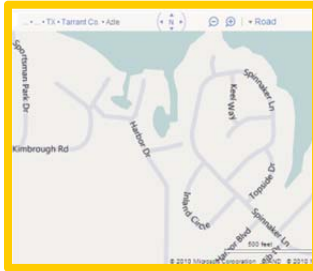


WHAT IS BING MAPS?

BING Maps is a worldwide collection of current data types that support multiple web delivery formats. Bing Maps is delivered as a web service and can be provided to Spatial on Demand customers as native Bing Map cached services, as an OGC-compliant Web Mapping Service and delivered with the Bing Maps SDK for use by individual users of GIS and other mapping applications, in addition to supporting internal web applications.

Street maps



Users can browse and search topographically-shaded street maps for many cities worldwide. Maps include certain points of interest built-in, such as metro stations, stadiums, hospitals, and other facilities. It is also possible to browse public user-created points of interest. Search can cover public collections, businesses or types of business, locations, or people.

Bird's eye view – Not available with ESRI subscriptions



In over 100 cities in the United States, Canada, Japan and in over 80 European locations, a bird's-eye view offers aerial photos from four oblique angles at each location. These Bird's Eye images add the ability to deduce general height and surrounding topography from the 2-D imagery.

Satellite, Aerial and Hybrid imagery



Bing Maps also includes hundreds of terabytes of satellite and aerial imagery. In many areas, maximum resolution is approximately 4.5 pixels per meter (0.2 m per pixel). Elsewhere, especially in the most remote areas of the world, top resolution is a few orders of magnitude less.

StreetSide – Not available with ESRI subscriptions



StreetSide provides immersive, panoramic (360 degree) imagery of street-level scenes taken from special cameras mounted on moving vehicles

Hybrid Streets and Imagery



Bing Maps Hybrid Streets and Imagery dataset gives users the same high-resolution Bing Maps global imagery but with cultural and street reference label overlays.

3D maps – Not available with ESRI subscriptions



The 3D Maps feature lets user see buildings in 3D, with the added ability to rotate and tilt the angle in addition to panning and zooming. To attempt to achieve near-photorealism, all 3D buildings are textured using composites of aerial photography.

WHAT ARE THE DATASET COVERAGES AND UPDATE FREQUENCY?

With Bing Maps provided by Spatial on Demand, users have access to all of the latest and greatest Bing Maps data available and with the same coverage and frequency as found on the parent BingMaps.com website. Spatial on Demand Bing Maps datasets are seamlessly updated with BingMaps.com to ensure the highest quality and vintage datasets are delivered as part of your subscription. Below are links to learn about dataset coverage and update frequency for Bing Maps provided by Spatial on Demand.

Interactive Map of Imagery and Bird's Eye Imagery Updates: <http://bingmapsupdates.cloudapp.net/>

Detailed table of Geographic Coverage for street data: <http://msdn.microsoft.com/en-us/library/dd435699.aspx>

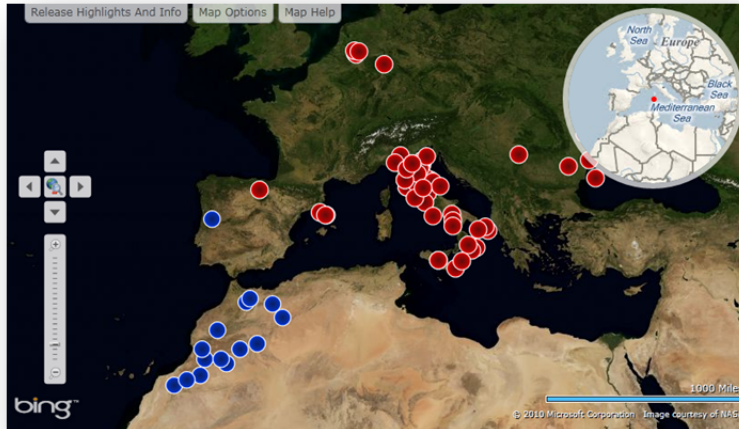


Figure 1: Bing Maps Updates - June'10

The map above shows updates for one month (June 2010) and is based on the Interactive map of updates link above. Bing Maps currently adds between 2 and 10 million square kilometers of new imagery quarterly.



Figure 2: Bing Maps Updates July'09 - June'10

The map above show updates from one year (July 2009 – June 2010).

In addition, Microsoft/Bing is undergoing a comprehensive imagery update program that is scheduled to update the entire United States and Western Europe with 30cm Natural Color and Color-IR imagery, as well as Bird’s Eye oblique views. This program, called *Clear 30*, kicked off in mid-2010 and is scheduled to be completed in several phases, with the first sets of new imagery available in 2011. As a Spatial on Demand subscriber, all of this updated imagery will be available to you through streaming and native imagery access, depending on the implementation types you prefer.

