

WASHINGTON MASTER ADDRESSING SERVICE (WAMAS)

<https://ocio.wa.gov/initiatives/washington-master-addressing-services-wamas>

10/11/16

Basic

Q: What services are available from WAMAS?

A: The toolbox consists of the following:

- Correct an address to USPS standard format;
- Add coordinates to an address so it can be displayed and viewed on a map; and
- Locate an address in the correct boundary area like voting and taxing districts and many other important jurisdictions.

Q: What are the API components of WAMAS?

A: WAMAS consists of 4 constituent parts and are offered as http or https:

1. Address correction service (ACS) <https://state-wamas.wa.gov/addresscorrection/service.asmx>
2. Geocoding service (GCS) <https://state-wamas.wa.gov/geocoder/service.asmx>
3. Geometry service (GMS)
<http://state-geoservices.wa.gov/wamas/rest/services/Utilities/Geometry/GeometryServer>
4. Location Finder Service (LFS) <http://geoservices.wa.gov/ArcGIS/rest/services/MapServices>

Geocoder Service

Pointing at 10.3 locators on the test WAMAS AGS server

Excel Add-in

Using the address correction, geocoder, and ECY location finder services in test:

ftp://ftp.doh.wa.gov/geodata/layers/excel_addressing.zip

Batch Processing

Under development

Q: Where can I find documentation for the APIs?

A:

Address correction service (ACS)

ftp://ftp.doh.wa.gov/geodata/layers/Address_Correction_UserGuide.pdf

Geocoding service (GCS)

ftp://ftp.doh.wa.gov/geodata/layers/Geocoder_UserGuide.pdf

Location Finder Service (LFS)

ftp://ftp.doh.wa.gov/geodata/layers/Location_Finder_Identify_Example.pdf

Q: How do I connect to services within the SGN? (see below for a full list of connection points)

A: Inside the SGN you should be able to browse these services:

<https://state-geoservices.des.wa.gov/arcgis/rest/services> (10.4 with Image Services)

<https://state-geoservices.des.wa.gov/wamas/rest/services> (10.4 with NavTeq Locators)

From ArcCatalog, connect GIS Servers to these:

<https://state-geoservices.des.wa.gov/arcgis/services> (10.4 with Image Services)

<https://state-geoservices.des.wa.gov/wamas/services> (10.4 with NavTeq Locators)

Q: When did testing of WAMAS occur?

A: The WAMAS services were first announced for agency test usage in April 2013.

Q: Have agencies been using the services while in development?

A: Yes, a number of agencies and their contractors have successfully been using a variety of the API services internally and externally. These agencies include Legislative Services, DOH, ECY, DOR, OFM, WDFW, DEL, and others.

Q: Did Washington look to see how other states were handling statewide addressing efforts?

A: Yes, we initially looked at the efforts in New York, Massachusetts, Utah, and Colorado in 2012-13.

Access

Q: How do I gain access to the WAMAS APIs?

A: Access to these services is made available by submitting a request to have your IP address or IP segment added to the WAMAS Whitelist. Access forms can be found at the [WAMAS](#) website.

Q: How do I determine my IP Address for my computer?

A: You will need to provide your public facing IP address (NAT IP) for WAMAS to work. If it's a standalone PC, Google "What is my IP". If it's on a city, county, or state agency network, ask your IT staff for assistance with identifying your IP address or segment.

Data and Database

Q: Does WAMAS use the US Postal Service (USPS) database, and are the results CASS certified?

A: Yes, WAMAS uses the USPS database. We receive quarterly updates via our unlimited, statewide license of Melissa Data, <http://www.melissadata.com/>. Melissa is similar to other vendor products on the market.

Addresses coming out of WAMAS are USPS compliant, but the system doesn't process bulk mailings, bar codes, etc. It prepares your data so that when you send it to printing, the hard work is done and your data is in great shape.

Q: What are the possible Quality Descriptions and Result Codes that the address verification service returns?

A: A link to valid codes can be found at:

http://wiki.melissadata.com/index.php?title=Result_Codes

Q: Geocoding with the FGDC Address Standard

A: ArcGIS version 10.3 is close but not completely supportive of the full sub-address standard.

When you look at the standard, there are a pair of columns dedicated to Modifiers in the Pre and Post areas of the street name structure that currently require users to concatenate fields to use the new locator format.

Q: What is the difference between the FGDC Addressing Standard and the proposed NENA Addressing Standard?

