iWay Software How-to's



Installing and Running a Data Quality Loqate Standard Address Application

This topic describes how to install and run a Data Quality (DQ) Loqate Standard Address application. It includes the following topics:

- <u>Prerequisites</u>
- Installing Logate
- Installing the Address Data
- Configuring Data Quality Runtime
- Configuring the Data Quality Scoring Plan
- Understanding Logate License Expiration
- <u>Troubleshooting Install Manager Downloads</u>
- Additional Resources

Prerequisites

This section summarizes the prerequisites that are required before using the DQ Loqate Standard Address application. A basic knowledge of building and running DQ plans is assumed.

The DQ Loqate Standard Address application requires:

- iWay Data Quality Server (DQS) GUI or iWay Integration Tools (iIT) with DQ plugins.
- A Logate license.
- A sample DQ plan, which you can download from:

http://techsupport.ibi.com/iway_patch/Logate/LOQATE_SCORING_2016.zip

- The latest Loqate installation, which can be downloaded from the following HTTP or FTP download sites:
 - o HTTP Download Access: https://updates.gbgplc.com
 - SFTP Download Access: sftp://updates.gbgplc.com

To obtain the login credentials (user name and password) for the Loqate download site, contact *Information Builders Customer Support*.

Once you have logged in to this FTP site, you must navigate to the following folder to download the executable files:

/2019Q1.0/AppInstaller

Note: Updates to the Loqate installation are made every quarter. It is recommended to download the latest available version.

| (a) https://updates.gbgplc.com/#/2019Q1.0/AppInstaller/ | | | | |
|---|--|--|--|--|
| File Edit View Favorites Tools Help | | | | |
| 😨 Web Transfer Client | | | | |
| ™globalscape® | C My Folders / 2019Q1.0 / AppInstaller | | | |
| 2017Q3.1 | Name 🔺 | | | |
| 2017Q4.0 | Applactaller.md5.tvt | | | |
| 2017Q4.1 | | | | |
| 2018Q1.0 | loqate_installer_aix | | | |
| 2018Q1.1 | Ioqate_installer_aix6 | | | |
| 2018Q2.0 | | | | |
| 2018Q2.1 | loqate_installer_aix72 | | | |
| 2018Q3.0 | loqate_installer_hpux | | | |
| 2018Q3.1 | logate installer solaris x86 | | | |
| 2018Q4.0 | | | | |
| 2018Q4.1 | loqate_installer_sparc | | | |
| 2019Q1.0 | loqate_installer_x86 | | | |
| AppInstaller | | | | |
| CSGi | Ioqate_installer_x86-cpp5 | | | |
| Rawfiles | Ioqate_installer_x86_64 | | | |
| Rawfiles_Single_Threaded | | | | |
| STAppInstaller | setup.exe | | | |
| Archive | setup_64.exe | | | |
| Latert | | | | |

Notes:

- The standard installer for Windows platforms is *setup_64.exe*.
- The standard installer for Linux platforms is *loqate_installer_x86_64*.

Installing Loqate

The installation of Loqate consists of two parts (installing the Loqate application and then installing your address data).

- 1. Run *setup_64.exe*.
- 2. Ensure Java API and Install Manager are selected in the Setup dialog, as shown in the following image.



Notes:

- The Java API option installs the required .jar and .dll files for Loqate, which are 64-bit.
- The *Install Manager* option provides the *InstallManager.bat* file, which is used to download your address databases, also known as Global Knowledge Repositories (GKRs).
- 3. Click *Next* to continue.

The Choose Destination Location pane is displayed, as shown in the following image.

| Choose Destination Location | |
|---|------------------------|
| Where should Logate be installed? | |
| Setup will install Logate in the following folder. | |
| To install to this folder, click Next. To install to a different folder, click Bro folder. | wse and select another |
| - Dectination Folder | |
| Destination Folder | |
| D:\LOQATE\2017Q1 | Browse |

4. Select an appropriate root installation directory for Loqate on your file system.

The following key files (highlighted) are installed in the specified Loqate installation directory, as shown in the following image.



Note: Your Windows system *Path* environment variable is updated automatically to include your Loqate installation directory, as shown in the following image.

| õystem variables | |
|--------------------------|------------------------------------|
| Variable | Value |
| JAVA_HOME NUMBER_OF_P | C:\Program Files\Java\jdk1.8.0_111 |
| OS | Windows_NT |
| Path | D:\LOQATE\2017Q1;%JAVA_HOME%\ |
| | New Edit Delete |

This is required so an application (for example, iWay Data Quality Server) can find the Loqate .dll files.

| Setup | | × |
|--------|--|---|
| LORATE | Data Installation | |
| | To install data, run D:\LOQATE\2017Q1\InstallManager.bat. The Install Manager requires a java runtime version of at least Java 6. A dedicated JRE has been installed in D:\LOQATE\2017Q1\jre6. To use a locally installed JRE instead please edit the InstallManager.bat file. | |

Installing the Address Data

This section describes how to install the address data (Global Knowledge Repository data).

1. Navigate to the location on your file system where the Loqate application is installed and run the *InstallManager.bat* file (using the *Run as administrator* option).