HOW DO BING MAPS AND SPATIAL ON DEMAND WORK TOGETHER?

Spatial on Demand is an enterprise imagery management and delivery solution. The imagery content of Spatial on Demand was created to serve the specific needs of energy companies. When Spatial on Demand is deployed globally, our customers require performance, flexibility and usability.

Bing Maps is one of the world’s leaders in creating a global basemap of our planet. With multiple petabytes of data covering more than 80% of the globe, Bing Maps is comprehensive in coverage and familiar to users.

In 2010, Spatial on Demand began providing access to Bing Maps as part of all Spatial on Demand annual subscriptions. The **unlimited (transaction-free)** access to Bing Maps provides access to the leading global basemap and associated geospatial data.

Bing Maps will not only work in ArcGIS Desktop and Server Software, Spatial on Demand will deliver Bing Maps to support all the common platforms within Global Energy companies. The table on the next page details Bing Maps compatibility with common geologic, geophysical and geographic software platforms.

Bing Maps Imagery datasets and software compatibility – 2011

Software Application	Bing Maps Imagery and Streets Data		Bing Maps Bird's Eye Imagery	
	<i>Esri Online</i>	<i>Spatial on Demand</i>	<i>Esri Online</i>	<i>Spatial on Demand</i>
IHS Petra	No	Yes	No	Yes
Petrel v10+	No	Yes	No	Yes
SMT Kingdom ¹	No	Yes	No	Yes
Geographix	Yes	Yes	No	Yes
Mesa Professional	No	Yes	No	Yes
Petrosys	No	Yes	No	Yes
Global Energy Mapper	No	Yes	No	Yes
Google Earth	No	Yes	No	No
Esri ArcGIS				
<i>Desktop</i>	Yes	Yes	No	Yes
<i>Server</i>	Yes ²	Yes	No	Yes
<i>Engine</i>	Yes ²	Yes	No	Yes
<i>Explorer</i>	Yes	Yes	No	Yes

¹SMT Kingdom schedule to release capability to consume WMS is Q1 2011

²ArcGIS Server and Engine are have a capped limit on map transactions and views. Users must purchase additional block of transactions

HOW DOES BINGMAPS WITH SPATIAL ON DEMAND DIFFER FROM BINGMAPS FROM ESRI?

Delivery Options and Desktop Support

In addition to the delivery of Bing Maps through ArcGIS Desktop and ArcGIS server, Spatial Energy will offer Bing Maps as a streaming Web Map Service (WMS). This will allow Spatial on Demand subscribers to use the Bing Maps content in common Energy applications that support WMS, including Petra, Geographix, PetroSys, Mesa, Global Mapper, with additional supporting pending (see table above).

Unlimited Transactions

Spatial Energy has partnered with Microsoft to provide unlimited access to Bing Maps for Spatial on Demand customers. This removes the need of our users to manage transaction volumes. Essentially, Spatial on Demand subscribers have a known fixed cost for using Bing Maps.

Additional Content

Bing Maps from Spatial Energy includes all the layers and functionality of the Bing Maps content. This includes the Bird’s Eye (Oblique), Mapping, GeoCoding, Driving Directions, Proximity Searching, and traffic incident data.

Support of Web Application Development

Spatial on Demand subscribers are also provided with authentication credentials to expose Bing Maps APIs and SDKs for internal or external web mapping applications. These credentials allow for **unlimited map transactions and map views** across the board for web application development and production use. In addition, Spatial on Demand subscribers are able to run batch geocoding, reverse-geocoding and routing requests against the Bing Maps services.

Cached tile services

Spatial on Demand subscribers can also access cached native tiles of Bing Maps Imagery, Streets, Hybrid and Birds Eye datasets for their ArcGIS applications. These datasets are pre-rendered at very high quality settings, are cache-updated frequently and are delivered with lightning quick in performance to ArcGIS mapping applications.

HOW MUCH DOES BING MAPS COST?

	Microsoft	ESRI	Spatial on Demand
Unlimited Transactions	Available at high volumes >10,000,000 transactions	\$200/user/year for desktop users only	Included in Subscription
Use in ArcGIS Desktop	No	Yes	Yes, included
Use in ArcGIS Server	No	Yes, by transactions	Yes, included
Use in Web Applications	Yes	Yes	Yes
WMS Publishing	No	No	Yes
Use of Imagery	User generated applications	ESRI Products Only	Full Use as part of Spatial on Demand
Content	All Bing Map Services licensed for all applications	Imagery, Roads, and Hybrid for use in ESRI products only	All Bing Map Services licensed for all applications
Transaction Pricing	\$8,000 for 1,000,000 transactions plus overage fees	\$2,500 for 1,000,000 transactions plus overage fees	Included with Spatial on Demand Subscription

HOW DO I GET ACCESS TO BING MAPS?

