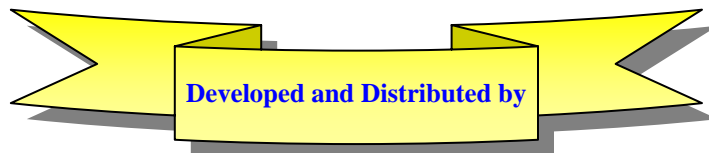


# Z4 LAT/LON

A Geocoding Solution

Reference Manual

IBM iSeries, i5, & AS/400



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**Acknowledgements**

Z4 LAT/LON is a well-designed, well-written, and fully tested geocoding solution. However, even the best geocoding solution is only as accurate as the data upon which it relies.

WorksRight Software, Inc. is proud and excited to announce that much of the Z4 LAT/LON database is derived from data licensed directly from NAVTEQ. NAVTEQ is well known for being one of the best sources of mapping and geocoding data in the world.

Other Z4 LAT/LON data sources include the U. S. Postal Service® and the federal Office of Management and Budget.

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## INTRODUCTION

Z4 LAT/LON is a complete geocoding solution designed specifically for the iSeries (AS/400, i5). Geocoding is a process that assigns a latitude/longitude coordinate to an address. Once the latitude/longitude coordinate is assigned, an address can be located on a map, used as input for distance calculations, and/or associated with other known geographic areas like Census Tracts, Census Block Groups, MSAs, Time Zones, etc.

Z4 LAT/LON can provide the associated geographic areas listed above as well as many others. When provided a valid and current 9-digit Zip Code (5-digit Zip Code with Zip + 4), Z4 LAT/LON will return geographical information including:

- FIPS (Federal Information Processing Standards) State Code
- State Abbreviation
- FIPS County Code
- County Name
- Latitude and Longitude (Zip Code Centroids in WGS 84 Format)
- 2010 Census MSA (Metropolitan Statistical Area) Code
- 2010 Census Tract
- 2010 Census Block Group
- Current MSA (Metropolitan Statistical Area) Code
- Current Micropolitan Statistical Area Code
- Current Metropolitan Division Code
- Current Consolidated Statistical Area Code
- Time Zone
- Telephone Area Codes

Most of the information listed above is available at the 3-digit, 5-digit, 7-digit, and 9-digit Zip Code levels. Due to the one-to-many relationships encountered when geocoding to a Zip Code centroid, the more complete the Zip Code, the more accurate the returned information will be. An example of a one-to-many relationship would be where a 5-digit Zip Code crosses a county boundary and is thereby associated with more than one county.

Z4 LAT/LON handles one-to-many relationships by tabulating the occurrences of each possible value and selecting the most commonly used value. For example, the 5-digit Zip Code 39086 is used for delivery to addresses in both Claiborne county, MS (county FIPS code 021) and Copiah county, MS (county FIPS code 029). With further analysis of all 9-digit Zip Codes beginning with 39086, it can be determined that 78% of those addresses exist in Copiah county, MS. Therefore, the county FIPS code 029 (Copiah county) is assigned to the 5-digit Zip Code 39086. This same technique is used to resolve all one-to-many relationships within the Z4 LAT/LON data.

In addition to providing valuable geographic data for your addresses, Z4 LAT/LON also provides a sophisticated **Nearest Dealer Locator** function. Z4 LAT/LON's Nearest Dealer Locator function is easy to set up and simple to use. The Nearest Dealer Locator determines the latitude/longitude coordinate for your customer and each of your dealers based upon the Zip Code in their address. It then calculates the distance between the customer and each dealer. The ten dealers nearest the customer and their distance from the customer are listed.

To use the Nearest Dealer Locator function, you first define your dealer file (or distributor file, or store location file, etc.) to Z4 LAT/LON by creating a dealer file definition. Second, you provide a starting point Zip Code (this would be the Zip Code for your customer). And, that's it. Z4 LAT/LON will quickly calculate the distance between the starting point Zip Code and each of your dealers. Once the ten nearest dealers have been identified, they will be presented in a list sequenced from nearest to farthest. Z4 LAT/LON will even provide the straight line distance from the starting point Zip Code to each of the dealers in statute miles, kilometers, and nautical miles.

Z4 LAT/LON also includes an advanced distance calculator. At its core, Z4 LAT/LON's distance calculator uses a variation of the Haversine formula. The Haversine formula calculates distances between two points on a sphere (in our case, earth) based on their latitudes and longitudes. Use of this advanced formula allows Z4 LAT/LON to calculate an extremely accurate distance which even takes into account the curvature of the earth. However, it is important to keep in mind that all distances calculated by Z4 LAT/LON are point to point distances. They are not driving distances.

All three functions of Z4 LAT/LON - the provision of geocoding data, the Nearest Dealer Locator function, and distance calculations - are supported by both an interactive user interface and a callable program or API interface.

The Z4 LAT/LON interactive interface is accessed by selecting options from the Z4 LAT/LON Main Menu. This menu can be accessed at any time following installation by typing the **STRZ4LL** command on any command line and pressing ENTER.

The Z4 LAT/LON callable program or API interface is accessed by calling Z4 LAT/LON programs directly from within your own applications programs. This interface allows you to easily incorporate the functions and features of Z4 LAT/LON into your own applications.

All Z4 LAT/LON callable programs are documented in the Callable Programs section of this manual. Sample source code demonstrating the use of each callable program is provided in the source file QSMPLSRC in the product library LTLNLIB. The sample source code is written in a way that it can be copied into your applications programs with little modification.

An on-line help text support system is included with Z4 LAT/LON. The help system provides you with field level help text for all fields appearing on all screens within Z4 LAT/LON. The help text is presented to you via pop-up windows. To access the help text, simply place the cursor on the desired field and press the **F1** key. The help text for that field will be displayed in a window in the opposite quadrant of the screen. The help text window can be enlarged to a full screen display for easier reading or moved to a new screen location if needed information has been overlaid.

## ENHANCEMENTS

Both data and software enhancements made in each release of Z4 LAT/LON are documented in the source member #READ.ME in the source file LTLNLIB/QSMPLSRC.

After installing a Z4 LAT/LON update, you should view the #READ.ME source member to learn about the changes that have been made.

### Changes resulting from the November 2008 switch to NAVTEQ data:

1. FIPS MCD/CCD (Minor Civil Division / Census County Division) Codes and FIPS Place/CDP (Census Designated Place) Codes are no longer available. These fields are not provided by NAVTEQ.
2. *Lat/Lon Match Quality* codes have changed.
  - a. The old codes returned using Tele Atlas data were:
    - 1 – Street segment exact address match
    - 2 – Street segment near address match
    - 3 – Ambiguous match
    - 4 – 7-digit ZIP centroid
    - 5 – 5-digit ZIP centroid
    - 6 – 3-digit ZIP centroid
    - 7 – No match
  - b. The new codes returned using NAVTEQ data are:
    - 1 – Centroid located at the midpoint of the Zip+4 area
    - 2 – Centroid located at the midpoint of the Zip+2 area
    - 3 – Centroid located at the midpoint of the Carrier Route
    - 4 – Centroid located at the midpoint of the 5-digit Zip Code area
    - 5 – Centroid located at the midpoint of the associated incorporated city area
    - 6 – Centroid located at the midpoint of the associated county area
    - 7 – Centroid located at the midpoint of the 3-digit Zip Code area

## WARRANTY

WorksRight Software, Inc. warrants that Z4 LAT/LON will generally perform as advertised. Due care and effort have been used in the design and coding of Z4 LAT/LON.