A Welcome message/dialog is displayed, as shown in the following image.



2. Click Next.

The Select data install folder dialog is displayed, as shown in the following image.

| 🛓 Select data install folder | |
|------------------------------------|-------------------------------|
| Look in: 📑 data | A C B B E |
| Folder name: D:\LOQATE\2017Q1\data | |

3. Select a directory on your file system where the address data files will be installed.

Note: This is the same directory path that your Data Quality (DQ) Plan Loqate steps must point to.

4. Click Next.

The Enter License Information dialog is displayed, as shown in the following image.

| Installation Manager v6.0.0 | × | | |
|--|---|--|--|
| Enter License Information Please enter your license key or specify the location of your license pack. | | | |
| I have a license key | | | |
| enteryourLogatelicensekeyhere | | | |
| ○ I have a license pack | | | |
| Not selected yet Select | | | |
| < Prev Next > Finish Cancel | | | |

5. Enter your Loqate license key in the corresponding field.

Note: Customers are provided with a Loqate License key by iWay licensing/support, after a *Loqate License Request* form is submitted and processed.

After the Loqate license server is contacted (which requires internet access), a list of your specific entitlements will be displayed, as shown in the following image.

| Installation Manager v8.0.0 | |
|---|-------------|
| License Details | |
| Please review the details of your license bel | ow. |
| Product | Expiry Date |
| Knowledge Base Common | 2017-12-31 |
| Worldwide Geocode Dataset | 2017-12-31 |
| Worldwide Verify Dataset(O) | 2017-12-31 |
| USA Verify Dataset CASS | 2017-12-31 |
| USA Enhance CENSUS Dataset | 2017-12-31 |
| CASS Library | 2017-12-31 |

Note: If you receive an error stating the license is invalid, this may be due to a network, system environment, or security issue. On Windows 10, ensure that you run the *InstallManager.bat* file (using the *Run as administrator* option).

6. Select a directory on your file system where you want to download the data packs, as shown in the following image.

| 🛓 Select data pack download folder | × |
|--|----------|
| Look in: 🗖 download 🔻 🖬 🛱 🗖 🐯 | D— D— |
| Folder name: D:\LOQATE\2017Q1\download | |

The data packs are packaged as .zip archive files and can be downloaded to any location. The data packs are then uncompressed into the *data* subfolder of your Loqate installation.

7. You must select and download the *Knowledge Base Common* data pack, as shown in the following image.

| Installation Manager v8.0.0 | | × |
|-----------------------------|------------|----------|
| Data Pack Selection | | |
| Select required data packs. | | |
| Product | Release | Selected |
| Kazakhstan Verify Dataset | 2016-10-11 | |
| Kenya Geocode Dataset | 2016-10-11 | |
| Kenya Verify Dataset | 2016-10-11 | |
| Knowledge Base Common | 2016-12-11 | ✓ |
| Kuwait Geocode Dataset | 2016-10-11 | |

A list of all your licensed countries appears, as shown in the following image.

| Installation Manager v8.0.0 | | | | |
|----------------------------------|-----------------|-------------------|----------|---|
| Upgrade Options | | | | |
| Select the options to upgrade to |). | | | |
| Product | Current Release | Available Release | Selected | |
| Turkey Verify Dataset | | 2017-01-11 | | - |
| USA Enhance CENSUS Data | | 2016-01-07 | ~ | |
| USA Geocode Dataset | | 2017-01-11 | ~ | |
| USA Geocode1 Dataset | | 2017-01-11 | ~ | |
| USA Geocode2 Dataset | | 2017-01-11 | ~ | |
| USA Geocode3 Dataset | | 2017-01-11 | ~ | |
| USA Verify Dataset | | 2017-01-11 | ► ► | |
| Uganda Geocode Dataset | | 2017-01-11 | | |
| Uganda Verify Dataset | | 2017-01-11 | | |
| Ukraine Geocode Dataset | | 2017-01-11 | | |
| Ukraine Verify Dataset | | 2017-01-11 | | |
| | i III | 0017-01-11 | | ĺ |

8. Select the individual products that you want to download at this time (or click the *Select All* check box).

| Installation Manager v8.0.0 | | | × |
|---|--------------------|----------------------|------------|
| Certification Upgrade Options | | | |
| | | | |
| Product | Current Release | Available Release | Selected |
| CASS Library (Linux 64) | | 2016-09-11 | |
| CASS Library (Windows 32) | | 2016-09-11 | |
| USA Verify Dataset CASS | | 2016-11-22 | ~ |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| You are running this Install Manager on Windows 64 | | | |
| The compatible library / data are pre-se | lected. | | |
| You may still extract the other platform packs.However only the compatible library / data will be placed in the API installation / data installation folders respectively. | | | |
| Required disk space A | wailable disk spac | e: 855.6 GB [| Select All |
| For Download: 7.8 GB | Com | v download URLs to c | lipboard |
| For Install: 13.2 GB | | | |

Note: If you already have data packs in your download directory, you may not be presented with an option to download them again (if they are already up to date). If you want to override this behavior, then delete the existing data packs (.lfz files) in the download directory.

