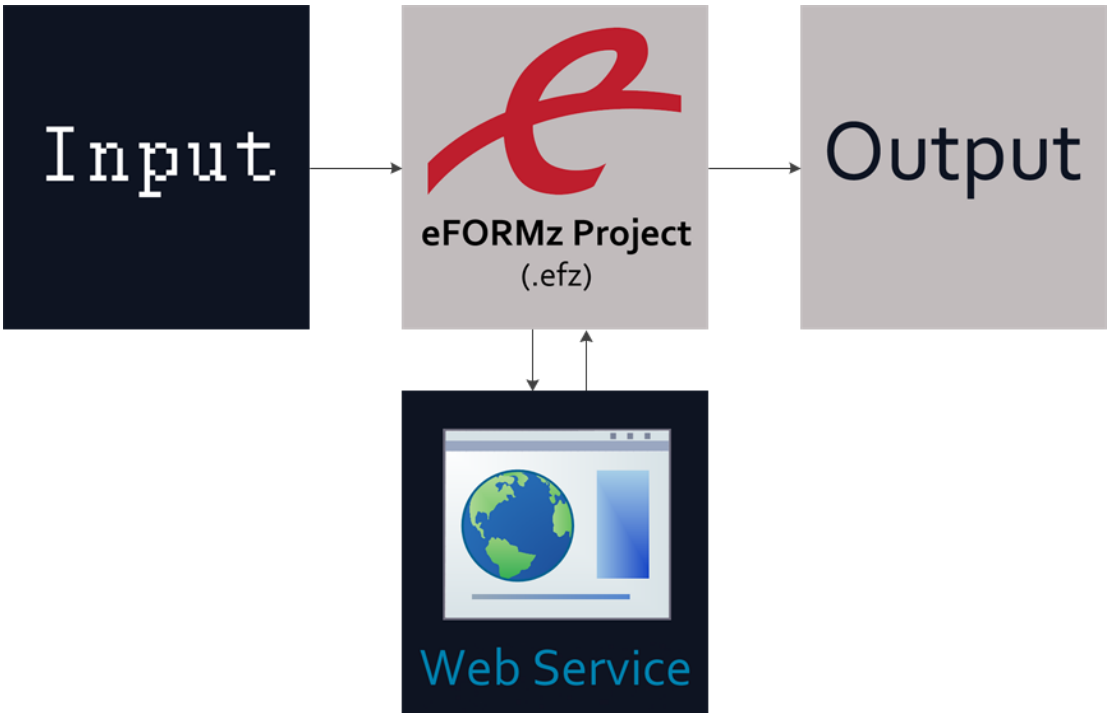


eFORMz Mini-Manual

Web Services



Minisoft® eFORMz™

Version 10.0

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eFORMz 10.0 - January 2014

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- You may make one copy of the Product for use as a backup copy (the "Copy") provided that: (i) the Copy includes all notices of copyright and all other proprietary rights appearing in and on the Software Product; (ii) the Copy and the original Product are not in use at the SAME time; (iii) Customer establishes a procedure for accounting for the Copy at all times; and (iv) Customer destroys or returns to MINISOFT the Copy when it is no longer required or when the license grants made hereunder are terminated for any reason, whichever occurs first.
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- MINISOFT retains and reserves all rights to the Product. Nothing contained herein shall be deemed to convey to the Customer any title to, or an ownership interest in, the Product or any of the intellectual property rights contained in the Product. Upon termination of this Agreement, all rights granted to the Customer herein shall automatically revert to MINISOFT.

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The license grants made hereunder shall automatically terminate on the date of any breach by the Customer of any of the terms and conditions of this Agreement. In any such termination, you shall discontinue using the Product. You further agree to return the Product to MINISOFT or destroy all components of the Product and to certify in writing that the Product is no longer in use and that you have kept no copies of the Product. In any such termination of the license grants, none of MINISOFT's rights in law or equity shall be barred, discharged, released, or otherwise impaired by such termination, and MINISOFT reserves all such rights described herein.

C. Confidential Information

The Product also contains MINISOFT's commercially valuable, proprietary and confidential information and trade secrets (collectively "Confidential Information"). You are obligated to preserve and hold in confidence any Confidential Information and may not use any of it except in accordance with the terms and conditions of this Agreement. Confidential Information shall not include what is already public at the date of its disclosure or what later becomes lawfully public through no fault or responsibility of the Customer.

D. Limited Warranties and Limitations on Damages and Remedies.

- Only the limited warranties expressly described in this section are made to the Customer purchasing this Product. No warranty of any kind, whether express or implied, is made to any third-party or other transferee or successor of the Customer.
- MINISOFT warrants that it has the right to grant the licenses contained in this Agreement.
- MINISOFT warrants that this product will execute its programming instructions when properly installed on a properly configured computer for which it is intended. MINISOFT makes no warranty of any kind, implied or express, that the Product will meet Customer's requirements or that the Product will be uninterrupted or error-free.
- MINISOFT, Inc. warrants the media upon which this Product is recorded to be free from defects in materials and workmanship under normal use for a period of 90 days from the date of purchase. During the warranty period MINISOFT will replace media that prove to be defective. Customer's exclusive remedy for any media that proves to be defective shall be to return the media to MINISOFT for replacement.
- MINISOFT's only obligation, liability and/or remedy, with respect to the warranties set forth in this Agreement shall be one of the following, which MINISOFT shall have sole discretion to choose: (1) as described above, to provide replacement media (whether in the form of the current release or otherwise) for the Product; (2) to replace, without charge, the Product with a functionally equivalent software product; or (3) to refund the applicable license fees paid to MINISOFT by Customer.

These are the sole and exclusive remedies for any breach of warranty.

6. MINISOFT shall have no obligation, liability or any other kind of responsibility for the costs of restoring any destroyed or defective data, installation of replacement media, or software conversion work made necessary by replacement media, even if MINISOFT had been specifically informed by Customer of the possibility or probability of any such consequences. During the ninety (90) days warranty period for the media, MINISOFT will replace, without charge, on an exchange basis, any media which is not as warranted. Customer must return the defective item postpaid to MINISOFT, postmarked within the time period stated above. Customer must either insure the defective item being returned or assume the risk of loss or damage in transit. Any claim under the above warranty must include a copy of Customer's receipt or invoice or other proof of the date of delivery.