The user of Z4 LAT/LON bears a responsibility to use diligence and care in the use of Z4 LAT/LON. The user must review the results produced by Z4 LAT/LON and exercise judgment as to the fitness of Z4 LAT/LON for use in their business.

In the event that any error in Z4 LAT/LON is discovered, WorksRight Software, Inc. will make every reasonable effort to correct the error. In any event, WorksRight Software, Inc.'s liability will be limited to the purchase price of Z4 LAT/LON.

## INSTALLATION

The installation of Z4 LAT/LON should have no effect on other applications already residing on your system. This installation process will, however, place a new command in the library QGPL.

The command placed in the library QGPL is the **STRZ4LL** command. This command provides easy access to the Z4 LAT/LON Main Menu from any command line.

Whether you are updating an existing version of Z4 LAT/LON or installing Z4 LAT/LON for the first time, these instructions will step you through loading this release of Z4 LAT/LON. To install Z4 LAT/LON, sign on at any workstation as the SECURITY OFFICER (QSECOFR) and follow the installation steps below using your CD-ROM device name.

1. If an older release of Z4 LAT/LON is already installed on your AS/400, be sure that no one is using Z4 LAT/LON.
2. Load the Z4 LAT/LON CD-ROM (Volume 1) or DVD-ROM.
3. At a command entry display, enter the following command:  
**LODRUN DEV(device name)**  
...and press **ENTER**.
4. After a few moments, the Z4 LAT/LON Installation Prompt screen will be displayed. This screen allows you to indicate the type of installation that should be performed. Your options are interactive, batch, and unattended. The interactive and batch options will attempt to install the Z4 LAT/LON software immediately.

The unattended option allows you to go ahead and load the data from all four CD-ROM volumes and have the actual installation occur at a specified date and time in the future. This is useful if you are loading an update and the only time the software is not in use is after hours.

5. If you are installing Z4 LAT/LON for the first time, you will be prompted for a password to unlock the software. Your 12-character password was included in the package with the software.

**Note:** If you are installing a monthly update, you will not be prompted for a new password. Your existing password will be used.



## REMOVING Z4 LAT/LON FROM YOUR SYSTEM

To remove Z4 LAT/LON from your system, sign on at any workstation as the SECURITY OFFICER (QSECOFR) and follow the steps below.

1. Make sure that no one is using the Z4 LAT/LON system.
2. At a command entry display, enter the following command:

**DLTLIB LIB(LTLNLIB)**  
...and press **ENTER**.

3. After the DLTLIB command completes, enter the following command:

**DLTCMD CMD(QGPL/STRZ4LL)**  
...and press **ENTER**.

Z4 LAT/LON and all objects associated with it are now completely removed from your system. This removal procedure was written to insure that no files or other objects are left on your system after using Z4 LAT/LON for any length of time.

# SECURITY

## **OS/400 Security**

Although all Z4 LAT/LON programs are owned by the system security officer, there are no Z4 LAT/LON programs that adopt security officer authority. All Z4 LAT/LON programs operate with the user's authority. By not adopting authorities, Z4 LAT/LON programs observe all security features in effect on your system.

## **Z4 LAT/LON Product Security**

The Z4 LAT/LON system requires a twelve-character password to unlock the application. A temporary twelve-character password is provided with every 30-day free trial. When you enter the final ten days of the Z4 LAT/LON trial period, a warning message will be issued and a warning report will be generated indicating that the trial period is about to expire. This message and report are for your convenience and are intended to prevent the product from expiring unexpectedly.

Once the decision to purchase Z4 LAT/LON has been made, the program license agreement should be signed and returned along with payment. A program license agreement and a pro-forma invoice are included with every 30-day free trial. Upon receipt of the signed program license agreement and payment, a twelve-character password will be provided to permanently unlock the Z4 LAT/LON application on your system.

## **Z4 LAT/LON Data Security**

The Z4 LAT/LON database is stored in an uncommon proprietary format. While data security is one benefit of our database format, the main benefit of our database format is data compaction. No attempt should be made to access the data in any way other than through the provided callable programs. Due to our data compaction, to do so would return unpredictable results at best.

The Z4 LAT/LON database is rebuilt monthly to incorporate the thousands of changes, additions, and deletions supplied to us by our data sources. The rebuilt databases are shipped to all subscribers in the form of monthly updates. Each month's database is given a fixed lifespan of 90 to 120 days. The exact expiration date of each database is shown on the product CD-ROMs and on the Z4 LAT/LON Main Menu. If you do not load the monthly updates and you enter the final ten days of a particular database's lifespan, a warning message will be issued and a warning report will be generated indicating that the Z4 LAT/LON database is about to expire. This message and report are for your convenience and are intended to prevent the database from expiring unexpectedly.

To prevent Z4 LAT/LON database expirations from occurring, we strongly encourage all subscribers to load each monthly update as soon as convenient after receiving them. By always loading the latest update, you enable Z4 LAT/LON to provide the most accurate geocoding results.

## GETTING STARTED USING Z4 LAT/LON

The following instructions were written to help you get started using Z4 LAT/LON as quickly as possible. Each of Z4 LAT/LON's three main functions is discussed. These instructions tell you how to view all geocoding data for a specific Zip Code, how to calculate the distance from one Zip Code to another Zip Code, and how to set up and use the Nearest Dealer Locator function.

The following instructions assume that you have completed the installation process and have set your Z4 LAT/LON System Defaults to meet your needs. If you have not installed this release of Z4 LAT/LON, you should do so before continuing.

### Using Z4 LAT/LON to Display Geocoding Data for a Specific Zip Code

To quickly display all geocoding information available with Z4 LAT/LON for a specific Zip Code, follow the steps outlined below:

1. Get to the Z4 LAT/LON Main Menu. This can be accomplished by entering the command **STRZ4LL** at any command entry display and pressing **ENTER**.
2. Select option 03 from the Z4 LAT/LON Main Menu to work with Zip Code data.
3. Type in the desired Zip Code and press **ENTER**. If you do not have a complete 9-digit Zip Code, a 3-digit, 5-digit, or 7-digit Zip Code can be entered. Of course, the fewer digits of the Zip Code provided, the less accurate the geocoding data displayed will be.

The most accurate information will be displayed first. For example, if a 9-digit Zip Code is entered and Z4 LAT/LON contains geocoding data specific to the 9-digit Zip Code, the 9-digit Zip Code Level Information screen will be displayed first. The roll up/down and page up/down keys can then be used to view geocoding data at the 3-digit, 5-digit, and 7-digit Zip Code levels.

The steps above outline the process of displaying geocoding data for a specific Zip Code using the Z4 LAT/LON Main Menu. Geocoding data can also be retrieved directly from the Z4 LAT/LON database using the callable program (API) interface. See the "Callable Programs" section of this manual for more information.

### Using Z4 LAT/LON to Calculate the Distance between Two Zip Codes

To calculate the distance between two Zip Codes using Z4 LAT/LON, follow the steps outlined below:

1. Get to the Z4 LAT/LON Main Menu. This can be accomplished by entering the command **STRZ4LL** at any command entry display and pressing **ENTER**.
2. Select option 05 from the Z4 LAT/LON Main Menu to work with distance calculations.
3. Type in the from (origin) Zip Code and the to (destination) Zip Code and press **ENTER**. If you do not have complete 9-digit Zip Codes, 3-digit, 5-digit, or 7-digit Zip Code can be entered. Of course, the fewer digits provided for either Zip Code, the less accurate the calculated distance will be.

