

Introducing the Unified Map Service

What is it?

The Unified Map Service (UMS) is a proposed HTTP-based client/server protocol to facilitate simple and efficient access to online map data, whether imagery, coverage or vector. It inherently supports tiling of all data types as well as time series. As conceptualized, rendering of multiple layers and features can be performed on either the client or the server, complex styling is supported, and so are re-projection, queries, filtering and transactions.

Why yet another service instead of WMS, WFS, WMTS, WCS, CSW?

The goal of UMS is to be able to achieve everything that all these other protocols can do in a single set of simple consistent specifications, using shared semantics for common concepts (e.g. layers, tiling schemes, styles description, spatial reference systems...).

How does it describe data?

UMS responds to general requests in either ECON (<http://ec-lang.org/econ>) or JSON (<http://json.org>), rather than XML. Both of these object notation formats are significantly easier to parse than XML by software, more intuitive to comprehend and more concise to edit by humans. The major distinction of ECON from JSON is that 'keys' are explicitly identifiers and not quoted, the = sign is used rather than the :, and ordered identifiers can be omitted e.g. { 45, -75 } rather than { "lat" : 45, "lon" : -75 }.

How did UMS come to be?

Based on feedback and discussions, the concept of a unified map service has been floated around at the OGC for quite a while. Ecere first proposed this version of the concept as part of the Vector Map Tiling Service deliverable for Testbed 13 Vector Tiles Package. The idea of a unified service naturally came as vector tiles are conceptually at the intersection of WMTS and WFS.

What is the current status?

As part of the Vector Map Tiling Service for Testbed 13, Ecere has developed a prototype based on the GNOSIS Map Server. In addition to serving through UMS, the GNOSIS Map Server can also serve data through WMTS (<http://maps.ecere.com/wmts>) and WFS (<http://maps.ecere.com/wfs>), with support for vector tiles extensions (*See TB13 Vector Tiles ER Chapter 7 – Vector Map Tiling Service*), supporting all the same tiling schemes and formats.

Could UMS become or inform a future OGC standard?

We hope so. The Unified Map Service was proposed in the Testbed 13 Vector Tiles Engineering Report and presented at the Architecture DWG at the 105th OGC Technical Committee in Palmerston North, New Zealand. A conclusion of the Vector Tile work package was that a SWG or DWG targeting vector tiles would be useful and that the Unified Map Service concept could be discussed within that context. We would be thrilled if this could be initiated in the next March 2018 TC in Orléans, France.

What data formats does it support?

UMS is agnostic of data formats. Our prototype currently supports output in GeoECON, GeoJSON, GML and GNOSIS Map Tiles for vector data; PNG and GNOSIS Map Tiles for raster and coverage data. (*See TB13 Vector Tiles ER Annex B for GNOSIS Map Tiles and Annex C for GeoECON*).

What tiling scheme does it support?

UMS is also agnostic of tiling schemes. The GNOSIS prototype currently supports the GNOSIS Global Grid as well as standard tiling schemes based on the 4 well known scale sets from WMTS Annex E (GlobalCRS84Pixel, GlobalCRS84Scale, GoogleCRS84Quad and GoogleMapsCompatible / WebMercator). In our implementation, all configured tiling schemes are automatically supported for all map layers without requiring any additional pre-processing. (See TB13 Vector Tiles ER **Annex A** for GNOSIS Global Grid)

What data can be served through UMS?

UMS is also agnostic of the data store. The GNOSIS prototype can serve any vector, imagery or coverage data tiled into the GNOSIS data store format, which the GNOSIS tools can import from a number of different formats & CRS. (See TB13 Vector Tiles ER **Annex D** for GNOSIS data store).

What requests are supported and how do they relate to other services? (comparison t.b. improved)

		WMS	WMTS	WFS	WCS	CSW
GetCapabilities	Service identification, lists supported requests, tiling schemes, data formats and coordinate reference systems	X	X	X	X	X
GetLayersList	Request a list of layer with hierarchy browsing support (directories)	X	X	X	X	X
GetLayerInfo	Request basic information per layer (identifier, title, feature type, geospatial and temporal coverage, max scale)	X	X	X	X	X
GetMetaData	Request detailed ISO 19115 metadata					X
GetTilingScheme	Fully describe a supported tiling scheme (akin to WMTS TileMatrixSet)		X			
GetFeatures	Request a portion of or an entire set of feature(s) from one or more layers in raster or vector form. Server-side rendering, rasterization or vectorization can be performed if supported & necessary, in which custom styling can be requested by the client.	X		X	X	
GetTile	Request a specific tile for a specific tiling scheme. Like GetFeatures, multiple layers can be combined and server-side rendering and custom styles can be supported.		X	.		
GetValue	Request the value at a specific geographic position (for vector: feature ID)	~	~	~	X	
GetAttributesList	Returns a list of all attributes for a vector layer.			X		
GetAttributes	Request attributes for a set of features			X		
GetStyles	Return default styles for a given layer in a supported format for client-side rendering					

