

WMS Viewer User manual

The WMS viewer

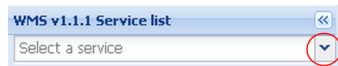
This WMS viewer is a simple map browsing tool which allows you to view content offered by OGC Web Map services and to do standard operations like pan, zoom, style and query the maps. The viewer is used in a meteorological environment where time and elevation are important. See the paragraph about dimensions for more information about how the viewer handles WMS dimensions. The viewer originates from the ADAGUC project: <http://adaguc.knmi.nl>.

What are OGC Web Map Services?

These map services are defined by the Open Geospatial Consortium (OGC). An OGC Web Map Service produces maps of spatially referenced data from geographic information. This international standard defines a "map" to be a portrayal of geographic information as a digital image file suitable for display on a computer screen. For more information please visit <http://www.opengeospatial.org/>.

Choosing services

A web map service is usually a remote server referenced by an URL. The viewer itself has a predefined list with URL's pointing to these services. You can select a service by opening the dropdown box. The drop down box can be opened by clicking on the arrow pointing downward.

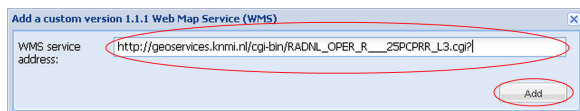


Adding a custom service

Alternatively, you can add a service which is not in the list, by going to:

Options->Add a custom WMS

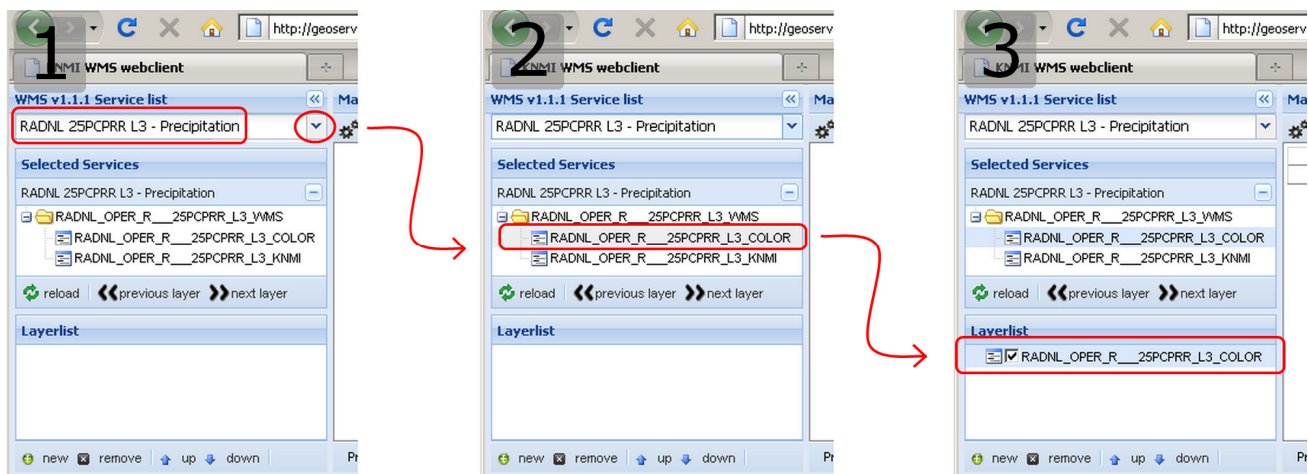
Enter the URL in the text field and click on "Add"



Note that the viewer should be configured by the administrator to put the URL you are adding in the trusted URL list, or the administrator must configure the viewer to allow all URL's.

Selecting layers (maps)