7. Year 2000 Warranty. MINISOFT warrants that the Product will accurately process date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, in accordance with the Product's documentation BUT ONLY to the extent that other technology and systems (e.g., software and operating systems, hardware and firmware) used in combination with the Product properly exchanges date/time data with it. In addition to the limitations of liability and remedies described above in this Section, the Year 2000 warranty made herein is made only for ninety (90) days after the date of delivery of the Product and only if any noncompliance is discovered and made known to MINISOFT in writing within such ninety (90) days. The Year 2000 warranty expires after such ninety (90) day period and shall not extend to any events occurring after the expiration date.

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Customer is entitled to updates and enhancements to licensed software if under a current Minisoft software update and subscription service. The cost of the update and subscription service will be 20% of the purchase price of the licensed software. The update and subscription service is for twelve (12) months and can be renewed at the customer's discretion.

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A customer that has purchased annual support entitles them to any and all software updates for their licensed product(s) as well as technical support via phone and email. Software Updates are available from our web site, www.minisoft.com. Included with the purchase of support is the use of our Toll Free 800 number, and support email. Days and Hours of support coverage are Monday through Friday 7:30am (Pacific) until 5:00pm (Pacific). When support is purchased or renewed, an update may be downloaded from the Minisoft Website. In cases where support has expired, back-support is charged to bring the support account current. Any supplemental software code provided to you as part of the Support Services shall be considered part of the SOFTWARE PRODUCT and subject to the terms and conditions of this License Agreement.

G. Miscellaneous

1. Governing Law. This Agreement is made for the sole benefit of the parties hereto, and there are no third party beneficiaries to this Agreement. This Agreement shall be interpreted under the laws of the State of Washington, notwithstanding the application of any jurisdiction's choice-of-law rules to the contrary.

2. Independent Contractors. No agency, partnership, joint venture, or employer-employee relationship is created hereby, and neither party nor any of its agents or employees shall have any authority of any kind to bind the other party in any respect whatsoever. Each party is an independent contractor to the other party.

3. No Assignment by Customer. This Agreement shall be binding upon and inure to the benefit of MINISOFT and any successors and assigns. Customer shall have no right to assign or otherwise transfer its rights or obligations under this Agreement except with the prior written consent of MINISOFT, which MINISOFT in its sole discretion and for any reason or no reason provide or withhold.

4. Entire Agreement. This Agreement contains the complete understanding between the parties and shall as of the date the Product is first installed supersede all other agreements, whether they are written or oral, between the parties concerning the particular subject matter. The language of this Agreement shall for all purposes be construed as a whole, according to its fair meaning, not strictly for or against either party, and without regard to the identity or status of any person who drafted all or any part of it. No purchase order or any other purchasing instruments issued by Customer, even if such purchase order or other purchasing instrument provides that it takes precedence over any other agreement between the parties, shall be effective to contradict, modify, delete from or add to the terms of this agreement in any manner whatsoever.

5. Severability. In the event that any one or more provisions of this Agreement is found by a court of competent jurisdiction to be unenforceable or invalid, then notwithstanding any such finding the remainder of this Agreement shall remain in full force and effect, and such provision that is found to be unenforceable or invalid shall be deemed severed.

6. Waiver. Neither party's right to require performance of the other party's obligations hereunder shall be affected by any previous waiver, forbearance, or course of dealing, nor shall any waiver or forbearance or other course of dealing at any time with respect to any term or condition in this Agreement be effective unless evidenced in writing signed by the waiving party as to such waiver, forbearance or other course of dealing. No waiver or modification of this Agreement or any covenant, condition or limitation herein contained shall be valid and no evidence of waiver or modification shall be offered or received in evidence in any proceeding, arbitration or litigation between the parties hereto arising out of or affecting this Agreement or the rights or obligations of the parties hereunder, unless such waiver or modification is in writing duly signed by both parties.

7. Headings, Sections - The various headings in this Agreement are inserted for convenience only and shall not affect the meaning or interpretation of this Agreement or any Section or provision hereof.

8. Disputes; jurisdiction and venue. Customer and MINISOFT consent to personal jurisdiction, subject matter jurisdiction, and venue in the state and/or federal courts sitting in King or Snohomish Counties, State of Washington. Any action relating to this Agreement must be brought in the state or federal courts located in King or Snohomish County, Washington.

9. Attorney's Fees. In the event legal action is brought by either party to enforce any of the provisions of this Agreement, the prevailing party shall recover its reasonable attorney's fees, costs, and expenses, including but not limited to fees, costs and expenses of collecting any judgment.

10. Export. The export of this product is restricted by U.S. export regulations.

11. GOVERNMENT RESTRICTED RIGHTS. The Software Product and documentation are provided with restricted rights. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c) (2) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252. 227-7013 or subparagraphs (c) (1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable. Contractor/manufacturer is MINISOFT, INC., 1024 FIRST STREET, SNOHOMISH, WASHINGTON, 98290, U.S.A.

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Part I: Introduction

With eFORMz, a web service can be called that will update a service or retrieve details from any 'HTTP' or 'HTTPS' accessible service. Web services are Web-based applications that use SOAP, URL Encoded text, XML and other transport protocols to exchange data with clients. eFORMz web services support extends the World Wide Web infrastructure to provide the means for eFORMz to connect to other software applications.

eFORMz supports GET or POST requests. A GET verb is intended to retrieve information from the server. It has limited ability to pass data to the service from a client. For passing data, the POST verb should be used. It is intended to pass data to a web service and may optionally return data from the service. A POST request with no data to pass is the equivalent of a GET request. The appropriate verb for a request will be defined by the web service provider. Details on how to format a request will also be made available by the web service provider.

Part II: Configuration

To access a web service with eFORMz, right click the *Form* and select *Add Pre-condition Procedure OR Add Post-condition Procedure > Call a Web Service*. The *Call a Web Service* dialog box will display.

POST Request

The screenshot shows the 'Call a Web Service' dialog box with the following configuration:

- Request verb:** GET POST
- URL:**
 - Constant:
 - Variable:
- Input Data:** URL Encoded MIME
- Input Parameters:**
- Output Data:** URL Encoded MIME
- Output Parameters:**
- Buttons:**

Options for a POST request include:

Request Verb

The web request uses an HTTP element called a “verb”. The valid verbs for web services are either GET or POST.