9. Click Next.

The selected data packs are downloaded, as shown in the following image.



Note: This process may take some time to complete depending on the number of data packs that have been selected for download.

When the download process has finished, the *data* subfolder of your Loqate installation contains a number of .lfs files, which correspond to each downloaded data pack, as shown in the following image.

| - |]] → iwayjeff7 → OS (C:) → loqate → data → | _ | |
|---|--|---------------------|-----------|
| | 🔹 词 Open 🛛 Include in library 👻 Share wit | h ▼ Burn New | / folder |
| | Name | Date modified | Size |
| | 퉬 ams | 8/13/2015 5:24 PM | |
| | context.lfs | 8/13/2015 5:34 PM | 52 KB |
| | country.lfs | 8/13/2015 5:34 PM | 54 KB |
| | DSEUSAC_manifest.properties | 8/13/2015 5:24 PM | 1 KB |
| | DSGUSA_manifest.properties | 8/13/2015 5:30 PM | 1 KB |
| | DSGUSA1_manifest.properties | 8/13/2015 5:33 PM | 1 KB |
| 5 | DSGUSA2_manifest.properties | 8/13/2015 5:34 PM | 1 KB |
| | DSGUSA3_manifest.properties | 8/13/2015 5:30 PM | 1 KB |
| | DSVUSA_manifest.properties | 8/13/2015 5:37 PM | 1 KB |
| | DSVUSAC_manifest.properties | 8/13/2015 5:24 PM | 1 KB |
| | format.lfs | 8/13/2015 5:34 PM | 63,979 KB |
| | KBCOMMON_manifest.properties | 8/13/2015 5:34 PM | 1 KB |
| | license.lfs | 8/14/2015 12:44 PM | 46 KB |
| ۲ | 🛍 loqate.ini | 8/13/2015 5:34 PM | 5 KB |
| | Lx_AA.Ifs | 8/13/2015 5:34 PM | 94 KB |
| | Lx_AS.Ifs | 8/13/2015 5:34 PM | 1 KB |
| | Ix_DEU.Ifs | 8/13/2015 5:34 PM | 7 KB |
| | Ix_ESP.Ifs | 8/13/2015 5:34 PM | 154 KB |
| | Lx_FRA.Ifs | 8/13/2015 5:34 PM | 77 KB |
| | k_GU.lfs | 8/13/2015 5:34 PM | 8 KB |
| | k_ITA.lfs | 8/13/2015 5:34 PM | 4 KB |

If you have licensed and installed US/CASS, it will be installed in the *ams* subfolder of your Loqate installation (not required for this how-to).

| Ivayjeff7 ► OS (C:) I | loqate 🕨 data | ▶ ams ▶ | é | |
|--|---------------|---------|--------------------|---|
| Include in library | Share with 🔻 | Burn | New folder | |
| Name | * | | Date modified | S |
| 📄 z4cxlog.dat | | | 8/14/2015 11:29 AM | |
| 퉬 suitelink | | | 8/13/2015 5:24 PM | |
| 퉬 rdi | | | 8/13/2015 5:22 PM | |
| 퉬 lacslink | | | 8/13/2015 5:22 PM | |
| 퉬 ews | | | 8/13/2015 5:22 PM | |
| 퉬 ams_elot | | | 8/13/2015 5:22 PM | |
| 퉬 ams_dpv | | | 8/13/2015 5:21 PM | |
| 퉬 ams_comm | | | 8/13/2015 5:21 PM | |
| | | | | |

Note: To save space, you can delete the data pack.Ifz files in your download directory. A complete US data pack download with geocode and CASS is 8GB.

| iwayjeff7 | | | | | |
|---|-------------------|--------------|--|--|--|
| Include in library 👻 Share with 👻 Burn New folder | | | | | |
| Name | Date modified | Size | | | |
| KBCOMMON_7856_20150707_64.lfz | 8/13/2015 5:06 PM | 45,176 KB | | | |
| DSVUSAC_5930_20150807_2993.lfz | 8/13/2015 5:16 PM | 1,835,149 KB | | | |
| DSVUSA_5985_20150707_3898.lfz | 8/13/2015 5:17 PM | 2,069,074 KB | | | |
| DSGUSA3_5985_20150707_1.lfz | 8/13/2015 5:05 PM | 1 KB | | | |
| DSGUSA2_5985_20150707_1155.lfz | 8/13/2015 5:17 PM | 576,354 KB | | | |
| DSGUSA1_5985_20150707_2672.lfz | 8/13/2015 5:16 PM | 1,780,865 KB | | | |
| DSGUSA_5985_20150707_2696.lfz | 8/13/2015 5:16 PM | 1,829,254 KB | | | |
| DSEUSAC_7762_20150707_24.lfz | 8/13/2015 5:05 PM | 13,087 KB | | | |

Configuring Data Quality Runtime

After Loqate is installed, the latest API files are available under the \LOQATE installation directory, as shown in the following image.



Note: These API files replace any previously installed API files that were originally bundled with iWay Data Quality Server (DQS), DQS components installed into iWay Integration Tools (iIT), iWay Service Manager (iSM), or Omni-Gen.