The resulting display provides the best latitude and longitude available within the Z4 LAT/LON database for both the origin and destination Zip Codes. The display also shows the distance calculated between the two latitude / longitude coordinates. The distance calculated is shown in statute miles, kilometers, and nautical miles.

All distances displayed are as accurate as our latitude / longitude data allows. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

The steps above outline the process of calculating the distance between two Zip Codes using the Z4 LAT/LON Main Menu. The distance between two Zip Codes can also be determined using the callable program (API) LLR300. See the "Callable Programs" section of this manual for more information.

### **Setting Up the Nearest Dealer Locator Function of Z4 LAT/LON**

The Nearest Dealer Locator function of Z4 LAT/LON is designed to identify the ten dealers nearest a specific Zip Code. Internally, this function retrieves the latitude / longitude coordinate for a starting point Zip Code and for each of your dealers and calculates the distance from the starting point Zip Code to each dealer. Once the distances are known, the ten nearest dealers are identified and listed.

Because this function must process your dealer file, some setup is required. Specifically, your dealer file must be defined to Z4 LAT/LON. To set up the Nearest Dealer Locator function of Z4 LAT/LON, follow the steps outlined below:

1. Get to the Z4 LAT/LON Main Menu. This can be accomplished by entering the command **STRZ4LL** at any command entry display and pressing **ENTER**.
2. Select option 07 from the Z4 LAT/LON Main Menu to work with dealer file definitions.
3. Select an existing dealer file definition to be modified, or press **F6** to create a new dealer file definition.

Some items to keep in mind while creating or maintaining dealer file definitions include:

- Each dealer file name, library, member, and definition number combination must be unique.
- The key field defined should allow users to distinguish one dealer from another when present in a list. It does not have to be the actual file's key field.
- Key fields and Zip Codes stored as packed data must be identified as packed. Failure to do so will produce unpredictable results.
- The **F5** and **F7** function keys can be used to determine the actual format of the data within the dealer record. This is especially helpful in identifying packed data and determining exact field locations within your dealer record.

The steps above outline the process of setting up the Nearest Dealer Locator function using the Z4 LAT/LON Main Menu. This is the only method of setting up this function. There is no command or callable program interface available to set up the Nearest Dealer Locator function.

### Using the Nearest Dealer Locator Function of Z4 LAT/LON

Before using the Nearest Dealer Locator function of Z4 LAT/LON, the setup steps outlined on the previous page must be performed. Once setup is complete, the Nearest Dealer Locator function can be accessed at any time by following the steps outlined below:

1. Get to the Z4 LAT/LON Main Menu. This can be accomplished by entering the command **STRZ4LL** at any command entry display and pressing **ENTER**.
2. Select option 09 from the Z4 LAT/LON Main Menu to locate the nearest dealer.
3. If multiple dealer files have been defined to Z4 LAT/LON, you will be presented with a list from which you must select the dealer file that you wish to work with. If only one dealer file has been defined to Z4 LAT/LON, the list will not appear and the one dealer file defined will be used by default.
4. Once the dealer file definition has been identified either by selection or by default, you will be prompted for a starting point Zip Code. Type the starting point Zip Code from which you wish to determine the ten nearest dealers and press **ENTER**.

The resulting display provides a list of the ten dealers nearest the specified starting point Zip Code. The list is in order from closest to farthest. The list identifies each dealer (displaying the key field) and the distance from that dealer to the specified starting point Zip Code. The distance calculated is shown in statute miles, kilometers, and nautical miles.

All distances displayed are as accurate as our latitude / longitude data allows. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

The steps above outline the process of locating the ten dealers nearest a starting point Zip Code using the Z4 LAT/LON Main Menu. The ten dealers nearest a starting point Zip Code can also be determined using the callable program (API) LLR350. See the "Callable Programs" section of this manual for more information.

## THE Z4 LAT/LON MAIN MENU

The Z4 Main Menu may be displayed at any workstation by entering the following command at any command entry display:

**STRZ4LL**

...and pressing **ENTER**.

Below is an example of what the Z4 LAT/LON Main Menu will look like. In the pages to follow, each option is explained in detail.

```
Z4LL                      Z4 LAT/LON Main Menu                      Release: L.04.08

Select one of the following:

    1. Work with Z4 LAT/LON System Defaults
    3. Work with Zip Code Data
    5. Work with Distance Calculations
    7. Work with Dealer File Definitions
    9. Locate the Nearest Dealer
   90. Sign Off

                                (C) 2005 WorksRight Software, Inc.
                                Database will expire on 11/30/2004

Selection or command
====> _____

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
F13=Information Assistant   F16=AS/400 main menu
```

## WORK WITH Z4 LAT/LON SYSTEM DEFAULTS

To change the Z4 LAT/LON System Defaults, select option 01 from the Z4 LAT/LON Main Menu. After selecting option 01, a screen similar to the one below will be displayed. This screen allows you to display and change the current default values. You may change the values as often as necessary. When all changes are made, press **ENTER** to update the Z4 LAT/LON System Defaults. If you exit this screen prior to pressing **ENTER**, the Z4 LAT/LON System Defaults will not be changed.

```
LLR010                               Your Company Name Here                8/18/04
LLR010D                               Z4 LAT/LON                            14:56:03

                                Work with System Defaults

Z4 LAT/LON System Defaults
  Users to receive system messages: 1. QSYSOPR          2. QSECOFR

  Program to run following updates: *NONE          Library: *LIBL

  Printer file name....: QSYSPRT          Library: *LIBL
  Output queue name....: PRT01          Library: *LIBL

  Company name.....: _____ Your Company Name Here

Z4 LAT/LON Database Properties
  Creation month/year..: 08/2004
  Expiration date.....: 11/30/2004

Z4 LAT/LON Password Status
  Temporary password entered. Password expires on 09/22/04.

F1=Help  F3=Exit  F12=Cancel  F23=Restore defaults      Release: L.04.08
(C) Copyright WorksRight Software, Inc. 2004-2010.
```

### Field Definitions

**Users to receive system messages** – These fields identify the users that will receive password and database expiration warning messages. In addition to sending messages to the users identified here, Z4 LAT/LON will also generate password and database expiration warning reports using the values specified for the **Printer file name** and **Output queue name** fields.

**Program to run following updates** – This field allows you to identify a program to be run each time a monthly Z4 LAT/LON update is loaded. The program specified will be run immediately **AFTER** the new Z4 LAT/LON update is loaded. Valid values are any valid program name. The program must currently exist in the library specified.

**Printer file name** - This field identifies the printer file to be used when Z4 LAT/LON reports are generated. By specifying your own printer file, you can control the print attributes for all Z4 LAT/LON reports. Valid values are any valid printer file name. The printer file must currently exist in the library specified.

**Output queue name** – This field identifies the output queue to be used when Z4 LAT/LON reports are generated. Valid values are any valid output queue name. The output queue must currently exist in the library specified.

**Your Company Name** - This field is to contain your company name as you would like for it to appear at the top of all Z4 LAT/LON screens and reports. Any nonblank value is considered valid.

**Z4 LAT/LON Database Creation month/year** – This field indicates the month and year in which the loaded Z4 LAT/LON database was created. The Z4 LAT/LON database is rebuilt each month to account for various data changes (i.e. Zip Codes, Area Codes, and new LAT/LON data). In the interest of providing the most accurate data available, we recommend that you always keep the latest database loaded.

**Z4 LAT/LON Database Expiration date** – This field indicates the date after which Z4 LAT/LON will no longer use the loaded database. Because the Z4 LAT/LON database changes each month, a single Z4 LAT/LON database will lose accuracy each month and after approximately 90 days will be of little or no value. Again, in the interest of providing the most accurate data available, we recommend that you always keep the latest database loaded.