URL

The web service will be located at a URL. The URL may be either HTTP or HTTPS. It may be a fixed constant or used from a variable. The variable may be created from input data, read from a configuration file as a constant or any combination of the above included with function calls.

Input Data

Input data can consist of tag and value pairs (URL Encoded) or it can be a file (Multipurpose Internet Mail Extension). Only a POST verb will have input data.

Input Parameters (URL Encoded Input Data): The web service input parameter for URL Encoded input data will be in the form "tag=value". The tag, or label, can be a fixed constant or variable value. Likewise, the value for the tag can be a fixed constant or variable value.

Content Type (MIME Input Data): There is no web service input parameter for MIME input data, however, a content type must be selected for MIME input data. Options include: *Text, HTML, PDF, eFORMz Document (.efd), Color PCL, PCL, XML, Zebra XML, TIFF, PNG, JPEG, GIF, BMP, AFP, PostScript, ZPLII, SBPL & NONE.*

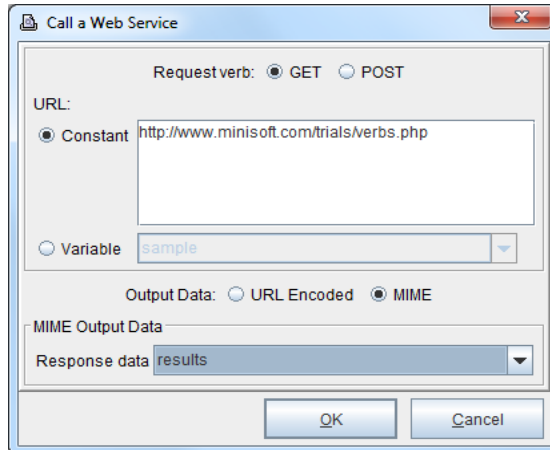
Output Data

The data returned by the web service can be accepted in either the URL Encoded or MIME-based formats. Both a POST verb and a GET verb will have output data.

Output Parameters (URL Encoded Output Data): The web service output parameter for URL Encoded output data will be in the form "tag=variable". The tag, or label, can be a fixed constant or a variable. The variable can only be a form variable.

Response Data (MIME Output Data): There is no web service output parameter for MIME output data. Instead, the data that is returned is placed into a form variable selected from the *Response Data* drop-down menu.

GET Request



Options for a GET request include:

Request Verb

The web request uses an HTTP element called a “verb”. The valid verbs for web services are either GET or POST.

URL

The web service will be located at a URL. The URL may be either HTTP or HTTPS. It may be a fixed constant or used from a variable. The variable may be created from input data, read from a configuration file as a constant or any combination of the above included with function calls.

Output Data

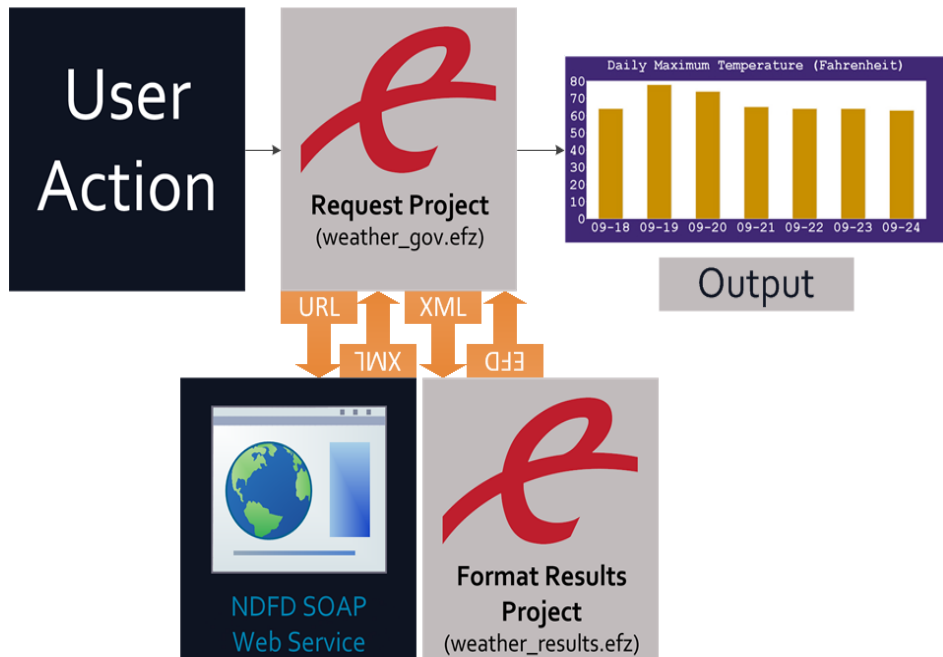
The data returned by the web service can be accepted in either the URL Encoded or MIME-based formats. Both a POST verb and a GET verb will have output data.

Output Parameters (URL Encoded Output Data): The web service output parameter for URL Encoded output data will be in the form “tag=variable”. The tag, or label, can be a fixed constant or a variable. The variable can only be a form variable.

Response Data (MIME Output Data): There is no web service output parameter for MIME output data. Instead, the data that is returned is placed into a form variable selected from the *Response Data* drop-down menu.

Part III: Sample

Minisoft has a sample web service call with eFORMz available at <http://support.minisoft.com/wordpress/wp-content/uploads/2015/07/weather.zip>. The National Oceanic and Atmospheric Administration (NOAA) offers access to the National Weather Service's (NWS) National Digital Forecast Database (NDFD) through a Simple Object Access Protocol (SOAP) web service. Through a GET request, information is received in Extensible Markup Language (XML) format. The web service can be accessed at the following link: http://graphical.weather.gov/xml/SOAP_server/ndfdXML.htm.



An NDFD SOAP request is configured in the *weather_gov.efz* project, where the *Call a Web Service* action is implemented. This GET request retrieves information from the NDFD SOAP service. This data is returned to the *weather_gov.efz* project. Using the *Document Output from a Project* document component, formatting for the results is loaded from the *weather_results.efz* project.