A: There are two clarifications with regards to the NG911 GIS Data Model:

1. The NENA Civic Location data exchange Format (CLDXF) Standard (<https://www.nena.org/?NG911CLDXF>) followed the FGDC standard and adopted the fully spelled out versions of field values. To stay in compliance with the CLDXF Standard, the NG9-1-1 GIS Data Model requires field values to also be fully spelled out.
2. Recognizing the need for backwards compatibility with existing 9-1-1 systems, the NG9-1-1 GIS Data Model does allow for three additional fields that use abbreviated values (PreDirectional, PostDirectional, Post Type).

In the documents provided with the public review of the FGDC standard, there is basically one substantial update being proposed: the inclusion of a "Map Position" attribute that is similar to the new "Placement Method" attribute in the GIS Data Model.

Q: What databases were pulled together to form the initial state master address file (MAF)?

A: Addresses were pulled initially from Voter Registration, DOR, Drivers Licenses, county parcels, and other general government databases. All data was compiled, and a de-duplication process was run before the initial MAF was created. We are continuing to improve the MAF by updating it on a regular basis.

Q: How many addresses were actually processed during the creation of the initial MAF?

A: During initial processing, 13.5 million addresses were processed and combined. Of that number, many were duplicates rather than actual unique addresses. For example, one sample area in the 98512 zip code went from 17,524 records to 5,231 after de-duplication and consolidation. We are continuing to improve the MAF on a regular basis.

Q: Is more accurate address information contained within WAMAS?

A: Yes, county, city, and some tribal address information have been moved into WAMAS.

Q: What is the plan to keep this information up-to-date?

A: WAMAS has been funded for development only at this time. Once funding to move these services into production is found, a more formal update routine will be implemented. While WAMAS is in development and is pre-production, periodic updates of address data will be made using the FME routines that have been developed.

Q: Are there visual ways to improve an address location or is a mapping tool available for use?

A: Yes, a web-based application has been developed to assist users in viewing and improving an address location. The tool has yet to be hosted on the development servers. Please contact Joy Paulus for more information.

Application

Q: How can I consume these services?

A: They can be consumed from web, desktop, server, and mainframe applications and can be accessed here:

http://state-geoservices.wa.gov/wamas/rest/services/MapServices/Districts_GPservice/MapServer

https://state-geoservices.wa.gov/wamas/rest/services/MapServices/Districts_GPservice/MapServer

Q: What location-based data are returned with an address?

A: There are several pieces of distinct geography returned in an XML or JSON response.

- NHD Flowlines
- CENSUS Data
- Cities/Urban Growth Areas
- Counties
- Major Public Lands
- NHD Waterbodies
- Puget Sound Action Areas
- Township/Range/Section
- Tribal Lands
- Water Resource Inventory Areas
- Watershed Administration Units
- Wellhead Protection Zones (6 month/1 year/5 years/10 years)
- Zip Codes
- Sound Transit RTA Boundary
- Game Management Units
- School Districts

Q: What is the Point/Location Type Hierarchy?

A: This approach favors point locations vs interpolated locations along streets.

AddressPointType_ID	AddressPointType_Name
1	Post Offices
2	MAF (door, buildings, driveways)
3	NavTeq Commercial Points
4	NavTeq Commercial Streets
5	CENSUS TIGER 2010
6	CENSUS TIGER 2006
7	City Centers
8	5 Digit zip codes
9	NavTeq Commercial Street Centers
10	NavTeq Commercial Zip+4 Centers

Developers

Q: What data and software are used in WAMAS?

A: The following 3rd party data are used: Melissa and StreetMap Premium. The application software consists of: SQLServer, ArcGIS, and FME used in the testing and production environments.

Q: Is there an example of WAMAS output that I can review?

A: Yes, see attached.



wamas_output.xlsx

Q: Is there user friendly address output?

A: Yes, see the attached file containing the fix, a KMZ file for Google Earth, the output geodatabase, and a map.



wamas_output_test.zip

WAMAS Batch Addressing

Q: What is the best way to determine the accuracy of the address correction/standardization?

A: The best way to determine the accuracy of the address correction/standardization is to use the acResultCodes column. In general, a code that starts with AS indicates that the address was found; a code that starts with an AE indicates that there was an error with the address; and a

code that starts with AC indicates that there were corrections made to the input address.
Current list: http://wiki.melissadata.com/index.php?title=Result_Codes

Q: Who will email me when a batch job is complete?

A: You will receive an automated email from 'no.reply.wamas@watech.wa.gov'

Q: Where can the WAMAS batch tool be accessed?

A: The WAMAS batch tool can be accessed at:
<https://state-wamas.wa.gov/resources/WAMAS/fileupload>
For test data on how address data is corrected, see:
<https://state-wamas.wa.gov/resources/WAMAS/ac>

Q: How fast are the address correction and geocoding processes?