To update API files in your environment:

1. Ensure your Windows system *Path* environment variable has been updated by the Loqate install, with the \LOQATE installation directory included first, as shown in the following image.

| Environment Variables | | | | | |
|-----------------------|-----------------------|------------------------------------|--|--|--|
| | User variables for JP | 03794 | | | |
| | Variable | Value | | | |
| | TEMP | %USERPROFILE%\AppData\Local\Temp | | | |
| TMP %USERPROFILE%\App | | %USERPROFILE%\AppData\Local\Temp | | | |
| | | New Edit Delete | | | |
| | System variables | | | | |
| | Variable | Value | | | |
| | NUMBER_OF_P | 2 | | | |
| | OS | Windows_NT | | | |
| | Path | D:\LOQATE\2019Q1;%JAVA_HOME%\ | | | |
| | PATHEXT | .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; | | | |
| | | New Edit Delete | | | |
| | | OK Cancel | | | |

If your Windows system *Path* environment variable has not been updated, then set it now. This step ensures that all DQ-related applications will always find the latest Loqate .dll files.

iWay DQS includes its own Java Runtime Environment (JRE).

2. Check the \bin subfolder to ensure it does not contain any old (outdated) copies of the Loqate .dll files.

It is recommended that you navigate to your *<DQS_Home>\jre\bin* directory and remove any older versions of the following .dll files:

- lqtcr.dll
- lqtjava.dll

For example:

| New | Volume (D:) | 17-03-03-win-x86_64 🕨 | jre ▶ bin ▶ |
|-----|------------------|-----------------------|-------------|
| h | Burn New folder | | |
| - | Name | Date modified | Size |
| | 🚳 libxslt.dll | 7/25/2014 6:46 PM | 205 KB |
| | 🚳 lqtcr.dll | 4/22/2016 2:31 PM | 2,826 KB |
| | 🐵 lqtjava.dll | 4/22/2016 2:31 PM | 17 KB |
| | 🚳 management.dll | 7/25/2014 6:46 PM | 34 KB |

Note: It is not recommended to copy the new versions of the .dll files to this location. If your Windows system *Path* environment variable has been updated by the Loqate install, this ensures that iWay DQS (and any other DQ-related applications) will always find the latest version of these .dll files.

3. Copy the new *loqate.jar* file from the Loqate root installation directory to your *<DQS_Home>\jre\lib* directory, as shown in the following image.

| Þ | iWay-dqs-10.6.2.ga-2017-03-03-win-x86_64 🕨 r | runtime 🕨 lib 🕨 | |
|---|--|-------------------|-----------|
| | | | |
| • | Name | Date modified | Size |
| | 📄 jna.jar | 3/2/2017 11:15 PM | 676 KB |
| | 📄 loqate.jar | 10/1/2018 9:14 PM | 12 KB |
| | 📄 mail.jar | 3/2/2017 11:15 PM | 425 KB |
| | ooxml-schemas-1.0.jar | 3/2/2017 11:15 PM | 13,676 KB |
| | poi-3.9-20121203.jar | 3/2/2017 11:15 PM | 1,826 KB |

Note: .jar files are not found through the system *Path* environment variable. However, any .jar file in this *lib* directory will be automatically loaded, so it should be copied here, replacing any previous (older) version.

In an Omni-Gen configuration, the *loqate.jar* file is located in the following directory path:

<Omni_Gen_Home>\omnigen\OmniServer\mastering\runtime\lib

For example:

| 📴 C-\omnigen35Customer\omnigen\OmniServer\mastering\runtime\lib 🛛 🗸 🗸 | | | | | |
|---|-----------------------------|-------------------|---------------------|----------|--|
| ^ | Name | Date modified | Туре | Size | |
| | 🍰 h2o-genmodel.jar | 4/15/2018 3:41 PM | Executable Jar File | 28 KB | |
| * | 🍰 httpclient-4.2.5.jar | 4/15/2018 3:41 PM | Executable Jar File | 424 KB | |
| * | 🍰 httpcore-4.2.4.jar | 4/15/2018 3:41 PM | Executable Jar File | 222 KB | |
| * | 🍰 httpmime-4.2.5.jar | 4/15/2018 3:41 PM | Executable Jar File | 26 KB | |
| | 🌆 icu4j-4_2_1.jar | 4/15/2018 3:41 PM | Executable Jar File | 6,192 KB | |
| ~ | 🚳 icu4j-charsets-4_2_1.jar | 4/15/2018 3:41 PM | Executable Jar File | 2,450 KB | |
| | 🍰 icu4j-localespi-4_2_1.jar | 4/15/2018 3:41 PM | Executable Jar File | 47 KB | |
| | 🅌 jackson-core-2.4.1.jar | 4/15/2018 3:41 PM | Executable Jar File | 221 KB | |
| | 🌆 jexcelapi.jar | 4/15/2018 3:41 PM | Executable Jar File | 695 KB | |
| | 🍰 jna.jar | 4/15/2018 3:41 PM | Executable Jar File | 676 KB | |
| | 🔬 loqate.jar | 4/15/2018 3:41 PM | Executable Jar File | 12 KB | |