Reference

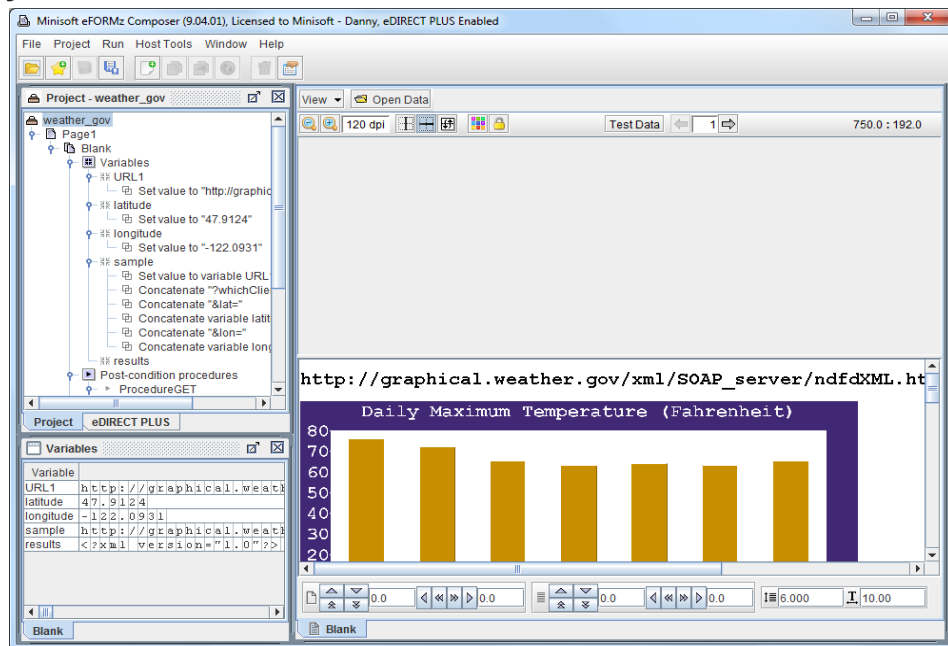
Files:

weather_gov.efz (Project to retrieve data)

weather_results.efz (Project to format data)

results.xml

Project to retrieve data

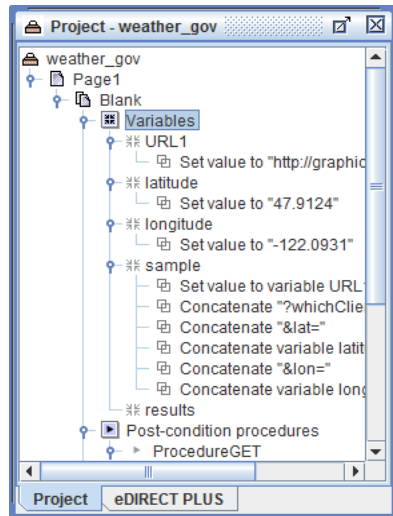


Data

The *weather_gov.efz* project uses Test Data, not a data file. The incoming data for the project will come from the external web service.

Variables

There are five variables in the *weather_gov.efz* project:



URL1

The value of this variable has been set to the following URL: *http://graphical.weather.gov/xml/SOAP_server/ndfdXMLclient.php*.

Note: this value should not be adjusted by the user.

latitude

The value of this variable has been set to the following latitudinal coordinate:

47.9124

Note: this value may be adjusted by the user.

longitude

The value of this variable has been set to the following longitudinal coordinate:

-122.0931

Note: this value may be adjusted by the user.

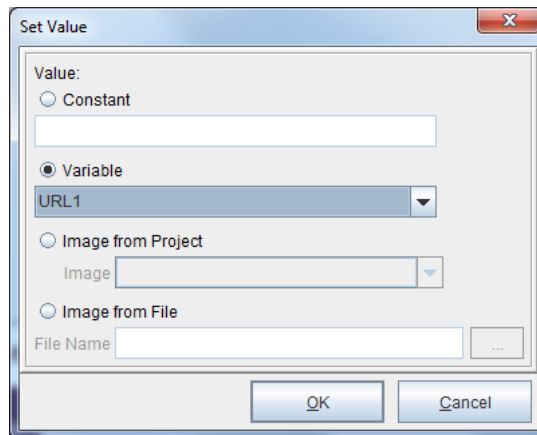
sample

The value of this variable has been set to the following URL:

```
http://graphical.weather.gov/xml/SOAP_server/ndfdXMLclient.php?whichClient=NDFDgen&product=time-series&begin=2004-01-01Too%3Aoo%3Aoo&end=2020-09-18Too%3Aoo%3Aoo&Unit=e&maxt=maxt&Submit=Submit&lat=47.9124&lon=-122.0931
```

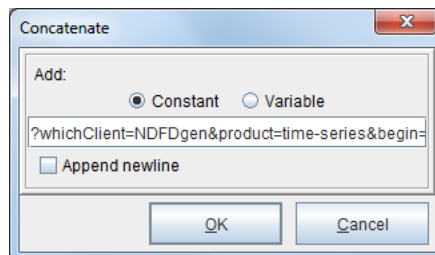
This involved several steps:

1. The *sample* variable was *right-clicked*, and *Add Function > Set Value* was selected.



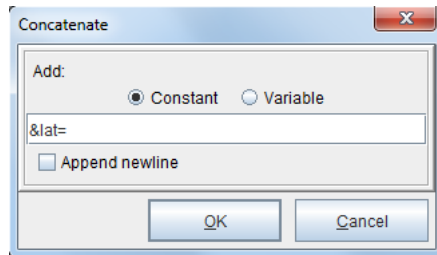
The *Set Value* dialog box displayed. From the *Variable* drop-down menu, the *URL1* variable was selected.