Prototype Demonstration

GetCapabilities

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetCapabilities>

Selecting JSON instead of ECON (for any UMS request): &on=json:

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetCapabilities&on=JSON>

GetTilingScheme

Describing supported tiling schemes in detail

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTilingScheme&tilingScheme=GNOSISGlobalGrid>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTilingScheme&tilingScheme=GlobalCRS84Scale>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTilingScheme&tilingScheme=GlobalCRS84Pixel>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTilingScheme&tilingScheme=GoogleCRS84Quad>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTilingScheme&tilingScheme=GoogleMapsCompatible>

What is the rowsSpecs and why does it have so many entries in GNOSIS GlobalGrid?

RowsSpecs = [{0, 1, 4, 90}, {1, 1, 8, 45}, {2, 4, 16, 22.5}, {6, 1, 8, 45}, {7, 1, 4, 90}],

The entries in the rowsSpecs accommodate a different number of columns for different rows, as in the GNOSIS Global Grid using less tiles for the polar regions being a smaller area. The rowsSpecs members are: **row**, **count**, **numCols**, **tileDeltaLon** (in degrees). In the above example, at row 0 there is 1 row of 4 columns spanning 90° each. At row 1, there is 1 row of 8 columns spanning 45° each, and so on.

How can one figure out what tile key is valid for a tiling scheme / zoom level / layer ?

Clients should be able to easily figure this out based on layer extents & the tiling scheme description.

As a useful manual debugging / utility tool, **GetTileAtPos** request is also provided:

Which tile in the GoogleMapsCompatible scheme level 4 is at 55°N, 120°E ?

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTileAtPos&tilingScheme=GoogleMapsCompatible&zoomLevel=4&position={55,120}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTileAtPos&tilingScheme=GoogleMapsCompatible&zoomLevel=4&position={55,120})

{ 4, 5, 13 } (level, tileRow, tileCol)

GetLayersList

Obtaining a list of layers being served

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList>

This gives a list of all layers and layer collections at the root of the server.

Getting a list of layers inside a collection: &collection=

Natural Earth layers:

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList&collection=NaturalEarth>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList&collection=NaturalEarth/cultural>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList&collection=NaturalEarth/physical>

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList&collection=NaturalEarth/raster>

Ordnance Survey OpenMap Local layers:

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayersList&collection=OpenMapLocal>

GetLayersList will also support automatic recursion, external services (URLs) and filtering per layer information and meta data fields for rich cataloging capabilities.

GetLayerInfo

Requesting info for a specific layer

Blue Marble time series

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayerInfo&layer=BMNG_2004

ViewFinderPanorama elevation data

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayerInfo&layer=SRTM_ViewFinderPanorama

(Vector) Natural Earth Countries

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetLayerInfo&layer=NaturalEarth/cultural/ne_10m_admin_0_countries](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayerInfo&layer=NaturalEarth/cultural/ne_10m_admin_0_countries)

(Vector) Ordnance Survey OpenMap Local Roads

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetLayerInfo&layer=OpenMapLocal/Road>

GetAttributesList (vector)

Requesting a list of all attributes associated with a vector layer

Natural Earth Countries

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetAttributesList&layer=NaturalEarth/cultural/ne_10m_admin_0_countries](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributesList&layer=NaturalEarth/cultural/ne_10m_admin_0_countries)

Ordnance Survey OpenMap Local Roads

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributesList&layer=OpenMapLocal/Road>

GetAttributes (vector)

Requesting attributes data for a set of features

Retrieving *name* & *pop_est* for 20 countries

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=\["name","pop_est"\]&features=\[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20\]](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[)

Retrieving all *name* attributes for an extent

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=\["name"\]&extent={{-90,-180},{-50,180}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[)

Retrieving all attributes for a given extent

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&extent={{-90,-180},{-70,180}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&extent={{-90,-180},{-70,180}})

Retrieving a list of all features and their areas within south-hemisphere

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&extent={{-90,-180},{0,180}}&attributes=\["ums::feature::total_area"\]](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetAttributes&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&extent={{-90,-180},{0,180}}&attributes=[)

GetTile

Requesting a tile according to a given tiling scheme per zoom level, row & column