In an iSM configuration, the *loqate.jar* file is located in the following directory path:

<iSM_Home>\etc\dqc\lib

For example:

| ► OS (C:) ► A1_DQC ► LOQATE ► | | | | |
|------------------------------------|--------------------|--|--|--|
| · · Description from Name 1 | | | | |
| e (D:) ▶ ISM8 ▶ etc ▶ dqc ▶ lib ▶ | | | | |
| New folder | | | | |
| Name | Date modified | | | |
| saxon9he.jar | 12/15/2017 9:10 PM | | | |
| 📄 qname.jar | 12/15/2017 9:10 PM | | | |
| poi-ooxml-schemas-3.9-20121203.jar | 12/15/2017 9:10 PM | | | |
| poi-ooxml-3.9-20121203.jar | 12/15/2017 9:10 PM | | | |
| poi-3.9-20121203.jar | 12/15/2017 9:10 PM | | | |
| ooxml-schemas-1.0.jar | 12/15/2017 9:10 PM | | | |
| 📄 mail.jar | 12/15/2017 9:10 PM | | | |
| 📄 loqate.jar | 12/15/2017 9:10 PM | | | |

Configuring the Data Quality Scoring Plan

Download and unzip the SCORING_PLAN_2016.zip archive file to any directory on your file system.

Open iWay Data Quality Server (DQS), navigate to the directory where you unzipped the *SCORING_PLAN_2016.zip* archive file, and open *SCORING_PLAN.plan*.



The Data Quality Scoring plan opens in your iWay DQS workspace, as shown in the following image.

This plan demonstrates how to configure a basic Loqate address checking plan. You only need to adjust the Loqate data folder setting before running this plan.

Address records are provided as input in CSV format. Input and output fields are mapped by the Loqate step. The results are received in the form of an Address Verification Code (AVC) field. This field is then parsed into separate columns for readability, and a score is assigned based on the quality of the address.

Each application you build will need to determine the appropriate level of what will constitute a *good* address. A verified address *V5* is the highest possible score, while unverified *U0* indicates a bad address and should never be used. Scores between *V5* and *U0* constitute a gray area. You will need to become familiar with the AVC codes in order to ascertain what is acceptable for your application.

To configure the plan, specify the location of the */data* subfolder for your Loqate installation, as shown in the following image.

| ▼ Other | |
|-------------------|-----------------------|
| Data Folder*: | D:/LOQATE/2017Q1/data |
| Default Country: | US |
| Geocoding: | |
| Input Elements*: | list element |
| Output Elements*: | <u>list element</u> |

The input file includes 76 records. A sample is shown in the following image.

| | Local_Address_1 | Local_Address_2 | Local_Address_3 | Local_City | Local_County | Local_State | Local_Zip |
|---|-----------------------|--------------------|-----------------|--------------|--------------|-------------|-----------|
| 1 | NULL | P.O. Box 4229 | NULL | Sacramento | SACRAMENTO | CA | 95815 |
| 2 | NULL | 4790 Irvine Blvd., | NULL | Irvine | ORANGE | CA | 92614 |
| 3 | 112 S 4th St. (98901) | or | Po Box 1789 | Yakima | YAKIMA | WA | 98907 |
| 4 | NULL | PO BOX 11589 | NULL | Spokane | SPOKANE | WA | 99211 |
| 5 | 20 South Balph Ave. | NULL | NULL | Pittsburgh | ALLEGHENY | PA | 15202 |
| 6 | 1036 WASHINGTON | WILLIAMSPORT, | NULL | Williamsport | NULL | PA | 17701 |
| 7 | 9320 PRIORITY WY | PO BOX 80883 | INDIANAPOLIS IN | Indianapolis | NULL | IN | 46240 |

The following set of images show how the input and output columns map to the Loqate element names.

| | | | Out | put Elements | |
|----|-----------------|-----------------------|-----|------------------|-----------------------|
| np | ut Elements | | | Column | Element Name |
| | | | 1 | out_Address | Address |
| | | | 2 | out_Address1 | Address1 |
| | Column | Element Name | 3 | out_Address2 | Address2 |
| 1 | Local_Address_1 | Address1 | 4 | out_Address3 | Address3 |
| 2 | Local Address 2 | Address2 | 5 | AVC | AVC |
| 2 | Local Address 3 | Address2 | 6 | out_CITY | Locality |
| 3 | Local_Address_5 | Addresss | 7 | out_STATE | AdministrativeArea |
| 4 | Local_City | Locality | 8 | out_ZIP | PostalCode |
| 5 | Local_State | AdministrativeArea | 9 | out_LAT | Latitude |
| 6 | Local Zip | PostalCode | 10 | out_LON | Longitude |
| 7 | 115' | Country | 11 | out_COUNTY | SubAdministrativeArea |
| - | | Country | 12 | out_UNMATCHED | Unmatched |
| 8 | Local_County | SubAdministrativeArea | 13 | out_Premise | Premise |
| * | | | 14 | out_Thoroughfare | Thoroughfare |

When Loqate analyzes an address, it returns a 16-character string known as the Address Verification Code (AVC). The Data Quality Scoring plan shows you how to parse out the AVC and sort the results.

