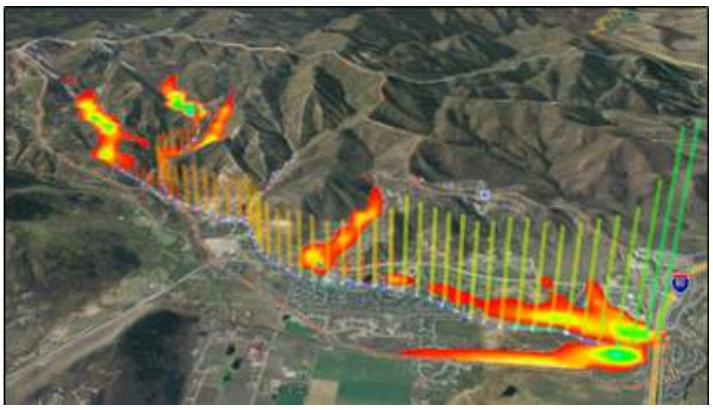
WMS 11.2 - The All-in-one Watershed Solution

Harness the entire spectrum of watershed analysis tools with WMS - the all-in-one hydrologic and hydraulic solution.

The complete all-in-one watershed solution

- GIS Tools
- Web-based data acquisition tools
- Terrain data import and editing tools
- Automated watershed delineation & hydrologic modeling
- Support for the most industry standard hydrologic models
- Step-by-step hydrologic modeling wizard
- Hydraulic modeling & floodplain mapping
- Storm drain modeling
- 2D (Distributed) Hydrology
- Integration with FHWA hydraulic calculation software
- Export WMS animations to Google™ Earth



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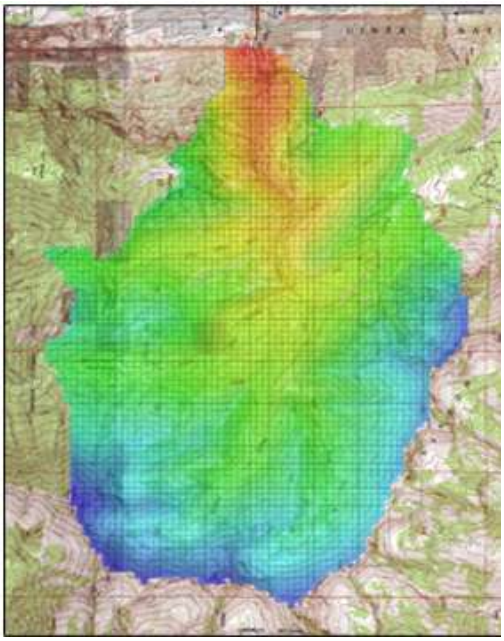
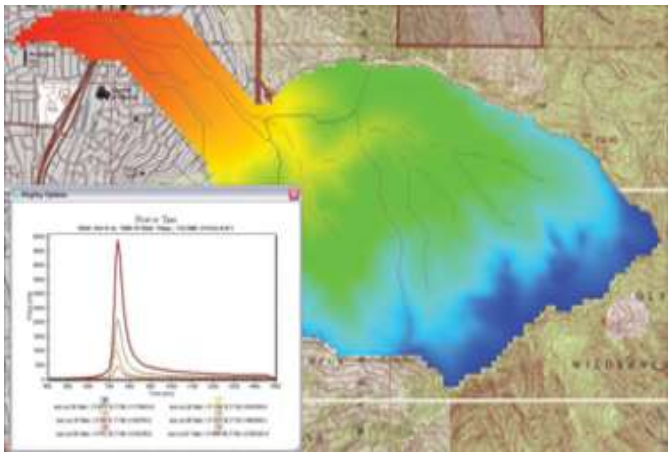
Automated watershed delineation & hydrologic modeling

- Automatically delineate a watershed and sub-basins using digital terrain data
- Automatically compute geometric basin data such as area, slope, mean elevation, maximum flow distance and more
- With a small amount of input, compute hydrologic basin data such as time of concentration, curve number, and infiltration parameters
- Industry standard equations for computing sub-basin lag times and times of concentration are included with WMS
- Add any number of interior outlet points and let WMS subdivide the watershed automatically
- Manipulate stream networks to represent man-made features or proposed changes to the watershed
- Override derived basin boundaries to match your knowledge of the watershed



Support for most industry standard hydrologic models

- A license of WMS Floodplain or greater includes an interface for the following industry standard hydrologic models:
  - HEC-1
  - HEC-HMS
  - TR-20
  - TR-55
  - Rational Method
  - MODRAT
  - OC (Orange County, California) Rational
  - OC Hydrographic
  - HSPF
  - National Streamflow Statistics
  - Convert and compare the results of a watershed developed for one model with any of the other models supported in WMS
  - Read and compare observed hydrographs with computed hydrographs