(Vector) Natural Earth Countries

(GeoJSON, name attribute, GoogleMapsCompatible (Web Mercator), level 0, row 0, col 0)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&tilingScheme=GoogleMapsCompatible&tileKey={0,0,0}&attributes=\["name"\]&format=geo+json](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&tilingScheme=GoogleMapsCompatible&tileKey={0,0,0}&attributes=[)

(Vector) Ordnance Survey OpenMap Local

Roads (GNOSIS Map Tile, GNOSIS Global Grid, level 12, row 6417, col 4096)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/Road&tileKey={12,6417,4096}&format=gmt](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/Road&tileKey={12,6417,4096}&format=gmt)

Tidal Water (GML, no attributes, GNOSIS GlobalGrid, level 6, row 100, col 63)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/TidalWater&tileKey={6,100,63}&format=gml&attributes=\[\]](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/TidalWater&tileKey={6,100,63}&format=gml&attributes=[])

Surface Water Area (GeoJSON, no attributes, GNOSIS Global Grid, level 8, row 402, col 254)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tileKey={8,402,254}&format=geo+json&attributes=\[\]](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tileKey={8,402,254}&format=geo+json&attributes=[])

Surface Water Area (GeoECON, Google Maps Compatible, level 8, row 85, col 127)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tilingScheme=GoogleMapsCompatible&tileKey={8,85,127}&format=geo+econ](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tilingScheme=GoogleMapsCompatible&tileKey={8,85,127}&format=geo+econ)

Surface Water Area (GML, no attributes, GlobalCRS84Scale, level 9, row 120, col 556)

<http://maps.ecere.com/ums?>

[SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tilingScheme=GlobalCRS84Scale&tileKey={9,120,556}&format=gml&attributes=\[\]](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=OpenMapLocal/SurfaceWater_Area&tilingScheme=GlobalCRS84Scale&tileKey={9,120,556}&format=gml&attributes=[])

(Imagery) Blue Marble Next Generation 2004 time series – June

GNOSIS Global Grid Zoom Level 0, PNG format (GNOSIS Map Tile also supported for imagery)

row 0, col 0 (bottom-left)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,0,0}&format=png

row 1, col 0 (top-left)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,1,0}&format=png

(rest of south hemisphere)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,0,1}&format=png

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,0,2}&format=png

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,0,3}&format=png

(rest of north hemisphere)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,1,1}&format=png

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,1,2}&format=png

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GNOSISGlobalGrid&tileKey={0,1,3}&format=png

(GoogleMapsCompatible, level 0, row 0, col 0)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GoogleMapsCompatible&tileKey={0,0,0}&format=png

(GoogleCRS84Quad, level 0, row 0, col 0)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GoogleCRS84Quad&tileKey={0,0,0}&format=png

(GlobalCRS84Scale, level 0, row 0, col 0)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GlobalCRS84Scale&tileKey={0,0,0}&format=png

(GlobalCRS84Pixel, level 0, row 0, col 0)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=june&tilingScheme=GlobalCRS84Pixel&tileKey={0,0,0}&format=png

Same GoogleMapsCompatible level 4, row 6, col 11 tile with different layers – Himalayas

Blue Marble Next Generation (January)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=BMNG_2004&time=january&tilingScheme=GoogleMapsCompatible&tileKey={4,6,11}&format=png

ViewFinderPanoramas elevation (16-bit grayscale PNG)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=SRTM_ViewFinderPanorama&tilingScheme=GoogleMapsCompatible&tileKey={4,6,11}&format=png

(Vector) Natural Earth Region Polygons (GeoJSON)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetTile&layer=NaturalEarth/physical/ne_10m_geography_regions_polys&tilingScheme=GoogleMapsCompatible&tileKey={4,6,11}&format=json

GetFeatures

Requesting features for a given layer

Blue Marble Next Generation time series (June) – zoom level 0

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&zoomLevel=0&format=png&time=june

Stretched to 1080p

(Option for maintaining aspect ratio and zooming to widest or narrowest dimension will be added)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&width=1920&height=1080&format=png&time=june

January, zoom level 3 for (0°N, 100°W)..(40°N, 75°W)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&zoomLevel=3&format=png&time=january&extent={{0,-100},{40,-75}}

View Finder Panoramas Elevation (16-bit grayscale PNG) – zoom level 0

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=SRTM_ViewFinderPanorama&zoomLevel=0&format=png

Zoom level 3 for (0°N, 100°W)..(40°N, 75°W)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=SRTM_ViewFinderPanorama&zoomLevel=3&format=png&extent={{0,-100},{40,-75}}

Natural Earth Raster – zoom level 0

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&zoomLevel=0

(Vector) Natural Earth Countries (GeoJSON)

(no attributes)

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[]&format=geo+json)

[SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=\[\]&format=geo+json](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[]&format=geo+json)

(with attributes)

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&format=geo+json)

[SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&format=geo+json](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&format=geo+json)

(no attributes, zoomed in on (0°N, 100°W)..(40°N, 75°W) – automatic scale selection)

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[]&extent={{0,-100},{40,-75}}&format=geo+json)

[SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=\[\]&extent={{0,-100},{40,-75}}&format=geo+json](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=NaturalEarth/cultural/ne_10m_admin_0_countries&attributes=[]&extent={{0,-100},{40,-75}}&format=geo+json)

Various ways to specify scale

Fractional GNOSIS Global Grid Zoom Levels (Level 0: whole world is 1024x512, logarithmic base 2):

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&zoomLevel=0.25

Specify scale (denominator):

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&scale=100000000

Specify metersPerPixel:

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004&metersPerPixel=35000

Specify degreesPerPixel:

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&layer=BMNG_2004°reesPerPixel=0.2

Specifying extents across datelines (extent going from first west longitude to second east longitude)

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,0},{90,360}})

[SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,0},{90,360}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,0},{90,360}})

Smaller Extents across datelines

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,-160}})

[SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,-160}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,-160}})

Smaller Extents across datelines (alternate)

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,200}})

[SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,200}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=1&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,160},{90,200}})

More than 360°

[http://maps.ecere.com/ums?](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=0&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,-360},{90,360}})

[SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=0&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,-360},{90,360}}](http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetFeatures&zoomLevel=0&layer=NaturalEarth/raster/NE2_HR_LC_SR_W_DR&extent={{-90,-360},{90,360}})

GetValue

Requesting value for a layer at a given geographic position

Elevation value

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetValue&position={43,-79}&layer=SRTM_ViewFinderPanorama

No data

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetValue&position={63,-90}&layer=SRTM_ViewFinderPanorama

Imagery

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetValue&position={53,-90}&layer=BMNG_2004&time=june

Vector: will be returning the feature ID at position

GetStyles

Requesting the default styling for a given layer

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetStyles&layer=OpenMapLocal/Road&format=sld>

Currently supporting pre-compiled Styled Layer Descriptor/Symbology Encoding

Will be supporting upcoming GNOSIS Cascading Map Style Sheets (*See TB13 Vector Tiles ER Vector Tiling Service chapter for a preliminary prototype*) and automatic translation between different styling formats

GetMetaData

Requesting ISO 19115 geospatial metadata for a given layer

Metadata for Blue Marble Next Generation (ECON)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetMetaData&layer=BMNG_2004

(JSON)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetMetaData&layer=BMNG_2004&on=json

(XML)

http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetMetaData&layer=BMNG_2004&on=xml

XML Metadata for Ordnance Survey OpenMap Local Roads

<http://maps.ecere.com/ums?SERVICE=UMS&REQUEST=GetMetaData&layer=OpenMapLocal/Road&on=xml>

RESTful API

A REST API is also being considered for a large subset of the functionality:
(not yet implemented in the prototype)

GetCapabilities

/ums/capabilities.econ
/ums/capabilities.json

GetTilingScheme

/ums/tilingSchemes/GNOSISGlobalGrid.econ

GetLayersList

/ums/layers/list.econ
/ums/layers/OpenMapLocal/list.econ

GetLayerInfo

/ums/layers/OpenMapLocal/Road/layerInfo.econ

GetMetaData

/ums/layers/OpenMapLocal/Road/metadata.econ
/ums/layers/OpenMapLocal/Road/metadata.xml

GetStyles

/ums/layers/OpenMapLocal/Road/styles.sld
/ums/layers/OpenMapLocal/Road/styles.gcmss

GetFeatures

/ums/layers/OpenMapLocal/Road/size/1024x512.png
/ums/layers/OpenMapLocal/Road/scale/100000.econ
/ums/layers/OpenMapLocal/Road/scale/100000.png

GetAttributesList

/ums/layers/OpenMapLocal/Road/attributesList.econ

GetTile

/ums/layers/OpenMapLocal/Road/tiles/GoogleMapsCompatible/8/85/127.econ
/ums/layers/OpenMapLocal/Road/tiles/GoogleMapsCompatible/8/85/127.json
/ums/layers/OpenMapLocal/Road/tiles/GoogleMapsCompatible/8/85/127.gml
/ums/layers/OpenMapLocal/Road/tiles/GoogleMapsCompatible/8/85/127.png

GetAttributes (not well suited for REST since requests vary too much?)

/ums/layers/OpenMapLocal/Road/attributes.econ

GetValue (not well suited for REST since requests vary too much?)

/ums/layers/OpenMapLocal/Road/value/45/-75