The following diagram illustrates how the AVC is formatted.



Verification

The Verification section contains three characters:

- The first character indicates the Verification Status . In this case V indicates Verified.
- The first digit represents the post-processing *Verification Level*. The first character and the first digit are the two most important factors.
- The second digit represents the pre-processing level.

The following table provides a reference for the *Verification Status* values.

| Value | Status | Description |
|-------|--------------------|--|
| V | Verified | A complete match was made between the input data and a single GKR |
| | | record. Values are 1 to 5. |
| Р | Partially Verified | A partial match was made to a single GKR record. |
| U | Unverified | Unable to verify. The output fields will contain the input data. |
| A | Ambiguous | More than one close reference data match was made. |
| С | Conflict | More than one close reference data match was made with conflicting values. |
| R | Reverted | Record could not be matched to the specified minimum acceptable level (through <i>Server Option: MinimumMatchscore</i>). The output fields will contain the input data. |

The following table provides a reference for the Verification Levels.

| Value | Level | US |
|-------|--------------------|---------------------|
| 5 | Delivery Point | Postbox or Suite |
| 4 | Premise | Premise or Building |
| 3 | Thoroughfare | Street |
| 2 | Locality | City |
| 1 | AdministrativeArea | State |
| 0 | None | |

For simplicity, this use case will adopt a policy where V4 and V5 addresses are considered *good*. Unverified (U) addresses are considered *bad*, and everything else falls in a gray area.

To make the results more understandable, this plan parses the AVC into separate fields. This is done with several string functions, as shown in the following image.

| Alt | Alter Format | | | | | | | | | | | | |
|-----|--------------|-------------------|-------------|-----------------------------|--|--|--|--|--|--|--|--|--|
| |) (| General 😑 Added C | Columns 😑 R | emoved Columns | | | | | | | | | |
| | Ad | dded Columns: | | | | | | | | | | | |
| | | Name | Туре | Expression | | | | | | | | | |
| | 1 | AVC_STATUS | STRING | substr(AVC,0,1) | | | | | | | | | |
| | 2 | AVC_LEVEL | INTEGER | toInteger(substr(AVC,1,1)) | | | | | | | | | |
| | 3 | AVC_MATCH_PCT | INTEGER | toInteger(substr(AVC,11,3)) | | | | | | | | | |
| | 4 | AVC_ZIP | INTEGER | toInteger(substr(AVC,9,1)) | | | | | | | | | |
| | - | | TAITCOCO | | | | | | | | | | |

You can also apply optional scoring and explanations based on the AVC. This part is optional. However, *scoring* is used in most other parts of iWay DQS. In general, a higher score in iWay DQS indicates a more serious defect. A score of 0 is considered perfect.

| Simple | S | coring | | | | | | |
|-------------|------|---------------------------|--------|-------------|------------------|-------|--|--|
| 🔵 Ger | nera | I 😑 Advanced | | | | | | |
| ▼ Ge | ener | ral | | | | | | |
| I | d: | L | .OQATE | SCOR | E | | | |
| - OI | ther | | | | | | | |
| | | _ | | | | | | |
| (| Defa | ult Score Column: | co_avc | | | | | |
| (| Defa | ult Explain Column: e | xp_avc | | | | | |
| 5 | Scor | ing Cases: | | | | | | |
| | | Condition | D | esc | Explanation | Score | | |
| | 1 | AVC STATUS='V' | | | 'VERIFIED' | 0 | | |
| | 2 | AVC_STATUS = 'P' | | | 'PARTIAL' | 100 | | |
| | 3 | AVC_STATUS='A' | | | 'AMBIGUOUS' | 250 | | |
| | 4 | AVC_STATUS = 'R' | | | 'REVERTED' | | | |
| | 5 | AVC_STATUS = 'C' | | 'CONFLICT' | 500 | | | |
| | 6 | AVC_STATUS = 'U' | | | 'UNVERIFIED' | 1000 | | |
| | 7 | AVC_LEVEL = 0 | | "LVL_NONE" | 2000 | | | |
| | 8 | AVC_LEVEL = 1 | | "LVL_STATE" | 1000 | | | |
| | 9 | AVC_LEVEL = 2 | | | 500 | | | |
| | 10 | AVC_LEVEL = 3 | | | "LVL_STREET" | 100 | | |
| | 11 | AVC_LEVEL = 4 | | | "LVL_PREMISE" | 10 | | |
| | 12 | AVC_LEVEL = 5 | | | "LVL_DLV-PT" | 0 | | |
| | 13 | AVC_MATCH_PCT < 95 and AV | VC | | "MATCH<95%" | 50 | | |
| | 14 | AVC_MATCH_PCT < 85 and AV | WC | | "MATCH<85%" | 100 | | |
| | 15 | AVC_MATCH_PCT < 75 | | | "MATCH<75%" | 200 | | |
| | 16 | AVC_ZIP>=7 | | | "ZIP_+4_OK" | | | |
| | 17 | AVC_ZIP>=4 and AVC_ZIP < | 7 | | "ZIP_PRIMARY_OK" | 50 | | |
| | • | | | | | | | |

To separate the good addresses from those that are not, a filter can be used. There are many ways you could accomplish this. You have the option of using either the SCORE, or the parsed out AVC values.

| Condition | |
|-----------|------------------------|
| ▼ General | |
| Id: | VERIFIED 4 or 5? |
| ▼ Other | |
| | AVC_STATUS ='V' and |
| | AVC_LEVEL >= 4 |

For example, V4 and V5 are considered good, which indicates that the address contains a verified building/premise.