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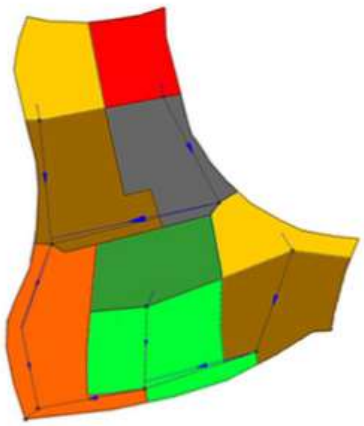
Hydraulic modeling & floodplain mapping

- Define a stream centreline and bank stations
- Define cross section locations
- Automatically cut cross sections and derive Manning's roughness values from elevation and ground material data
- Export cross sections to the HEC-RAS or Simplified Dam Break hydraulic models
- Run the hydraulic model and read the water elevations back into WMS
- Read water surface elevation data from a hydraulic model or manually input known water surface elevations
- Create flood extents and flood depth maps using digital terrain data and water surface elevation data points
- Link the peak flow or complete hydrograph from any of the WMS-supported hydrologic models to an HEC-RAS hydraulic model

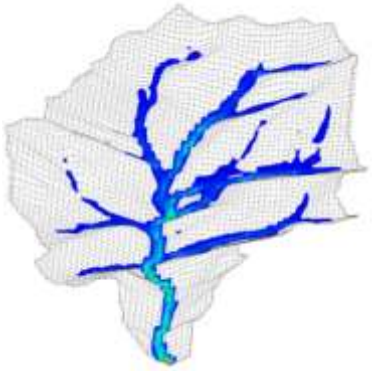
Storm drain modeling

- Draw a storm drain network or import a network from GIS
- Compute elevations, lengths, and slopes of pipes from underlying elevation data
- Link the storm drain network to your hydrologic model data
- Export the hydrologic model data and the storm drain network to EPA-SWMM or XP-SWMM
- Import existing EPA-SWMM or XP-SWMM files into WMS



2D (Distributed) hydrology

- WMS supports 2D models:
- The US Army Corps of Engineers (USACE) GSSHA model
- The HMS version of the quasi-distributed MODClark method
- Flood forecasting (depth and velocity over entire 2D domain)
- Thunderstorm (localized rainfall) flood analysis
- Surface ponding and infiltration analysis
- Wetland modeling
- Land use change impact modeling
- Groundwater/surface-water interaction modeling
- Sediment and contaminant modeling



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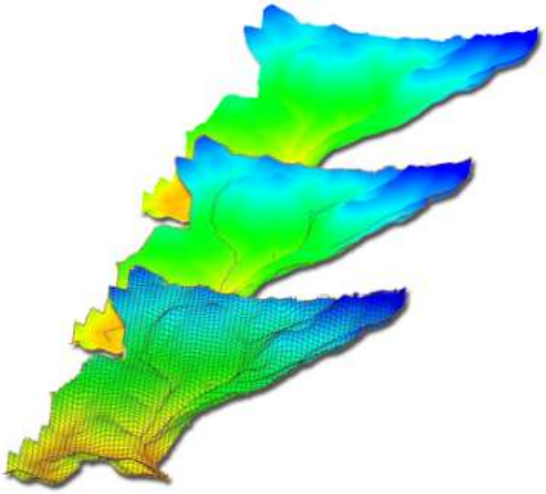
Import what you need

- USGS DEMs - download and use any format of DEM from the USGS
- USGS NED data - seamless elevation data can be downloaded and read into WMS
- ArcGIS Raster (ASCII format) - read elevation or attribute data in gridded format from ArcGIS
- ESRI Shape files - read all shapes and attributes into WMS
- DXF and DWG CAD files - WMS now supports the latest versions of DXF and DWG
- TIFF, JPEG image files - /images along with geo-referencing information can be read by WMS
- Any data supported by ArcGIS can be read into WMS (ArcGIS license required, compatible with ArcGIS 10.0)



View a complete list of raster, DEM, and vector file types supported by WMS.

Software from an Industry Leader

- WMS is developed by Aquaveo, an engineering services company with many years of experience developing watershed modeling solutions.
- Step-by-step tutorials and how-to videos
- Online community forum and product documentation
- Phone and email technical support
- Regularly scheduled training courses taught by expert modelers
- On-site training available
- Professional consulting services

WMS 11.2 System Requirements

- **Operating System**: Windows 10
- **RAM**: 16GB or more recommended
- **CPU**: WMS software is CPU intensive. Some models and utilities integrated with WMS can take advantage of multiple processor cores simultaneously. We recommend the fastest CPU your budget allows.
- **Storage**: Recommended storage amount will vary depending on individual data requirements. Latest versions of WMS are very disk I/O intensive.
  - Mechanical hard drive: Basic performance
  - SATA solid state drive: Better performance
  - NVMe solid state drive: Best performance
- **Graphics**: A dedicated graphics card is better than integrated graphics. A basic or mid-range nVidia card designed for gaming works best.
- **Display Resolution**: 1920 x 1080 or greater

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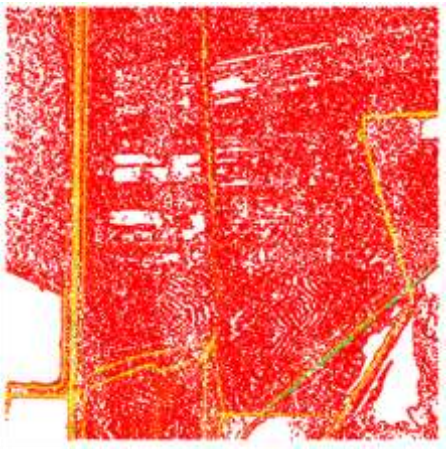
What's new in WMS 11.2

The following is a list of the more significant changes and new features available in WMS 11.2.