A: Throughput for address correction is roughly 900 records/second or 3.2 million/hour. Adding geocoding to the job drops the throughput down to roughly 75 records/second or 250,000/hour. If possible, hold off on large geocode jobs until the weekend as processing is done First In, First Out.

Q: How many files can WAMAS process at once?

A: You can upload multiple files which will be processed first in, first out. Currently only one file at a time is processed. There are plans to increase the number of files processed.

Q: Do you plan to do like a workshop, class, training here at WaTech?

A: It has yet to be determined if/when there will be WAMAS training at WaTech.

User Step-by-Step Directions

Q: How do you use the batch tools?

A: An example workflow is listed below. What is returned in the output file depends on the options selected.

1. Go to the WAMAS web page:
<https://ocio.wa.gov/programs/geospatial-program-office/washington-master-addressing-services-wamas>
2. Download and read the Batch Tool User Instructions:
<https://ocio.wa.gov/sites/default/files/BatchToolUseInstructions.docx>
3. Create an Excel file with the required column header format (see attached template)
4. Example: I downloaded a list of Washington licensed contractors from data.wa.gov.
5. I copied the address information to the corresponding columns of the Excel file
6. I saved the Excel file as CSV (comma-delimited)
7. I renamed the file with a “.txt” extension
8. I created a bookmark for the WAMAS geocoder service page:
<http://state-wamas.wa.gov/geocoder/service.aspx>
9. I dragged the bookmark to the desktop to make a shortcut
10. I created a bookmark for the batch tool uploader page:
<https://state-wamas.wa.gov/resources/WAMAS/fileupload>
11. I went to the uploader page, selected my .txt file, entered my email address, chose my processing options, and clicked submit
12. I received confirmation that my file had been received and that I would receive an email when processing had finished
13. I received an email with a link from no.reply.wamas@watech.wa.gov
14. I clicked the link in the email and downloaded the .zip file
15. I opened the .zip file in Windows Explorer
16. I double-clicked the file with “_out” at the end of it and opened the results in Excel
17. I found my X/Y coordinates in the gcXCoord/gcYCoord columns (longitude/latitude, decimal degrees, WGS84)

Example template:



WAMAS_BatchTable.x

lsx

Batch File Information & Structure

The file should be a text file with a .txt extension. Within the file, each individual address record should be on a line with commas separating each element (comma-delimited). In the case where an element already has a comma, enclose the element in quotation marks.

You can use Microsoft Excel or Microsoft Access to generate the batch file.

- **Databaseld** - Information to link the output data back to your database. *Leave blank if not available.*
- **Company/Last Name** - If provided, the service will attempt to resolve the unit number for the address. *Leave blank if not available.*
- **Address1** - Street number and name (including pre-directional and/or post-directional, and suffix/street type) or Post Office box number.
- **Address2** - Secondary address unit designator and number (such as apartment or suite number). If address1 can be verified, address 2 will not be processed (unless it contains unit information). If address 1 cannot be verified, then address2 will be processed and if verified, will be swapped with address1.
- **City** - The city for the address.
- **State** - The state for the address.
- **Zip Code** - The Zip code for the address
- **Plus4** - The Plus4 for the address

Optional Job Parameter File

Allows per batch changes to default settings. This file is only needed if you need to change the default settings. The file should be named the same as your batch file with `_job.txt` appended to the end. For example, if your batch file is named `test.txt`, the job parameter file would be named `test_job.txt`.

The parameter and options are:

- Quality
 - **Good** - runs the fastest, but only basic checks and corrections are performed.
 - **Better** - this is the default. Runs slower than Good, but more checks are performed.
 - **Best** - runs the slowest. If you have business or customer names in your batch file, this option can validate units and suites.
- Result
 - **Terse** - This is the default. Only the result codes are returned.
 - **Verbose** - a description of the result code is returned with the result codes. Dramatically increases the batch output file size.
- Abbreviations
 - **Yes** - this is the default. Address standardizations are returned with abbreviations for pre and post directionals, the street type, and units.
 - **No** - address standardizations are returned with pre and post directionals, the street type, and units non-abbreviated.
- Functions
 - **ac** - this is the default. Input addresses will only be standardized and corrected.

Batch Process Your File

- Go to the Batch File Upload page: <https://state-wamas.wa.gov/resources/WAMAS/fileupload>

Complete the form and select your data file.

- After you click the “Upload File” button, you’ll see a confirmation message at the top of the screen. A few minutes later you’ll receive an email with a link to a web page where you can download a .zip file.
- Open the .zip file from your browser’s downloads folder and find the output file – it’s the one with “_out” at the end of your data file’s name.
- Save the new file in a convenient location where you can work on it (the download is probably in a temporary folder that will go away).