You can also add a check to ensure that the address is a close match. For example, if a minor typo has been corrected, then its match percentage might be slightly less than 100. However, if too much has changed for the address, then its match percentage is much lower. In this case, it may no longer represent the original value and you would not want to consider it as a *good* address.

To prevent this situation, update the Condition to the following:

AVC_ STATUS = `V' and AVC_LEVEL >= 4 and AVC_MATCH_PCT >= 85

As you become more familiar with the AVC codes, you can adjust any of these parameters. This will be based on how stringent your application needs to be. For example, are you delivering valuables or just sending flyers?

The records are split into three files. Good address records are represented, as shown in the following image.

| out_Address1 | out_Address2 | out_Address3 | out_CITY | out_ST | out_ZIP | AVC | AVC_STATUS | AVC_LEVEL | AVC_MATCH_PCT |
|------------------|---------------|--------------|------------|--------|------------|----------------|------------|-----------|---------------|
| 112 S 4th St 989 | PO Box 1789 | Yakima WA 98 | Yakima | WA | 98907-1789 | V55-I55-P7-100 | ٧ | 5 | 100 |
| Null | PO Box 11589 | Spokane WA 9 | Spokane | WA | 99211-1589 | V55-I55-P7-100 | V | 5 | 100 |
| 20 S Balph Ave | Pittsburgh PA | | Pittsburgh | PA | 15202-3504 | V44-I44-P7-100 | V | 4 | 100 |
| 2680 Grand Isla | PO Box 308 | Grand Island | Grand I | NY | 14072 | V44-I55-P6-100 | V | 4 | 100 |
| 523 W 2nd St | Defiance OH | | Defiance | ОН | 43512-2143 | V44-I44-P7-100 | V | 4 | 100 |

Unverified (U) addresses are considered *bad*, and are written to a separate file, as shown in the following image.

| out_Address | out_Address1 . | | out | | AVC | AVC | AVC_LEVEL | AVC | AVC_ZIP | sco_avc |
|-------------|----------------|--|------|------|----------------|-----|-----------|-----|---------|---------|
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |
| Null | Null | | Null | | U00-I02-P0-100 | U | 0 | 100 | 0 | 3100 |

These addresses would not be usable.

The remaining addresses are placed into a third file, as shown in the following image.

| out_Address1 | out_CITY | out | out_ZIP | AVC | AVC | AVC_LE | AVC_MATCH | AVC_ZIP | sco_avc | exp_avc |
|------------------------|------------|-----|---------|------------|-----|--------|-----------|---------|---------|-------------------------|
| New York NY 10048 | New York | NY | 10048 | R44-I55-P4 | R | 4 | 92 | 4 | 610 | REVERTED LVL_PREMISE M |
| Johnson & Higgins Of | Salt Lak | UT | 84111 | P22-I55-P6 | P | 2 | 100 | 6 | 650 | PARTIAL LVL_CITY ZIP_PR |
| 18201 Von Karman A | Des Moines | IA | 50392 | P22-I55-P6 | P | 2 | 100 | 6 | 650 | PARTIAL LVL_CITY ZIP_PR |
| Deerwood Office Park | San Ramon | CA | 94583 | P22-I55-P6 | P | 2 | 100 | 6 | 650 | PARTIAL LVL_CITY ZIP_PR |
| 90 Bryant Woods S | Getzville | NY | 14068 | P22-I44-P6 | P | 2 | 100 | 6 | 650 | PARTIAL LVL_CITY ZIP_PR |
| 35 Braintree Hill Park | Spokane | WA | 99204 | P22-I44-P6 | P | 2 | 100 | 6 | 650 | PARTIAL LVL_CITY ZIP_PR |
| 1500 Market St | Philadelp | PA | 19102 | P44-I44-P6 | P | 4 | 100 | 6 | 160 | PARTIAL LVL_PREMISE ZIP |
| Atlanta GA 30326 | Atlanta | GA | 30326 | R55-I55-P4 | R | 5 | 90 | 4 | 600 | REVERTED LVL_DLV-PT MA |
| Saint Joseph MO 64502 | Saint Jo | MO | 64502 | R22-I25-P5 | R | 2 | 93 | 5 | 1100 | REVERTED LVL_CITY MATC |
| Austin TX 78731 | Austin | ТΧ | 78731 | R55-I55-P4 | R | 5 | 94 | 4 | 600 | REVERTED LVL_DLV-PT MA |

This represents a *gray* area and may require some additional analysis, including being sent to a remediation process. The idea being that there may be a partial match that requires human intervention to make the final determination.