**Z4 LAT/LON Password Status** – This field will identify the type of password you have entered (temporary or permanent). If the password entered is not valid, a message will be displayed. If the password is temporary, the expiration date of the password will be displayed.

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will also return you to the Z4 LAT/LON Main Menu.

Pressing **F23** while on this screen will cause all Z4 LAT/LON System Defaults to be reset to their shipped value. This does not reset or change the password entered.



## WORK WITH ZIP CODE DATA

To work with Zip Code data, select option 03 from the Z4 LAT/LON Main Menu. After selecting option 03, a screen similar to the one below will be displayed, allowing you to enter a Zip Code. If you do not know the entire nine-digit Zip Code, you can enter the first three, five, or seven digits of the Zip Code and fill the right-most positions with zeros.

LLR020	Your Company Name Here	8/18/04
LLR020D	Z4 LAT/LON	16:17:09
<b>Work with Zip Code Data</b>		
Zip Code: _____		
F1=Help    F3=Exit    F12=Cancel		
(C) Copyright WorksRight Software, Inc. 2004-2010.		

### Field Definitions

**Zip Code** – This field allows you to enter the Zip Code for which you wish to see additional information. Valid values are any three, five, seven, or nine-digit Zip Code. If a three, five, or seven-digit Zip Code is entered, you should fill the right-most positions with zeros.

### Function Keys

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will also return you to the Z4 LAT/LON Main Menu.

After typing a Zip Code and pressing **ENTER**, detailed information will be displayed for the Zip Code. The first screen of detailed information presented will always show the most specific data available for the Zip Code entered.

For example, if you enter a nine-digit Zip Code and Z4 LAT/LON contains detailed information for that nine-digit Zip Code, the 9-Digit Zip Code Level Information screen will be displayed. If you enter a nine-digit Zip Code and Z4 LAT/LON does not contain detailed information for that nine-digit Zip Code but does contain information for the seven-digit Zip Code (the first seven of the nine digits), the 7-Digit Zip Code Level Information screen will be displayed. If Z4 LAT/LON only contains data for the five-digit Zip Code (the first five of the nine digits), the 5-Digit Zip Code Level Information screen will be displayed.

An example of the 9-Digit Zip Code Level Information screen is shown below.

```
LLR020                               Your Company Name Here                8/18/04
LLR020D                               Z4 LAT/LON                            16:27:27
                                     Work with Zip Code Data

Zip Code: 39110 9435   9-Digit Zip Code Level Information

FIPS state code & abbreviation: 28 MS
FIPS county code & name .....: 089 MADISON
USPS ZIP+4 record type .....: (S) Street Address
Latitude .....: 32.489963
Longitude .....: 90.198919-
Lat / Lon match quality .....: (1) Street segment exact address match
County: Metropolitan statistical area : 27140
          Micropolitan statistical area : 00000
          Metropolitan division.....: 00000
          Consolidated statistical area : 298
Census: Tract / Block Group .....: 303.01 / 2
          Metropolitan statistical area : 3560
          Minor Civil Division code ....:
          Designated Place code .....:

                                     More...

F1=Help   F3=Exit   F12=Cancel
```

**Field Definitions**

**Zip Code** – This field displays all nine digits of the Zip Code for which additional information was requested.

**FIPS State Code & Abbreviation** – These fields identify the state in which addresses using the nine-digit Zip Code exist. The first field is the official two-digit state FIPS (Federal Information Processing Standards) code. The second field is the official two-character state abbreviation.

**FIPS County Code & Name** – These fields identify the county in which addresses using the nine-digit Zip Code exist. The first field is the official three-digit county FIPS (Federal Information Processing Standards) code. The second field is the full county name.

**USPS Zip+4 Record Type** – This field indicates the USPS National ZIP+4 record type used during geocoding of the 9-Digit Zip Code. Record types are assigned by the USPS.

The following is a complete list of valid record types:

- F – Firm record
- G – General Delivery record
- H – High Rise record
- P – PO Box
- R – Rural Route record
- S – Street record

**Latitude** – This field provides the latitude for the 9-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **Lat/Lon Match Quality** field.

**Longitude** – This field provides the longitude for the 9-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **Lat/Lon Match Quality** field.

**Lat/Lon Match Quality** – This field indicates the match quality achieved during the geocoding of the 9-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**County Metropolitan Statistical Area** – This field provides the current MSA (Metropolitan Statistical Area) code (if any) associated with the county in which addresses associated with the 9-Digit Zip Code exist. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003.

**County Micropolitan Statistical Area** – This field provides the Micropolitan Statistical Area code (if any) associated with the county in which addresses associated with the 9-Digit Zip Code exist.

**County Metropolitan Division** – This field provides the Metropolitan Division code (if any) associated with the county in which addresses associated with the 9-Digit Zip Code exist.

**County Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code (if any) associated with the county in which addresses associated with the 9-Digit Zip Code exist.

**Census Tract / Block Group** – These fields identify the 2010 Census tract and block group associated with the 9-Digit Zip Code. Census tracts are small statistical subdivisions of a county. Census block groups are small statistical subdivisions of a Census tract.

**Census Metropolitan Statistical Area** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 9-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes.

**Census Minor Civil Division Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census CCD code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**Census Designated Place Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will return you to the initial Work with Zip Code Data screen and allow you to enter a different Zip Code.

If you press the roll up (page down) key while on the 9-Digit Zip Code Level Information screen, you will be presented with the 7-Digit Zip Code Level Information screen. Pressing the roll down (page up) key while the 7-Digit Zip Code Level Information is being displayed will return you to the 9-Digit Zip Code Level Information screen.

The 7-Digit Zip Code Level Information screen might also be displayed if either of the following are true:

- A. You only entered the first seven digits of a Zip Code on the initial Work with Zip Code Data screen.
- B. The 9-digit Zip Code entered on the initial Work with Zip Code Data screen does not exist in the Z4 LAT/LON database.

An example of the 7-Digit Zip Code Level Information screen is shown below.

```

LLR020                               Your Company Name Here                8/27/04
LLR020D                               Z4 LAT/LON                            15:35:35
                                     Work with Zip Code Data

Zip Code: 39110 94      7-Digit Zip Code Level Information

FIPS state code & abbreviation: 28 MS
FIPS county code & name .....: 089 MADISON

Latitude .....: 32.466713
Longitude .....: 90.149843-
Lat / Lon match quality .....: (4) 7-Digit ZIP Centroid
County: Metropolitan statistical area : 27140
          Micropolitan statistical area : 00000
          Metropolitan division.....: 00000
          Consolidated statistical area : 298
Census: Tract / Block Group .....: 303.01 / 2
          Metropolitan statistical area : 3560
          Minor Civil Division code ....:
          Designated Place code .....:

                                     More...

F1=Help   F3=Exit   F12=Cancel
  
```

**Field Definitions**

**Zip Code** – This field displays the first seven digits of the Zip Code for which additional information was requested.

**FIPS State Code & Abbreviation** – These fields identify the state in which addresses using the 7-digit Zip Code exist. The first field is the official two-digit state FIPS (Federal Information Processing Standards) code. The second field is the official two-character state abbreviation. As 7-digit Zip Codes can span state lines, this field only provides the FIPS code and state abbreviation for the most common state associated with the 7-digit Zip Code.

**FIPS County Code & Name** – These fields identify the county in which addresses using the 7-digit Zip Code exist. The first field is the official three-digit county FIPS (Federal Information Processing Standards) code. The second field is the full county name. As 7-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 7-digit Zip Code.