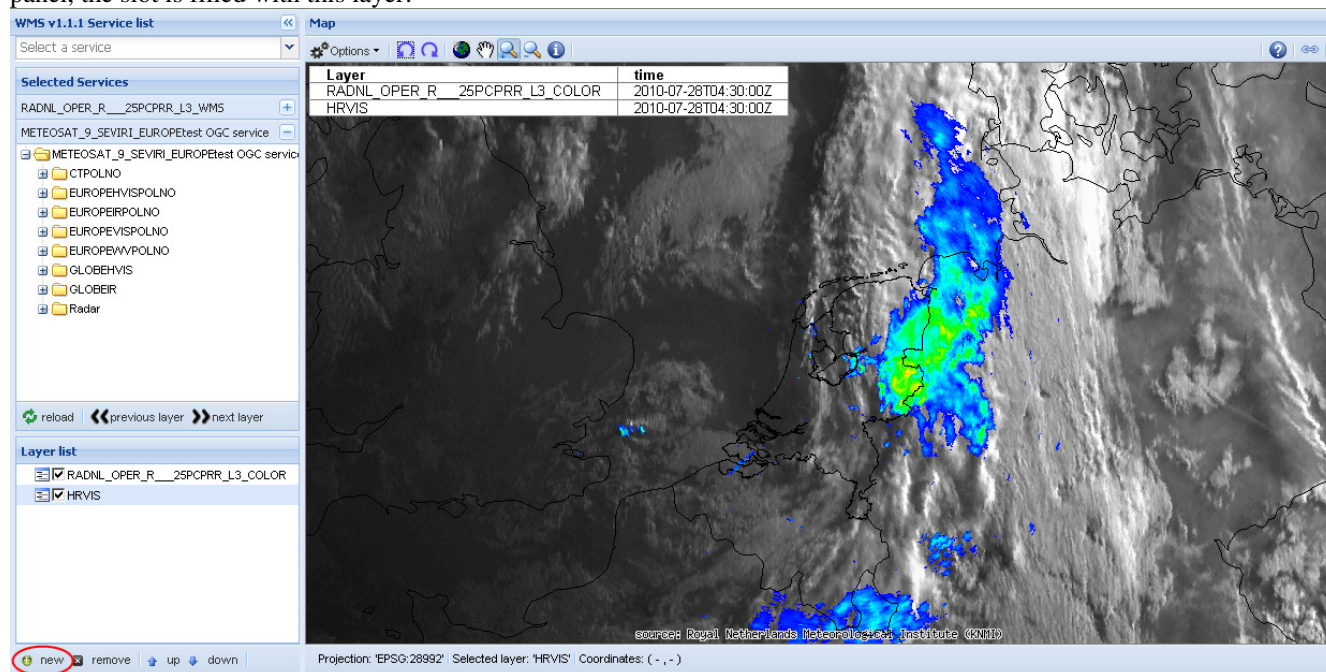
This is illustrated in the figure below in three steps. When you have chosen a service (1) a list with available layers appears in the "Selected Services" panel (2). By clicking on one of these layers, you select a layer to view. When clicked, the layer is placed in the active slot in the "Layer list" panel (3). When there is no active slot available a new one is created automatically.



If you wish, you can add another layer in another slot in the Layer list panel. This can be done by clicking on the "new" button in the Layer list:



A new slot appears in the Layer list and is selected by default. By clicking on another layer from the Selected Services panel, the slot is filled with this layer:



You can order the layers by shifting them up and down. In the figure above you can see the KNMI precipitation radar data on top of a MeteoSat image.

Controlling the map: Panning and zooming

Now you have a slot with a layer available in the layerlist, it is time to take a look at it. The map can be controlled by these buttons:

When this button is active, you can drag the map. This can be accomplished by:

- Click and hold the button on the map
- Drag it (move the mouse)
- Release the button.

When this button is active, you can zoom to a certain location.

- Click and hold the button on the map
- Drag a box
- When the mouse button is released, the map will zoom in to the selected area.

When clicked, the map will zoom out.

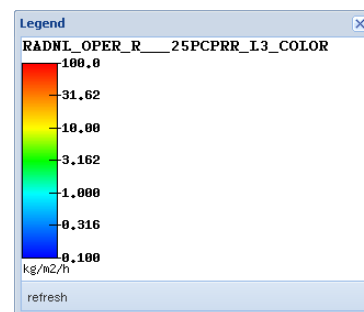
When this button is clicked, you can point on the map to retrieve values for that location. This can be used for example to determine the name and ID of a certain station located on the map.

When this button is clicked, the map will zoom to its original zoom level

The previous and next extent buttons act like undo and redo buttons, if you accidentally zoom in to an unintended location, you can press the button and the viewer will return to the previous extent.

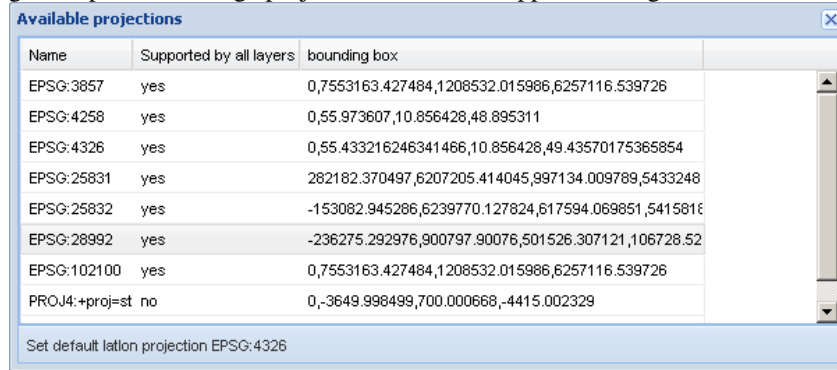
Legends


If the service supports it, you can view the legend of the layer which you have currently selected in the Layer list. This can be done by choosing Options->Display legend.