Debugging

Set the following option in DQ Run \rightarrow configuration \rightarrow runtimes \rightarrow VM arguments:

-Dloqate.debugLog=myloqatelog.xml

Understanding Loqate License Expiration

Loqate licenses work on a subscription basis and expire after one year. The actual date will vary, based on when the license was issued to a customer. Loqate will send an email reminder about 30 days before license expiration.

To keep the current installation active, the Loqate subscription must first be renewed. Once the Loqate subscription is renewed, the installation program (*InstallManger.bat*) must be run again. When doing this, you use the same key originally delivered, and the Loqate back-end server will verify the subscription renewal. This will create a new runtime *license.lfs* file to be downloaded onto the local Loqate installation. At this point, you should also refresh your data packs to get the latest knowledgebase.

Engine Code Updates

Whenever an update is made to the Loqate engine, there will be some changes to the Loqate *.dll* files (*.so* files), and *loqate.jar* file. These files were installed when you originally ran the installation. Updating data packs does not automatically update these code files. To stay up to date, it is recommended to periodically download and run the latest installation (*setup_64.exe*). This will install the latest version of the Loqate engine.

Checking Your License Expiration Date

If the Loqate license does expire, the Loqate engine will return all zeros (0) in the AVC code, and an error may not be obvious.

To check the expiration date, run the following command and capture the results to a file:

On Windows:

C:\loqate> lqtbatch -d [loqate installation directory]\data >X.txt

On Unix:

lqtbatch -d [loqate installation directory]/data)

Scan the file for *ExpiryDate*, and you should see entries similar to the following:

```
DSEUSAC.ExpiryDate : 2018-12-31
DSGTPWW.ExpiryDate : 2018-12-31
DSVTPWWO.ExpiryDate : 2018-12-31
DSVUSAC.ExpiryDate : 2018-12-31
KBCOMMON.ExpiryDate : 2018-12-31
LIBCUSA.ExpiryDate : 2018-12-31
```

Note: For Information Builders demo licenses, the expiration date is 12/31 of each year.

If this is a CASS installation, then the end of the file should also contain the following entries:

```
Number of days until API expires : 567
Number of days until data expires : 49
```

CASS data expires quarterly (as required by the USPS to remain certified). It must be updated/downloaded accordingly, independently of the license renewal.

Troubleshooting Install Manager Downloads

This section provides troubleshooting information when downloading Install Manager.

Older Version of Install Manager

If you are using an older version of Install Manager, then you must download the latest version from the following Logate download sites:

- HTTP Download Access: <u>https://updates.gbgplc.com</u>
- SFTP Download Access: <u>sftp://updates.gbgplc.com</u>

To obtain the login credentials (user name and password) for the Loqate download site, contact *Information Builders Customer Support*.

Note: Downloading the latest version of Install Manager to a Virtual Machine may cause issues. If Install Manager still fails after trying the suggestions described in the following sections, then download Install Manager directly to the native operating system of your machine and then copy it to the required image.

Proxy/Firewall Access

Install Manager requires internet access, which connects to Loqate licensing servers to validate the license key, and then obtains the information about the latest compatible reference data for download. If proxy/firewall settings are enabled in your environment, then these settings may block access to the Loqate servers.

Verify that the following URLs are not blocked by your environment settings:

https://licensing.logate.com (port 443)

https://download.logate.com (port 443)

If these URLs are blocked, then update your proxy/firewall settings or use the proxy authentication that is specified during the Install Manager process (on the first screen). These URLs are required by Install Manager to connect to the Loqate servers, verify the license key, and retrieve the reference datapacks.

Testing the Connections Using Curl Commands

You can test the connections using the following *curl* commands:

\$ curl https://licensing.loqate.com:443

\$ curl https://download.logate.com:443

No Internet Connection

If you do not have an internet connection available from your server or are unable to open the firewall on the server, then it is recommended to follow the online and offline instructions that are available on the Logate website.

Basically, you must download the data packs on a machine that can connect to the Loqate licensing servers. Once the data packs are downloaded, copy them over to your server and install those data packs.

Insufficient Permissions

Install Manager requires read and write permissions to update the license pack. Ensure that you have permission to create/overwrite the *license.lfs* file, otherwise the license pack will not update.

Windows:

If you are installing data anywhere inside the *Program Files* directory, *Program Files* (*x86*) directory, or Windows file system (for example, *C:\Program Files\Loqate\data*), then you must provide administrator permissions. To do so, run Install Manager as an administrator using the Command Prompt or install data outside of the *Program Files/Program Files* (*x86*) directory and copy the installed data into the desired location.

Linux:

Since the installation of the *license.lfs* file on Linux platforms has a default permission of 644, only the owner of the *license.lfs* file has write permissions. If you are accessing the *license.lfs* file from a shared folder or someone else's folder, then you must first change the permission to 664 or 666.

Additional Resources

All users can create a support account with Loqate to gain access to the latest documentation by visiting the following Loqate website:

http://www.Logate.com