**Latitude** – This field provides the latitude for the 7-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **Lat/Lon Match Quality** field.

**Longitude** – This field provides the longitude for the 7-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the *Lat/Lon Match Quality* field.

**Lat/Lon Match Quality** – This field indicates the match quality achieved during the geocoding of the 7-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 7-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**County Metropolitan Statistical Area** – This field provides the current MSA (Metropolitan Statistical Area) code (if any) associated with the county in which addresses associated with the 7-Digit Zip Code exist. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**County Micropolitan Statistical Area** – This field provides the Micropolitan Statistical Area code (if any) associated with the county in which addresses associated with the 7-Digit Zip Code exist. As 7-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 7-digit Zip Code.

**County Metropolitan Division** – This field provides the Metropolitan Division code (if any) associated with the county in which addresses associated with the 7-Digit Zip Code exist. As 7-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 7-digit Zip Code.

**County Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code (if any) associated with the county in which addresses associated with the 7-Digit Zip Code exist. As 7-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 7-digit Zip Code.

**Census Tract / Block Group** – These fields identify the 2010 Census tract and block group associated with the 7-Digit Zip Code. Census tracts are small statistical subdivisions of a county. Census block groups are small statistical subdivisions of a Census tract. As 7-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 7-digit Zip Code.

**Census Metropolitan Statistical Area** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 7-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**Census Minor Civil Division Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 7-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 7-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**Census Designated Place Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 7-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 7-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will return you to the initial Work with Zip Code Data screen and allow you to enter a different Zip Code.

If you press the roll up (page down) key while on the 7-Digit Zip Code Level Information screen, you will be presented with the first of two 5-Digit Zip Code Level Information screens. Pressing the roll down (page up) key while the first 5-Digit Zip Code Level Information is being displayed will return you to the 7-Digit Zip Code Level Information screen.

The first 5-Digit Zip Code Level Information screen might also be displayed if either of the following are true:

- A. You only entered a five digit Zip Code on the initial Work with Zip Code Data screen.
- B. The 9-digit or 7-digit Zip Code entered on the initial Work with Zip Code Data screen does not exist in the Z4 LAT/LON database.

An example of the first 5-Digit Zip Code Level Information screen is shown below.

```

LLR020                               Your Company Name Here                8/27/04
LLR020D                               Z4 LAT/LON                            16:07:02
                                     Work with Zip Code Data

Zip Code: 39110           5-Digit Zip Code Level Information   Screen 1 of 2

FIPS state code & abbreviation: 28 MS
FIPS county code & name .....: 089 MADISON

Latitude .....: 32.475265
Longitude .....: 90.125674-
Lat / Lon match quality .....: (5) 5-Digit ZIP Centroid
Zip Code class .....:
Time zone .....: Central US
Telephone area codes .....: 601

County: Metropolitan statistical area : 27140
          Micropolitan statistical area : 00000
          Metropolitan division.....: 00000
          Consolidated statistical area : 298

                                     More...

F1=Help   F3=Exit   F12=Cancel
  
```

**Field Definitions**

**Zip Code** – This field displays the first five digits of the Zip Code for which additional information was requested.

**FIPS State Code & Abbreviation** – These fields identify the state in which addresses using the 5-digit Zip Code exist. The first field is the official two-digit state FIPS (Federal Information Processing Standards) code. The second field is the official two-character state abbreviation. As 5-digit Zip Codes can span state lines, this field only provides the FIPS code and state abbreviation for the most common state associated with the 5-digit Zip Code.

**FIPS County Code & Name** – These fields identify the county in which addresses using the 5-digit Zip Code exist. The first field is the official three-digit county FIPS (Federal Information Processing Standards) code. The second field is the full county name. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.



**Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **Lat/Lon Match Quality** field.

**Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **Lat/Lon Match Quality** field.

**Lat/Lon Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- Military
- PO Boxes Only
- Unique (single organization)
- Blank = All others

**Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- Eastern US
- Central US
- Mountain US
- Pacific US
- Alaska AK
- Hawaii HI
- Puerto Rico PR / Virgin Islands VI
- Guam GU
- American Samoa AS
- Palau PU
- Marshal Islands MH

**Telephone Area Codes** – These fields provide up to three possible telephone area codes associated with the 5-Digit Zip Code.

**County Metropolitan Statistical Area** – This field provides the current MSA (Metropolitan Statistical Area) code (if any) associated with the county in which addresses associated with the 5-Digit Zip Code exist. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**County Micropolitan Statistical Area** – This field provides the Micropolitan Statistical Area code (if any) associated with the county in which addresses associated with the 5-Digit Zip Code exist. As 5-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 5-digit Zip Code.

**County Metropolitan Division** – This field provides the Metropolitan Division code (if any) associated with the county in which addresses associated with the 5-Digit Zip Code exist. As 5-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 5-digit Zip Code.

**County Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code (if any) associated with the county in which addresses associated with the 5-Digit Zip Code exist. As 5-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 5-digit Zip Code.

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will return you to the initial Work with Zip Code Data screen and allow you to enter a different Zip Code.

If you press the roll up (page down) key while on the first 5-Digit Zip Code Level Information screen, you will be presented with the second of two 5-Digit Zip Code Level Information screens. Pressing the roll down (page up) key while the second 5-Digit Zip Code Level Information is being displayed will return you to the first 5-Digit Zip Code Level Information screen.

An example of the second 5-Digit Zip Code Level Information screen is shown below.

```

LLR020                               Your Company Name Here                8/30/04
LLR020D                               Z4 LAT/LON                            09:29:43
                                     Work with Zip Code Data

Zip Code: 39110           5-Digit Zip Code Level Information   Screen 2 of 2

FIPS state code & abbreviation: 28 MS
FIPS county code & name .....: 089 MADISON

Latitude .....: 32.475265
Longitude .....: 90.125674-
Lat / Lon match quality .....: (5) 5-Digit ZIP Centroid
Zip Code class .....:
Time zone .....: Central US
Telephone area codes .....: 601

Census: Tract / Block Group .....: 302.01 / 2
        Metropolitan statistical area : 3560
        Minor Civil Division code ....:
        Designated Place code .....:

                                     More...

F1=Help   F3=Exit   F12=Cancel

```

**Field Definitions**

**Zip Code** – This field displays the first five digits of the Zip Code for which additional information was requested.

**FIPS State Code & Abbreviation** – These fields identify the state in which addresses using the 5-digit Zip Code exist. The first field is the official two-digit state FIPS (Federal Information Processing Standards) code. The second field is the official two-character state abbreviation. As 5-digit Zip Codes can span state lines, this field only provides the FIPS code and state abbreviation for the most common state associated with the 5-digit Zip Code.

**FIPS County Code & Name** – These fields identify the county in which addresses using the 5-digit Zip Code exist. The first field is the official three-digit county FIPS (Federal Information Processing Standards) code. The second field is the full county name. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.

**Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **Lat/Lon Match Quality** field.

**Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **Lat/Lon Match Quality** field.

**Lat/Lon Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- Military
- PO Boxes Only
- Unique (single organization)
- Blank = All others

**Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- Eastern US
- Central US
- Mountain US
- Pacific US
- Alaska AK
- Hawaii HI
- Puerto Rico PR / Virgin Islands VI
- Guam GU
- American Samoa AS
- Palau PU
- Marshal Islands MH

**Telephone Area Codes** – These fields provide up to three possible telephone area codes associated with the 5-Digit Zip Code.