2. The *sample* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



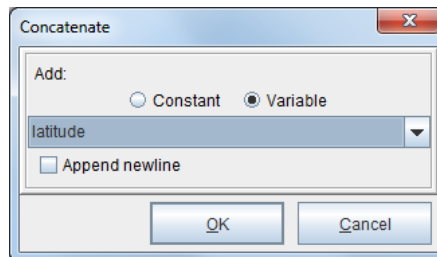
The *Concatenate* dialog box displayed. The following was entered as a constant value: `?whichClient=NDFDgen&product=time-series&begin=2004-01-01Too%3Aoo%3Aoo&end=2020-09-18Too%3Aoo%3Aoo&Unit=e&maxt=maxt&Submit=Submit`

3. Again, the *sample* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



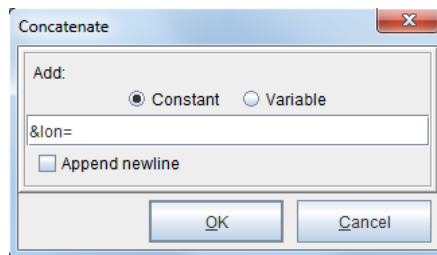
The *Concatenate* dialog box displayed. The following was entered as a constant value: *&lat=*

4. Once more, the *sample* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



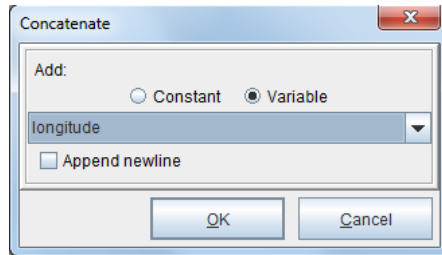
The *Concatenate* dialog box displayed. From the *Variable* drop-down menu, the *latitude* variable was selected.

5. Again, the *sample* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



The *Concatenate* dialog box displayed. The following was entered as a constant value: *&lon=*

- Finally, the *sample* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



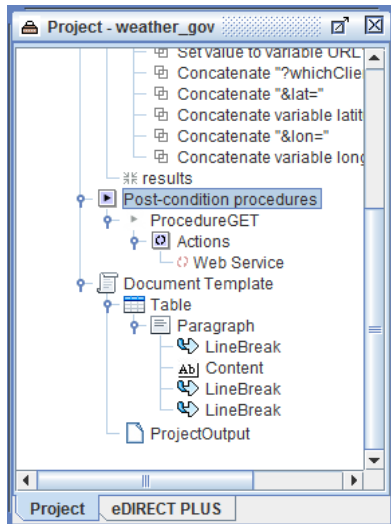
The *Concatenate* dialog box displayed. From the *Variable* drop-down menu, the *longitude* variable was selected.

Note: this variable should not be adjusted by the user.

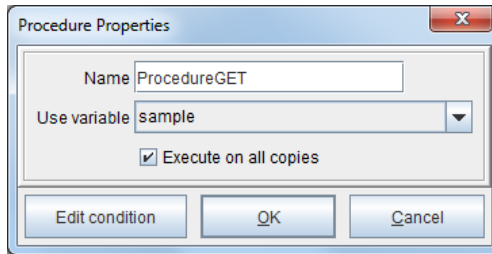
results

The value of this variable is set to the response data from the web service call.

Post-condition Procedure: Call a Web Service



- The *sample* variable was *right-clicked*, and *Add Post-condition procedure > Call a Web Service* was selected.



Procedure Properties

Name: ProcedureGET

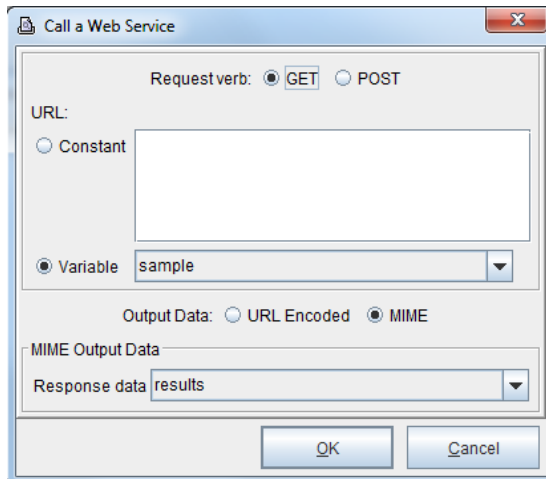
Use variable: sample

Execute on all copies

Edit condition OK Cancel

'ProcedureGET' was entered in the Name field.

2. After clicking *OK*, the *Call a Web Service* dialog box displayed. The *Request verb* selected was *GET*. The *URL* was provided by the *sample* variable. The *Output Data* type was *MIME* and the *Response Data* was to be put in the *results* variable.



Call a Web Service

Request verb: GET POST

URL:

Constant

Variable: sample

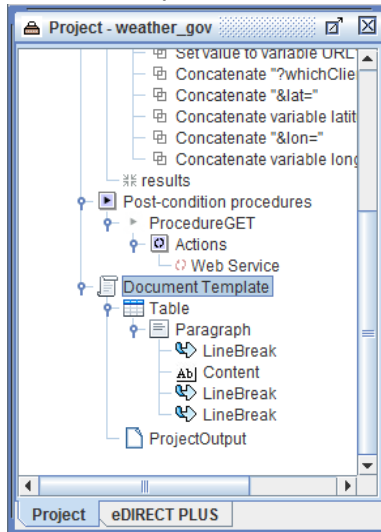
Output Data: URL Encoded MIME

MIME Output Data

Response data: results

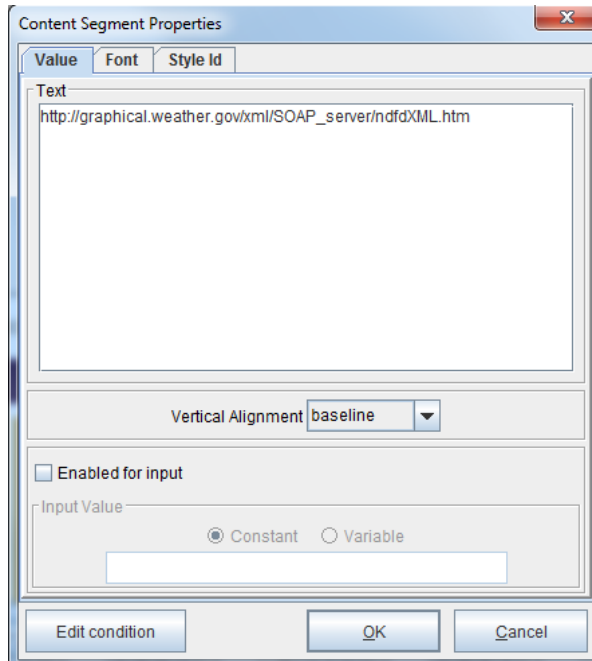
OK Cancel

Document Template



1. The form was *right-clicked* and *Add Document Component > Table* was selected. The *Table* was *right-clicked* and the *Add Paragraph* element was selected. The *Paragraph* was *right-clicked* and *Add... > Line break* was selected.