All full subscriptions to Spatial on Demand will include access to native, cached and streaming WMS starting in 2010. Streaming only subscribers will have access to the Bing Maps WMS stream starting in 2010.

Contact Brett Marraccini at Spatial Energy (bmarraccini@spatialenergy.com) for more details.

COMMON QUESTIONS

Why do I occasionally see a white space where imagery should be displayed?

There is a rarely occurring anomaly where a request will turn up partially blank. If you pan or zoom again, the image will fully populate.

The WMS hybrid layer (imagery with street data) doesn't look as clear as what I am used to on the BingMaps.com website. Why is this?

The BingMaps.com website application delivers high-quality image tiles built for quick access and a seamless experience when panning, zooming and searching. When you interact with the website, pre-loaded image tiles are served up in a seamless format. WMS streams provide static images that have to cover the entire screen display of the software you are using to view the data. Because the WMS stream is delivered as image format via the web, and total file size of that image is based off of several factors, including image size in pixels, your screen resolution and the image quality and compression being requested for display. There is a fine balance between delivering high quality images and keeping response times short. Typically, higher image resolutions result in longer response times, i.e. waiting for the image to draw. We have fine-tuned the WMS responses to provide for decreased response times while providing maximized image resolutions.

I'm using ArcMap and my response times seem slow. Is there a way to speed up the WMS imagery?

There are a couple ways to speed up the image draw times when using ArcMap software to view the Spatial on Demand Bing Maps WMS stream.

1. **Un-check redundant layers** - The first way to speed up the image refresh is to turn off layers that are redundant when viewing the Hybrid layer, e.g. turn off the imagery and street data layer and view the hybrid only. If you have more than one layer on when panning and zooming, the WMS is requesting data for each of those layers, resulting in a larger download for your imagery refresh.
2. **Request JPEG instead of PNG** - The second way to speed up your image refresh is to change your WMS image format from PNG to JPEG via your ArcMap layer properties. By default, ArcMap requests images in PNG. PNG is a general purpose format that will not reduce image quality and supports transparency. However, the file size can be much larger than other formats and will be slower to download from the server. JPEG can be much faster in terms of screen refresh when panning and zooming since its size typically is much smaller than PNG.

Can I have Bing Maps authentication for my testing and development environment, even though it is on <http://localhost>?

Bing Maps provided by Spatial on Demand gives you full access to the APIs and SDK environments for your application development roadmaps. To support this, we provide you with 2 separate authentication IDs – one for development, and one for production use – that can be used on any host domain or domains you specify.

Does Bing Maps support geocoding and requests for my web mapping application?

Bing Maps provided by Spatial on Demand does indeed support geocoding, reverse geocoding and routing requests that allow you to match an address or place to a map location, return geographic entities or addresses found at a given location, and calculate route directions to and from multiple locations on a map.



SPATIAL ON DEMAND™
get global imagery now

SPATIAL ON DEMAND:

BING MAPS FREQUENTLY ASKED QUESTIONS



Can I use Bing Maps in my hardcopy marketing materials?

Bing Maps provided by Spatial on Demand can be used in your hard-copy marketing materials as long as proper attribution is applied to the image in question. The process is very straightforward, and you can contact your Spatial on Demand representative to get further information.

Why not use Bing Maps data that comes with my ArcGIS Desktop or ArcGIS Server applications?

The main hurdle our customers see with Bing Maps via Esri is that they are capped at a limited amount of map transactions, and additional transactions for use must be purchased on a per-user basis. With Bing Maps provided by Spatial on Demand, there is no limit to the number of map transactions (also called map views) that can be used.

In addition, Bing Maps provided by Spatial on Demand goes beyond supporting just the ArcGIS Desktop environments – something that Bing Maps via Esri does not allow. With Bing Maps provided by Spatial on Demand, you can implement in Geologic and Geophysical applications such as Petra, Petrel, GeoGraphix, Global Energy Mapper, Mesa, PetroSys and more. In addition, Bing Maps provided by Spatial on Demand can also be consumed in web applications that are built with our without Esri ArcObjects – whereas with Bing Maps via Esri, it can only be consumed in Esri-based applications.

Finally, Bing Maps via Esri does not give you access to the enhanced Bing Maps datasets – including Bird’s Eye imagery, 3D Virtual Earth and StreetSide implementations. With Bing Maps provided by Spatial on Demand, you have access to all of these from one single source.