LIDAR Management

WMS 11.1 now supports advanced LIDAR data handling tools for reading, viewing, and converting LIDAR data to other formats for use with your model. Large LIDAR datasets are efficiently displayed with options to specify the number of points visualized and exclude points outside the extent. WMS 11.1 supports LIDAR data in both Point Cloud and Elevation grid formats and supports converting Point Clouds to Elevation grids

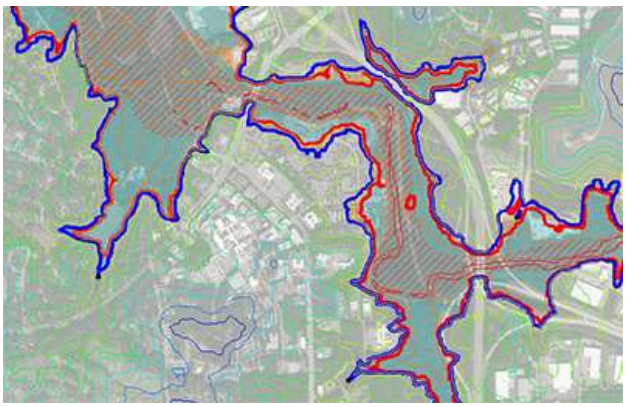


HEC-RAS and HEC-HMS Updates

The most recent versions of HEC-RAS (v5.0.3) and HEC-HMS (v4.2.1) are now supported in WMS11.1. Importing HEC-RAS GIS (*.sdf) files is now faster and easier to use. Managing and editing cross section databases for HEC-RAS is now easier in WMS. A new dialog is available for selecting, managing, and editing cross sections and cross section databases.

New Map Flood Tool & Floodplain Delineation

A new map flood tool is available to define a vertical offset from a 100-year floodplain map for analyzing extreme flood scenarios. Modified floodplain maps can be used to determine the impacts of extreme weather and flood scenarios on existing and proposed roadways and other structures. Floodplain delineation in WMS 11.1 is now streamlined and much faster than in previous versions - in many cases by a factor of 10.



Worldwide Elevation Data

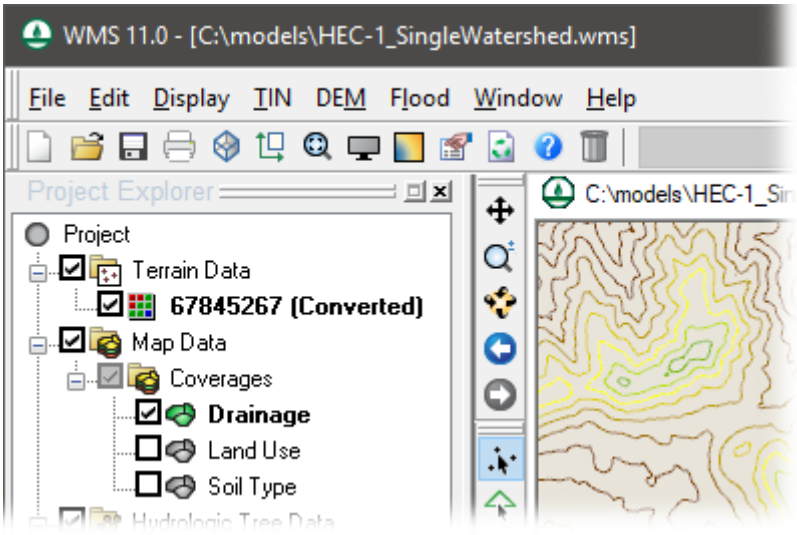
WMS now supports Amazon Terrain Tiles providing high resolution elevation data for the entire world with resolutions as high as 3 meters per pixel.

LandXML Import & Export

Support for reading and writing LandXML files from the hydraulic modeling module for the SWMM, HY12, and EPANET models has been added.

Graphics Enhancements

High resolution displays caused icons and text in older versions of WMS to render very small. WMS now detects your display resolution and appropriately sizes icon bitmaps and fonts. Icons may also be sized manually in the Preferences dialog. Additionally, a multisampling level tool has been added for adjusting the anti-aliasing of graphics.



GSSHA Updates

The most recent version of GSSHA (v7.12) is now supported in WMS 11.1.

New & Updated Tutorials

All tutorials for WMS 11.1 have either been re-written or are newly released. As always, our comprehensive tutorials are free to download and provide step-by-step instruction on using WMS. Downloaded tutorials at the WMS Learning Center