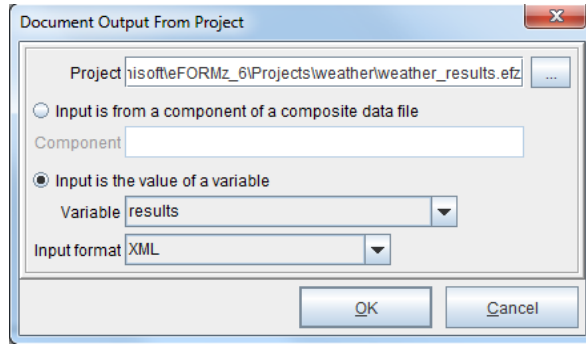
2. Next, the *Paragraph* was right-clicked and *Add text > Text value* was selected. The *Content Segment Properties* dialog box displayed.



The following URL was entered: http://graphical.weather.gov/xml/SOAP_server/ndfdXML.htm

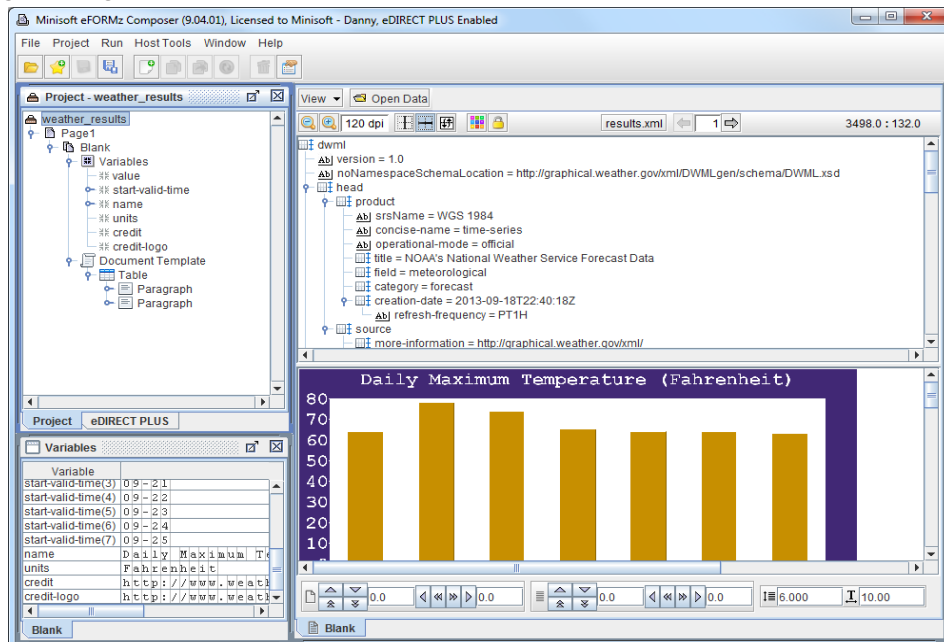
This is the link to the NDFD SOAP web service. The user can copy and paste the URL into their browser to see and access the service from their browser.

- From there, the *Document Template* was right-clicked and *Add Document Component > Document output from a project* was selected. The *Document Output From Project* dialog box displayed.



The *weather_results.efz* project was selected in the *Project* field using the Browse button (...). In the *Input is the value of a variable* field, the *results* variable was chosen from the *Variable* drop-down menu. *XML* was selected from the *Input format* drop-down menu.

Project to format data

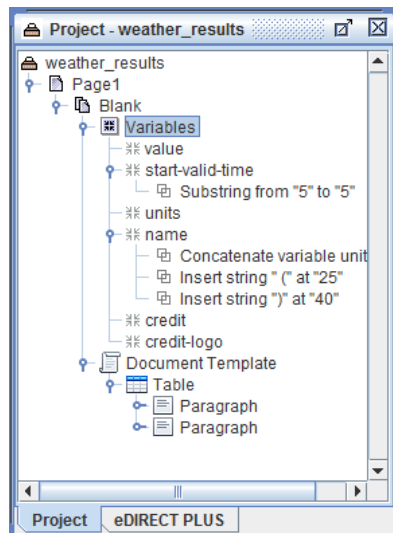


Data (*results.xml*)

The *weather_results.efz* project uses a .xml data file called *results.xml*. It is a static XML file that has sample output from the NDFD SOAP web service. The purpose of using this file is to identify and use the appropriate node structure for incoming XML data from the NDFD SOAP web service. The data from this file will have no impact on the web service results in the *weather_gov.efz* project. This data file is used exclusively for formatting purposes. If changes are made at to the web service which aren't represented in the *results.xml* file, the user can save the XML file that was generated from the browser.

Variables

There are six variables in the *weather_results.efz* project, and four of note to the user:



value

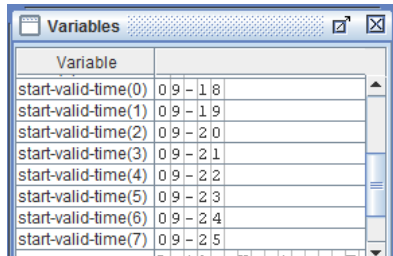
This variable picks up the daily maximum temperature for each day returned.

Variable	
value(0)	6.4
value(1)	7.8
value(2)	7.4
value(3)	6.5
value(4)	6.4
value(5)	6.4
value(6)	6.3
value(7)	6.3

Data node: *dwml/data/parameters/temperature/value*

start-valid-time

This variable picks up the start of the day (date/time format). A *Substring* function (right click *start-valid-time* > *Add Function* > *Substring*) from character 5, for 5 characters, was implemented so only the month and day would show.