**Census Tract / Block Group** – These fields identify the 2010 Census tract and block group associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

**Census Metropolitan Statistical Area** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

***Census Minor Civil Division Code*** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

***Census Designated Place Code*** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

### **Function Keys**

Pressing ***F1*** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing ***F3*** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing ***F12*** while on this screen will return you to the initial Work with Zip Code Data screen and allow you to enter a different Zip Code.

If you press the roll up (page down) key while on the second 5-Digit Zip Code Level Information screen, you will be presented with the 3-Digit Zip Code Level Information screen. Pressing the roll down (page up) key while the 3-Digit Zip Code Level Information is being displayed will return you to the second 5-Digit Zip Code Level Information screen.

The 3-Digit Zip Code Level Information screen might also be displayed if either of the following are true:

- A. You only entered the first three digits of a Zip Code on the initial Work with Zip Code Data screen.
- B. The 9-digit, 7-digit, or 5-digit Zip Code entered on the initial Work with Zip Code Data screen does not exist in the Z4 LAT/LON database.

An example of the 3-Digit Zip Code Level Information screen is shown below.

```

LLR020                               Your Company Name Here                8/30/04
LLR020D                               Z4 LAT/LON                            09:47:51
                                     Work with Zip Code Data

Zip Code: 391                          3-Digit Zip Code Level Information

FIPS state code & abbreviation: 28 MS
FIPS county code & name .....: 149 WARREN

Latitude .....: 32.254510
Longitude .....: 90.395321-
Lat / Lon match quality .....: (6) 3-Digit ZIP Centroid
County: Metropolitan statistical area : 00000
      Micropolitan statistical area : 46980
      Metropolitan division.....: 00000
      Consolidated statistical area : 000
Census: Tract / Block Group .....: 112.00 / 2
      Metropolitan statistical area : 0000
      Minor Civil Division code ....:
      Designated Place code .....:

                                                                 Bottom

F1=Help   F3=Exit   F12=Cancel
  
```

**Field Definitions**

**Zip Code** – This field displays the first three digits of the Zip Code for which additional information was requested.

**FIPS State Code & Abbreviation** – These fields identify the state in which addresses using the 3-digit Zip Code exist. The first field is the official two-digit state FIPS (Federal Information Processing Standards) code. The second field is the official two-character state abbreviation. As 3-digit Zip Codes can span state lines, this field only provides the FIPS code and state abbreviation for the most common state associated with the 3-digit Zip Code.

**FIPS County Code & Name** – These fields identify the county in which addresses using the 3-digit Zip Code exist. The first field is the official three-digit county FIPS (Federal Information Processing Standards) code. The second field is the full county name. As 3-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 3-digit Zip Code.

**Latitude** – This field provides the latitude for the 3-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **Lat/Lon Match Quality** field.

**Longitude** – This field provides the longitude for the 3-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **Lat/Lon Match Quality** field.

**Lat/Lon Match Quality** – This field indicates the match quality achieved during the geocoding of the 3-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 3-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 3-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 3-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area (\*\* Not possible for 3-Digit Zip Code)
- 5 – Centroid located at the midpoint of the associated incorporated city area (\*\* Not possible for 3-Digit Zip)
- 6 – Centroid located at the midpoint of the associated county area (\*\* Not possible for 3-Digit Zip Code)
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**County Metropolitan Statistical Area** – This field provides the current MSA (Metropolitan Statistical Area) code (if any) associated with the county in which addresses associated with the 3-Digit Zip Code exist. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**County Micropolitan Statistical Area** – This field provides the Micropolitan Statistical Area code (if any) associated with the county in which addresses associated with the 3-Digit Zip Code exist. As 3-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 3-digit Zip Code.

**County Metropolitan Division** – This field provides the Metropolitan Division code (if any) associated with the county in which addresses associated with the 3-Digit Zip Code exist. As 3-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 3-digit Zip Code.

**County Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code (if any) associated with the county in which addresses associated with the 3-Digit Zip Code exist. As 3-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 3-digit Zip Code.

**Census Tract / Block Group** – These fields identify the 2010 Census tract and block group associated with the 3-Digit Zip Code. Census tracts are small statistical subdivisions of a county. Census block groups are small statistical subdivisions of a Census tract. As 3-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 3-digit Zip Code.

**Census Metropolitan Statistical Area** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 3-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**Census Minor Civil Division Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 3-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 3-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

***Census Designated Place Code*** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 3-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 3-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

### **Function Keys**

Pressing ***F1*** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing ***F3*** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing ***F12*** while on this screen will return you to the initial Work with Zip Code Data screen and allow you to enter a different Zip Code.



## WORK WITH DISTANCE CALCULATIONS

To calculate the distance between two Zip Codes, select option 05 from the Z4 LAT/LON Main Menu. After selecting option 05, a screen similar to the one below will be displayed, allowing you to enter a from and to Zip Code. If you do not know the entire nine-digit Zip Code for the starting point or the destination, you can enter a partial Zip Code.

A partial Zip Code can be the first three, five, or seven digits of the Zip Code. Fill the right-most positions with zeros. Using a partial Zip Code greatly reduces the accuracy of the distance calculated.

```
LLR030                               Your Company Name Here                8/30/04
LLR030D                              Z4 LAT/LON                          09:58:13
                                Calculate Distance Between ZIP Codes

From Zip Code:  _____

To Zip Code  .:  _____

F1=Help   F3=Exit   F12=Cancel

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```

### Field Definitions

**From Zip Code** – This field allows you to enter the Zip Code for the starting point from which you wish to calculate a distance. This is a required input field. Valid values are any three, five, seven, or nine-digit Zip Code. If a three, five, or seven-digit Zip Code is entered, you should fill the right-most positions with zeros. Using a partial Zip Code greatly reduces the accuracy of the distance calculated.

**To Zip Code** – This field allows you to enter the Zip Code for the destination to which you wish to calculate a distance. This is a required input field. Valid values are any three, five, seven, or nine-digit Zip Code. If a three, five, or seven-digit Zip Code is entered, you should fill the right-most positions with zeros. Using a partial Zip Code greatly reduces the accuracy of the distance calculated.

### Function Keys

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will also return you to the Z4 LAT/LON Main Menu.

After typing the starting point and destination Zip Codes and pressing **ENTER**, the results of the distance calculations will be displayed.

In addition to the distance results, the latitude, longitude, and quality indicators will be displayed for both the starting point and destination Zip Codes. This information is valuable in determining the accuracy of the distances calculated.

An example of the Calculate Distance Between ZIP Codes screen showing distance results is provided below.

```
LLR030                               Your Company Name Here                               8/30/04
LLR030D                               Z4 LAT/LON                                           11:10:23

                                Calculate Distance Between ZIP Codes

From Zip Code: 39110 9435

To Zip Code .: 39201 2122

Results:

Zip Code . . . .: 39110 9435   Latitude: 32.489963   Longitude: 90.198919-
                                Lat/Lon Quality: (1) Street segment exact address match

Zip Code . . . .: 39201 2122   Latitude: 32.300226   Longitude: 90.188223-
                                Lat/Lon Quality: (1) Street segment exact address match

Approximate Distances:          13.11556 Statute miles
                                21.10745 Kilometers
                                11.39711 Nautical miles