Review Output

From the Input File - All fields prefixed with “in”

- **inDatabaseId** - The input database identifier.
- **inCompany** - The input company or resident's last name.
- **inAddress1** - The input address line 1
- **inAddress2** - The input address line 2
- **inCity** - The input city name.
- **inState** - The input state
- **inZip** - The input ZIP code
- **inPlus4** - The input Plus4

From the Address Correction Service - All fields prefixed with “ac”

- **acCompany** - The output company or resident's last name. Note: This value is not changed from the input.
- **acAddress1** - The corrected and/or standardized address line 1.
- **acAddress2** - The output address line 2.
- **acCity** - The corrected and/or standardized city name.
- **acState** - The corrected and/or standardized state.
- **acZip** - The corrected ZIP code.
- **acPlus4** - The corrected Plus 4.
- **acCounty** - The county of the address.
- **acCountyFips** - The county FIPS code of the address.
- **acNumber** - The parsed address number.
- **acPreDir** - The parsed pre street directional.
- **acStreetName** - The parsed street name.
- **acStreetType** - The parsed street type.
- **acPostDir** - The parsed post directional.
- **acUnitNum** - The parsed unit number.
- **acUnitType** - The parsed unit type.
- **acAddressType** - The type of address that was corrected. Common values would be Highrise, Street, and PO Box.
- **acRBDI** - Identifies if an address is considered a residential or business address.
- **acGarbage** - Information that was not considered from the street address.
- **acFound** - Flag to indicate whether the submitted address was found or not.
- **acStatusCodes** - Long description of status codes returned from the service. Only populated if result,verbose option set in parameters file.

- **acErrorCodes** - Long description of error codes returned from the service. Only populated if result,verbose option set in parameters file.
- **acChangeCodes** - Long description of change codes returned from the service. Only populated if result,verbose option set in parameters file.
- **acResultCodes** - All codes returned from the service. Download the code definitions.

From the Geocode Service - All fields prefixed with “gc”

- **gcAddress1** - Address that was returned from the geocode service. Note: This might be different than the acAddress1.
- **gcCity** - The city name returned from the geocode service.
- **gcState** - The state returned from the geocode service.
- **gcZip** - The ZIP code returned from the geocode service.
- **gcPlus4** - The Plus 4 returned from the geocode service.
- **gcNumber** - The parsed address number.
- **gcPreDir** - The parsed pre street directional.
- **gcStreetName** - The parsed street name.
- **gcStreetType** - The parsed street type.
- **gcPostDir** - The parsed post street directional.
- **gcUnitNum** - The parsed unit number.
- **gcUnitType** - The parsed unit type.
- **gcXCoord** - The longitude returned for the address referenced to the [World Geodetic System \(WGS\) 84](#).
- **gcYCoord** - The latitude returned for the address referenced to the [World Geodetic System \(WGS\) 84](#).
- **gcLocatorName** - The name of the locator used that supplied the gcXCoord and gcYCoord values. Refer to gcGrade for more information about the locators.
- **gcGrade** - The grade of the locator used. Higher grades do indicate higher quality address information. A “C” or better indicates that the point represents an actual address. A “D” or worse indicates that the point represents either the ZIP+4, ZIP Code or city and you might need to look at improving the address to improve the grade.
 - “A” = X/Y Coordinate is from the Washington State Master Address File (MAF). Currently not available!
 - “B” = X/Y Coordinate is from Navteq Point Addresses
 - “C” = X/Y Coordinate is from Navteq Street Addresses or Parcels
 - “D” = X/Y Coordinate is from Navteq ZIP+Plus4
 - “E” = X/Y Coordinate is from Navteq ZIP Codes
 - “F” = X/Y Coordinate is from Navteq City/Place.
- **gcScore** - Relative score returned from the locator. A higher score here only represents a better match within the locator or grade. Another way to visualize this is if you have a gcScore = 90 and a gcGrade = B you could think of it as a B+.
- **gcWAMASId** - Not presently populated, but will be in the future. If the address was found in the Master Address File (MAF), a unique identifier is returned. This unique identifier can be stored in

your database. In the future, it will be possible to use the WAMAS ID to get updates for the address.

- **gcResultCodes** - All codes returned from the service.
- **gcStatusCodes** - Long description of status codes returned from the service. Only populated if result,verbose option set in parameters file.
- **gcErrorCodes** - Long description of error codes returned from the service. Only populated if result,verbose option set in parameters file.

Things to Be Aware Of

Uncommon, but be aware that some applications, including Microsoft Excel, can embed a line feed in a field. The batch program views this as a new line and will process your single record as two records.