Variable	
start-valid-time(0)	09-18
start-valid-time(1)	09-19
start-valid-time(2)	09-20
start-valid-time(3)	09-21
start-valid-time(4)	09-22
start-valid-time(5)	09-23
start-valid-time(6)	09-24
start-valid-time(7)	09-25

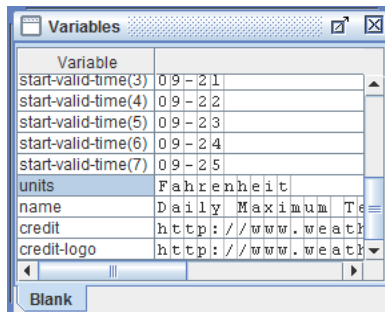
Original: *2013-09-18T08:00:00-07:00*

After Substring Function: *09-18*

Data node: *dwml/data/time-layout/start-valid-time*

units

This variable picks up the units of measurement for the temperature. In this sample, it is fahrenheit.

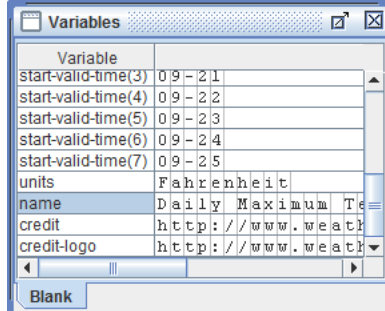


Variable	
start-valid-time(3)	09-21
start-valid-time(4)	09-22
start-valid-time(5)	09-23
start-valid-time(6)	09-24
start-valid-time(7)	09-25
units	Fahrenheit
name	Daily Maximum Temperature
credit	http://www.weather.com
credit-logo	http://www.weather.com

Data node: *dwml/data/parameters/temperature@units*

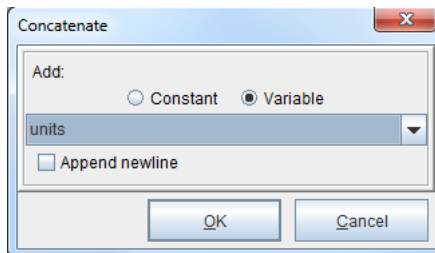
name

The value of this variable is the name of the *value* variable. In this sample, it is 'Daily Maximum Temperature.'



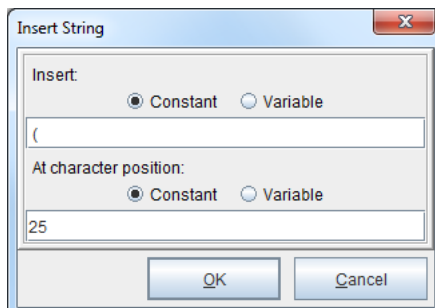
Although not shown in the window above, scrolling to the right will reveal a value of 'Fahrenheit' was appended to this character string. This involved a few steps.

1. The *name* variable was *right-clicked*, and *Add Function > Concatenate* was selected.



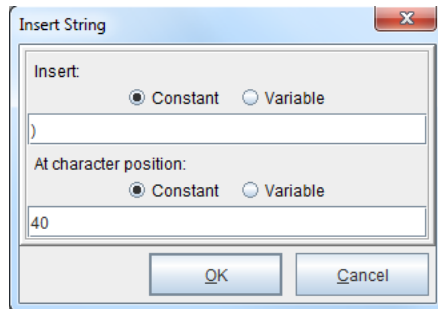
The *Concatenate* dialog box displayed. The *units* variable was selected from the *Variable* drop-down menu.

2. The *name* variable was *right-clicked*, and *Add Function > Insert String* was selected.



The *Insert String* dialog box displayed. A space followed by the '(' character were entered in the *Insert* field at the character position of 25.

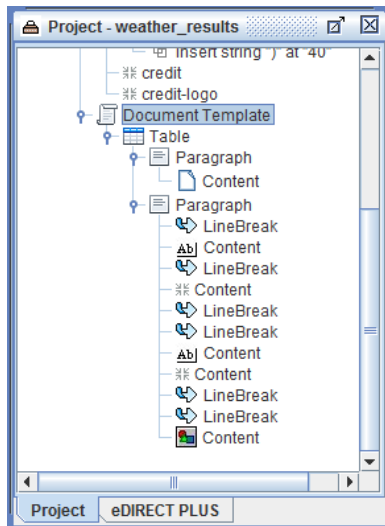
3. The *name* variable was right-clicked, and *Add Function > Insert String* was selected.



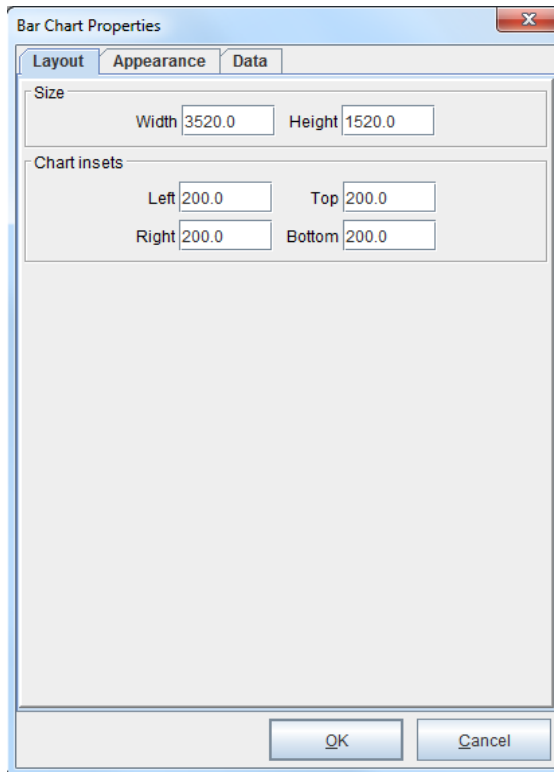
The *Insert String* dialog box displayed. The ')' character was entered in the *Insert* field at the character position of 40.

Data node: *dwml/data/parameters/temperature/name*

Document Template



1. The form was *right-clicked* and *Add Document Component > Table* was selected. The *Table* was *right-clicked* and the *Add Paragraph* element was selected. The *Paragraph* was *right-clicked* and *Add chart > Bar chart* was selected. The *Layout* tab of the *Bar Chart Properties* displayed.