F1=Help   F3=Exit   F12=Cancel
```

### **Field Definitions**

***From Zip Code*** – This field displays the starting point Zip Code.

***To Zip Code*** – This field displays the destination Zip Code.

***Zip Code*** – This field identifies the Zip Code associated with the ***Latitude***, ***Longitude***, and ***Lat/Lon Quality*** fields displayed.

***Latitude*** – This field provides the best available latitude for the Zip Code specified. The latitude is provided in the "WGS 84" format. The precision of this latitude is indicated by the field ***Lat/Lon Quality***.

***Longitude*** – This field provides the best available longitude for the Zip Code specified. The longitude is provided in the "WGS 84" format. The precision of this longitude is indicated by the field ***Lat/Lon Quality***.

***Lat/Lon Quality*** – This field indicates the Match Quality achieved during the geocoding of the Zip Code specified. This field provides important information regarding the precision of the associated ***Latitude*** and ***Longitude***.

***Approximate Distances*** – These fields provide the distance between the two Zip Codes. The distance is shown in Statute Miles, Kilometers, and Nautical Miles. All distances returned are as accurate as our Lat/Lon data allows. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

### **Function Keys**

Pressing ***F1*** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing ***F3*** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing ***F12*** while on this screen will return you to the initial Calculate Distance Between ZIP Codes screen and allow you to enter a different set of starting point and destination Zip Codes.

## WORK WITH DEALER FILE DEFINITIONS

The Z4 LAT/LON system includes a Nearest Dealer Locator feature. This feature is designed to work with multiple dealer files utilizing different record formats. The first step in implementing the Nearest Dealer Locator feature of Z4 LAT/LON is to define your dealer files. Dealer file definitions simply tell Z4 LAT/LON where to find Zip Code information within your dealer records.

To create and/or maintain dealer file definitions, select option 07 from the Z4 LAT/LON Main Menu. After selecting option 07, a screen similar to the one below will be displayed, allowing you to select a dealer file definition to be changed, copied, or deleted. This screen also allows you to create a new dealer file definition from scratch by pressing **F6** function key.

```
LLR050                               Your Company Name Here          9/02/04
LLR050D                               Z4 LAT/LON                      09:50:29

                               Work with Dealer File Definitions

Type options, press Enter.
  2=Change  3=Copy  4=Delete

----- File -----
Opt Library  Name      Member  # Description
-  ALOWORK   DMASTER  *FIRST   1 Dealer Master File

F1=Help  F3=Exit  F6=Add definition  F12=Cancel

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Bottom
```

### Field Definitions

**Option** – This field allows you to select one or more dealer file definitions for processing. Valid values are “2” to select the dealer file definition to be changed, “3” to select the dealer file definition to be copied, and “4” to select the dealer file definition to be deleted.

**File Library** – This field identifies the library in which the dealer file exists.

**File Name** – This field identifies the dealer file.

**File Member** – This field identifies the exact member of the dealer file that is used when providing nearest dealer information.

# – This field identifies the definition number associated with the dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file.

*Description* – This field provides a text description for the dealer file definition.

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F6** while on this screen will cause the Add Dealer File Definition screen to be displayed. The Add Dealer File Definition screen allows you to enter a new dealer file definition from scratch.

Pressing **F12** while on this screen will also return you to the Z4 LAT/LON Main Menu.

For each dealer file definition selected to be changed, the Change Dealer File Definition screen will be displayed. This screen allows you to change the description and field location information for the dealer file.

This screen does not allow you to change the dealer file name, library, member name, or definition number. If you wish to change any of these, you should copy the definition to a new definition and make the changes while creating the new definition.

An example of the Change Dealer File Definition screen is shown below.

```

LLR050                               Your Company Name Here                9/02/04
LLR050D                               Z4 LAT/LON                        10:10:48

                                Change Dealer File Definition

Dealer file name ...: DMASTER
                                ALOWORK (Library name, *LIBL)
Member .....: *FIRST (Member name, *FIRST)
Definition number ..: 1 (1-9)

Description .....: Dealer Master File

Key field
Starting position ..: 15 (1-9999)
Length .....: 35 (1-35)
Type .....:   (P=Packed, S=Signed numeric, Blank=Alpha)

5/9-digit Zip Code                4-digit Zip+4
Starting position ..: 233 (1-9999)    Starting position ..: 0 (1-9999)
Length .....: 5 (1-9)                Length .....: 0 (1-4)
Type .....: P (P, S, Blank)          Type .....:   (P, S, Blank)

F1=Help   F3=Exit   F5=Display physical file member
F7=Display file field description   F12=Cancel

```

**Field Definitions**

**Dealer File Name** – This field identifies the actual file name associated with this dealer file definition. Once the dealer file definition has been created, this information cannot be changed.

**Dealer File Member** – This field identifies the exact member of the dealer file that is used when providing nearest dealer information. Once the dealer file definition has been created, this information cannot be changed.

**Definition Number** – This field identifies the definition number associated with the dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file. Once the dealer file definition has been created, this information cannot be changed.

**Description** – This field provides a text description for the dealer file definition. This field can be changed at any time and has no effect on the performance of the Nearest Dealer Locator function.

**Key Field Starting Position** – This field indicates the starting position of the key field within the record. The key field is used to identify specific dealers that are determined to be nearest the Zip Code provided. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

For the purposes of Z4 LAT/LON, the key field defined here does not have to be the same as the file's key field. It only needs to be a field unique enough to distinguish one dealer from another when presented in a list.

**Key Field Length** – This field indicates the length of the key field that Z4 LAT/LON will use to identify specific dealers. Valid values are any length between 01 and 35 if the **Key Field Data Type** is not “P” for packed. If the **Key Field Data Type** is “P” for packed, valid values are any length between 01 and 15.

**Key Field Data Type** – This field indicates the type of data that will be used as the key field. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **Key Field Data Type** specified will determine the valid values for the **Key Field Length** field.

**5/9-Digit Zip Code Starting Position** – This field indicates the starting position of the 5-digit or 9-digit Zip Code field within the record. The Zip Code field(s) is used to determine the geographic location of the associated dealer. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

**5/9-Digit Zip Code Length** – This field indicates the physical length of the 5-digit or 9-digit Zip Code field within the record. Valid values for a 5-digit Zip Code are 5 if the **5/9-Digit Zip Code Data Type** is not “P” for packed and 3 if the **5/9-Digit Zip Code Data Type** is “P” for packed. Valid values for a 9-digit Zip Code are 9 if the **5/9-Digit Zip Code Data Type** is not “P” for packed and 5 if the **5/9-Digit Zip Code Data Type** is “P” for packed.

**5/9-Digit Zip Code Data Type** – This field indicates the type of data that will be used as the 5-digit or 9-digit Zip Code. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **5/9-Digit Zip Code Data Type** specified will determine the valid values for the **5/9-Digit Zip Code Length** field.

**4-Digit Zip+4 Starting Position** – This field indicates the starting position of the 4-digit Zip+4 field within the record. The Zip+4 field is used in conjunction with a 5-digit Zip Code to determine the geographic location of the associated dealer. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

**4-Digit Zip+4 Length** – This field indicates the physical length of the 4-digit Zip+4 field within the record. Valid values are 4 if the **4-Digit Zip+4 Data Type** is not “P” for packed and 3 if the **4-Digit Zip+4 Data Type** is “P” for packed.

**4-Digit Zip+4 Data Type** – This field indicates the type of data that will be used as the 4-digit Zip+4. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **4-Digit Zip+4 Data Type** specified will determine the valid values for the **4-Digit Zip+4 Length** field.

## **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F5** while on this screen will cause the physical file member to be displayed. This display allows you to see the file's raw data in the same format in which it is stored so that exact data locations can be determined.

Pressing **F7** while on this screen will cause the file field descriptions to be displayed. This display can also assist you in determining exact location of specific data within the file's records.

Pressing **F12** while on this screen will return you to the Work with Dealer File Definitions screen.



For each dealer file definition selected to be copied, the Copy Dealer File Definition screen will be displayed. This screen allows you to copy a dealer file definition to a new dealer file definition. As the definition is being copied, key fields such as file and library name, member name, and definition number can be modified.

Once the dealer file definition is copied, the newly created copy can be selected from the Work with Dealer File Definitions screen and modified as needed.

An example of the Copy Dealer File Definition screen is shown below.