Projections

You can change the projection of the map you are currently viewing. This can be done by opening the projections window, go to Options->Change projection. A window appears listing all the available projections.



The Available projections window contains three columns, Name, Supported by all layers and bounding box. The name corresponds to the projection name defined by the service, usually these codes are in the EPSG namespace like EPSG:4326. The EPSG codes are defined by the European Petroleum Survey Group (EPSG), who maintains a list of the projection corresponding to these numbers. If the service provides a valid bounding box, the bounding box corresponding to the current selected layer is given for each projection in the list. If you select another layer in the layerlist, you will see that the bounding boxes change corresponding to the selected layer. The  (zoom to layer) button will zoom to the bounding box given by the selected projection.

The viewer inspects each layer you have added to the layerlist, to check whether all the projections are supported by all layers. If a certain projection is supported by all layers, this is indicated by a “yes” in the Supported by all layers column. A “no” indicates that this projection is not supported by a certain layer. Changing to this projection may cause this layer not to show up. Changing back to a projection which is supported by all layers makes this layer re-appear.

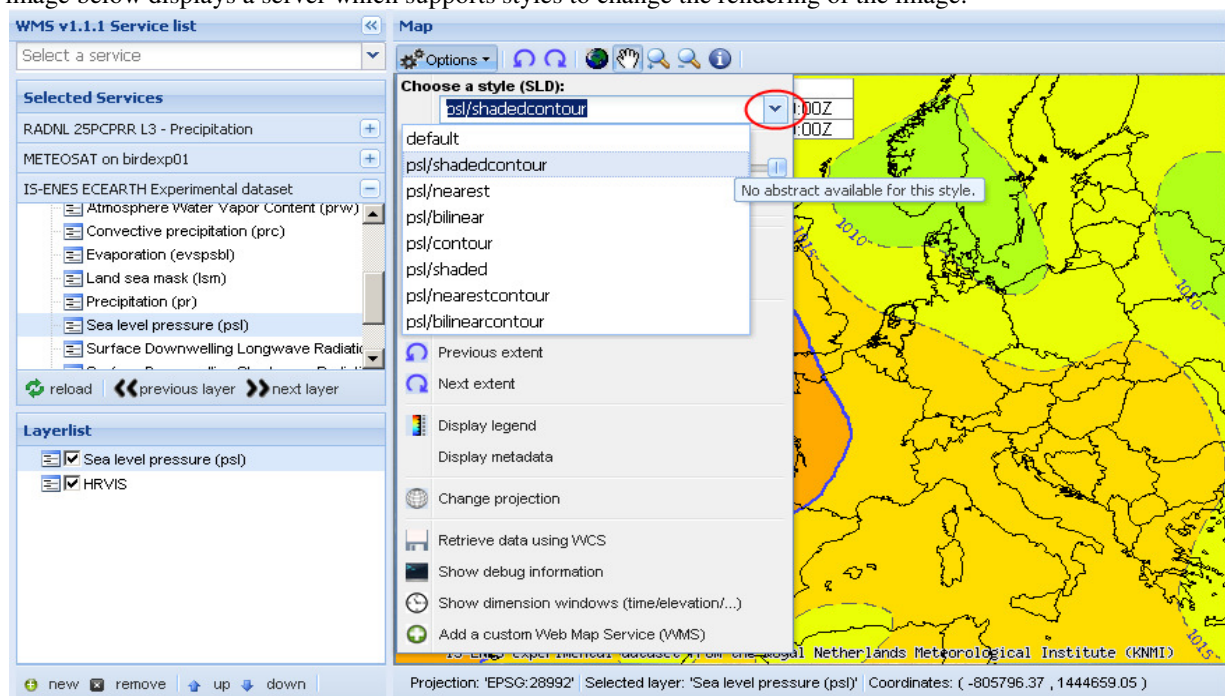
More information about EPSG can be found here: *EPSG Codes*: <http://www.epsg.org/Geodetic.html>

EPSG:4326 corresponds to WGS84, world latitude longitude projection
EPSG:28992 corresponds to the new Netherlands Amersfoort Rijksdriehoekstelsel (Amersfoort RD New)
EPSG:102100 and EPSG:3857 are pseudo Mercator projections used by for example ESRI and Google.