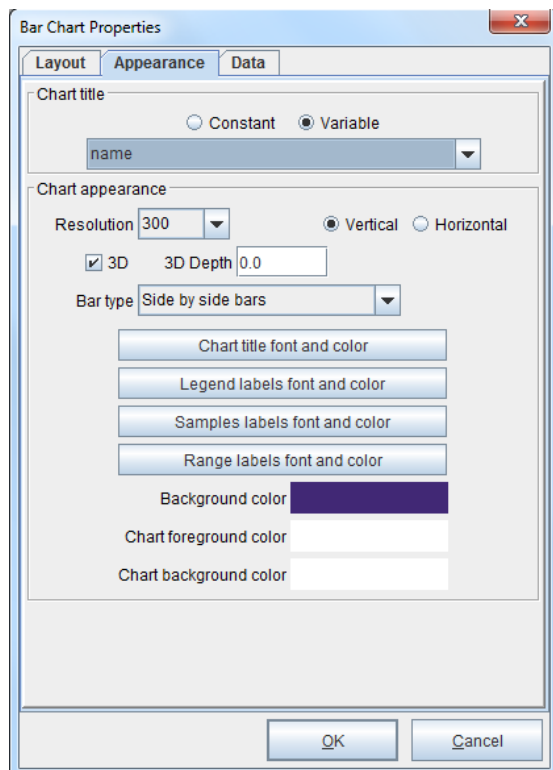


The screenshot shows the 'Bar Chart Properties' dialog box with the 'Layout' tab selected. The 'Size' section has 'Width' set to 3520.0 and 'Height' set to 1520.0. The 'Chart insets' section has 'Left' set to 200.0, 'Top' set to 200.0, 'Right' set to 200.0, and 'Bottom' set to 200.0. The 'OK' and 'Cancel' buttons are visible at the bottom.

Property	Value
Width	3520.0
Height	1520.0
Left inset	200.0
Top inset	200.0
Right inset	200.0
Bottom inset	200.0

The size and insets were edited as required.

- Switching to the *Appearance* tab, the *name* variable was selected from the *Variable* drop-down menu in the *Chart title* field. Adjustments to appearance of the chart we made accordingly.



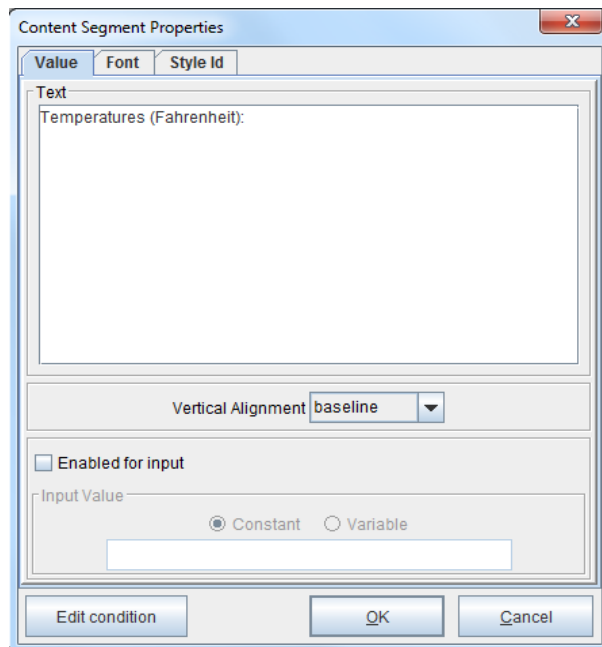
- Switching to the *Data* tab, the *start-valid-time* variable was used for the label, and the *value* variable was used for a data series called 'Temperature Fahrenheit.'

The screenshot shows the 'Bar Chart Properties' dialog box with the 'Data' tab selected. The 'Layout' and 'Appearance' tabs are also visible. The 'Data' tab contains the following settings:

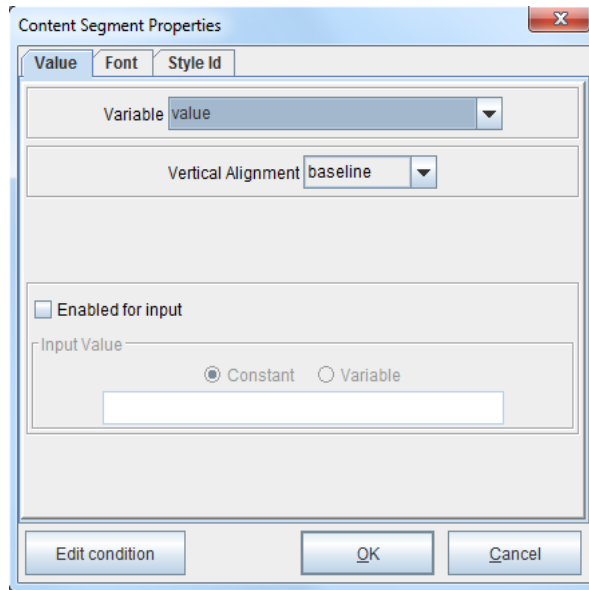
- Show samples labels
- Show legend
- Sample count: 7
- Bar width (0 to 99): 50
- Samples labels**
 - Use delimited text for labels
 - Labels: [Empty text box]
 - Delimiter: [Empty text box]
 - Use an occurring variable for labels
 - Labels variable: start-valid-time
- Data series**
 - Temperature Fahrenheit

Buttons at the bottom: New, Edit, Remove, Move Up, Move Down, Activate, OK, Cancel.

4. Below the bar chart, a text value of 'Temperatures (Fahrenheit): ' was added by *right-clicking* a new *Paragraph* and selecting *Add text > Text value*.



5. Next to the text value, the value variable was placed by *right-clicking* the *Paragraph* and selecting *Add text > Variable value*.



The image shows a dialog box titled "Content Segment Properties" with a close button (X) in the top right corner. The dialog has three tabs: "Value", "Font", and "Style Id", with "Value" selected. The "Value" tab contains the following elements:

- A "Variable" dropdown menu with the value "value" selected.
- A "Vertical Alignment" dropdown menu with the value "baseline" selected.
- An unchecked checkbox labeled "Enabled for input".
- An "Input Value" section containing two radio buttons: "Constant" (which is selected) and "Variable". Below these radio buttons is an empty text input field.

At the bottom of the dialog, there are three buttons: "Edit condition", "OK", and "Cancel".



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