Styles

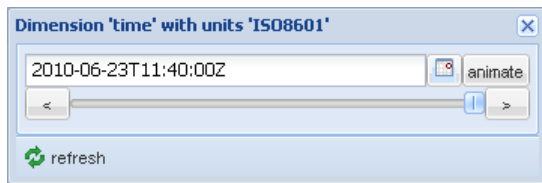
If the service supports it, you can change the style of the layer you have currently selected. This can be done by going to Options. You will see the drop down box named “Choose a style (SLD):”. Here the styles for the selected layer are listed. This mechanism makes use of the WMS named styled layer descriptors.

The image below displays a server which supports styles to change the rendering of the image:

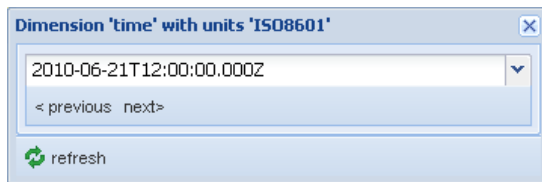


Dimensions: time, elevation and others.

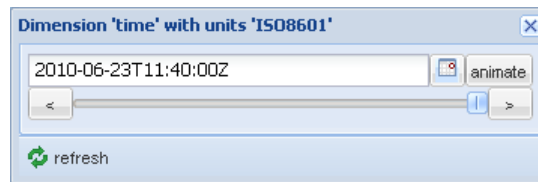
Certain layers make use of WMS dimensions in order to make selections in space and time possible. These dimensions are extra parameters in which the time or elevation dimension can be controlled. The viewer allows you to change these dimensions in popup panels. When you add a layer from The KNMI precipitation radar service, a window pops up in which you can adjust the time. The data is based on radar precipitation measurements with a five minute time interval. With the slider and the date field you can control the date you want to view.



There are two types of dimensions in the WMS specification: dimensions which are specified with a start/stop/interval, and dimensions which are specified by multiple individual values. The viewer is able to handle both types of dimensions, below two examples of the time dimension are given: left based on individual values and right based on a range of values.

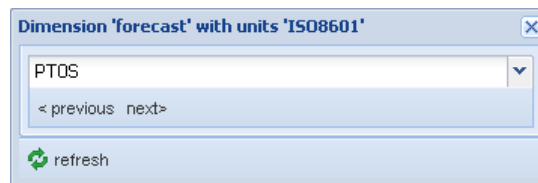
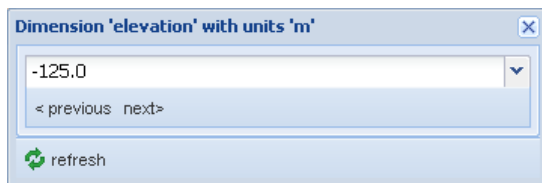


Time dimension with individual values



Time dimension with a range of values

Besides the time dimension the viewer is able to handle other types of dimensions, if they are given according to the WMS specification. For example some services specify elevation or forecast dimensions:



Handling of time when layers have different time intervals

It is possible that layers are added which have different time intervals. For example certain layers have daily intervals while others have hourly intervals. When you would like to combine a layer with a five minute interval with a layer with a 15 minute interval, you need to think of which layers you want to combine.

The viewer resolves this by performing nearest neighbor interpolation in time. The time closest to the requested time is displayed. The table below shows an example of three layers added simultaneously in the viewer. The first has a five minute interval, the second a 15 minute time interval and the third a three hourly interval. The time is increased according to the first layer, per five minutes. The changes in time for each layer are highlighted.

(1) Precipitation radar: 5 minute interval:	13:15	13:20	13:25	13:30	13:35	13:40	13:45	13:50	13:55
(2) MeteoSat image: 15 minute interval:	13:15	13:15	13:30	13:30	13:30	13:45	13:45	13:45	14:00
(3) Model field with 3 hour interval:	12:00	12:00	12:00	15:00	15:00	15:00	15:00	15:00	15:00

The time dimension panel has information corresponding to the layer selected in the layerlist. If you select a layer with a 3 hourly interval, the time dimension panel will increase it's step by the 3 hourly time interval.

Note that this only works with layers which provide their dimensions as a range (eg. Start/stop/interval).