```
LLR050                               Your Company Name Here                9/07/04
LLR050D                               Z4 LAT/LON                            08:30:08
                                     Copy Dealer File Definition

Copy from definition
Dealer file name ...: DMASTER
                               ALLOWORK
Member .....: *FIRST
Definition number ..: 1
Description .....: Dealer Master File

Copy to definition
Dealer file name ...: DMASTER
                               ALLOWORK (Library name, *LIBL)
Member .....: *FIRST (Member name, *FIRST)
Definition number ..: 0 (1-9)
Description .....: Dealer Master File

F1=Help  F3=Exit  F12=Cancel
```

### **Field Definitions**

***Copy From Dealer File Name*** – This field displays the actual file name associated with the original dealer file definition.

***Copy From Dealer File Member*** – This field displays the exact member of the dealer file that is processed when providing nearest dealer information using the original dealer file definition.

***Copy From Definition Number*** – This field displays the definition number associated with the original dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file.

***Copy From Description*** – This field displays the text description for the original dealer file definition.

***Copy To Dealer File Name*** – This field identifies the actual file name to be associated with the new copy of this dealer file definition. Once this copy of the dealer file definition has been created, the dealer file name cannot be changed.

***Copy To Dealer File Member*** – This field identifies the exact member of the specified file that is to be processed when providing nearest dealer information using this copy of the dealer file definition. Once this copy of the dealer file definition has been created, the member name cannot be changed.

***Copy To Definition Number*** – This field identifies the definition number associated with this copy of the dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file. The definition number must be unique for the dealer file, library, and member names specified. Once this copy of the dealer file definition has been created, the definition number cannot be changed.

***Description*** – This field provides a text description for this copy of the dealer file definition. This field can be changed at any time and has no effect on the performance of the Nearest Dealer Locator function.

### **Function Keys**

Pressing ***F1*** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing ***F3*** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing ***F12*** while on this screen will return you to the Work with Dealer File Definitions screen.

To create a new dealer file definition, simply press the **F6** function key while on the Work with Dealer File Definitions screen. After pressing the **F6** function key, the Add Dealer File Definition screen will be displayed. This screen allows you to create a dealer file definition from scratch.

When using this screen to create a new dealer file definition, keep in mind that the dealer file, library, member, and definition number must be unique. This is the information that distinguishes one definition from another.

An example of the Add Dealer File Definition screen is shown below.

```

LLR050                               Your Company Name Here                9/07/04
LLR050D                               Z4 LAT/LON                        09:26:37
                                     Add Dealer File Definition

Dealer file name ..: _____ (Library name, *LIBL)
Member .....: *FIRST _____ (Member name, *FIRST)
Definition number ..: 1 (1-9)

Description .....: _____

Key field
Starting position ..: 0 (1-9999)
Length .....: 0 (1-35)
Type .....: _ (P=Packed, S=Signed numeric, Blank=Alpha)

5/9-digit Zip Code                4-digit Zip+4
Starting position ..: 0 (1-9999)    Starting position ..: 0 (1-9999)
Length .....: 0 (1-9)              Length .....: 0 (1-4)
Type .....: _ (P, S, Blank)        Type .....: _ (P, S, Blank)

F1=Help  F3=Exit  F5=Display physical file member
F7=Display file field description  F12=Cancel

```

**Field Definitions**

**Dealer File Name** – This field identifies the actual file name associated with this dealer file definition. Once the dealer file definition has been created, this information cannot be changed.

**Dealer File Member** – This field identifies the exact member of the dealer file that is used when providing nearest dealer information. Once the dealer file definition has been created, this information cannot be changed.

**Definition Number** – This field identifies the definition number associated with the dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file. Once the dealer file definition has been created, this information cannot be changed.

**Description** – This field provides a text description for the dealer file definition. This field can be changed at any time and has no effect on the performance of the Nearest Dealer Locator function.

**Key Field Starting Position** – This field indicates the starting position of the key field within the record. The key field is used to identify specific dealers that are determined to be nearest the Zip Code provided. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

For the purposes of Z4 LAT/LON, the key field defined here does not have to be the same as the file's key field. It only needs to be a field unique enough to distinguish one dealer from another when presented in a list.

**Key Field Length** – This field indicates the length of the key field that Z4 LAT/LON will use to identify specific dealers. Valid values are any length between 01 and 35 if the **Key Field Data Type** is not “P” for packed. If the **Key Field Data Type** is “P” for packed, valid values are any length between 01 and 15.

**Key Field Data Type** – This field indicates the type of data that will be used as the key field. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **Key Field Data Type** specified will determine the valid values for the **Key Field Length** field.

**5/9-Digit Zip Code Starting Position** – This field indicates the starting position of the 5-digit or 9-digit Zip Code field within the record. The Zip Code field(s) is used to determine the geographic location of the associated dealer. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

**5/9-Digit Zip Code Length** – This field indicates the physical length of the 5-digit or 9-digit Zip Code field within the record. Valid values for a 5-digit Zip Code are 5 if the **5/9-Digit Zip Code Data Type** is not “P” for packed and 3 if the **5/9-Digit Zip Code Data Type** is “P” for packed. Valid values for a 9-digit Zip Code are 9 if the **5/9-Digit Zip Code Data Type** is not “P” for packed and 5 if the **5/9-Digit Zip Code Data Type** is “P” for packed.

**5/9-Digit Zip Code Data Type** – This field indicates the type of data that will be used as the 5-digit or 9-digit Zip Code. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **5/9-Digit Zip Code Data Type** specified will determine the valid values for the **5/9-Digit Zip Code Length** field.

**4-Digit Zip+4 Starting Position** – This field indicates the starting position of the 4-digit Zip+4 field within the record. The Zip+4 field is used in conjunction with a 5-digit Zip Code to determine the geographic location of the associated dealer. Valid values are any position between 01 and 9999. The value specified should not be larger than the last position of the record.

**4-Digit Zip+4 Length** – This field indicates the physical length of the 4-digit Zip+4 field within the record. Valid values are 4 if the **4-Digit Zip+4 Data Type** is not “P” for packed and 3 if the **4-Digit Zip+4 Data Type** is “P” for packed.

**4-Digit Zip+4 Data Type** – This field indicates the type of data that will be used as the 4-digit Zip+4. Valid values are “P” for packed data, “S” for signed numeric data, and blank for alpha-numeric or character data. The **4-Digit Zip+4 Data Type** specified will determine the valid values for the **4-Digit Zip+4 Length** field.

## **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F5** while on this screen will cause the physical file member to be displayed. This display allows you to see the file's raw data in the same format in which it is stored so that exact data locations can be determined.

Pressing **F7** while on this screen will cause the file field descriptions to be displayed. This display can also assist you in determining exact location of specific data within the file's records.

Pressing **F12** while on this screen will return you to the Work with Dealer File Definitions screen.

## LOCATE THE NEAREST DEALER

To locate the dealer nearest a specific Zip Code, select option 09 from the Z4 LAT/LON Main Menu. After selecting option 09, one of two screens will be displayed. If you have defined only one dealer file to Z4 LAT/LON, the starting point Zip Code entry screen will be displayed. This screen is fully documented on page 43 of this manual.

If you have defined multiple dealer files to Z4 LAT/LON, a screen similar to the one below will be displayed, allowing you to select the dealer file definition that is to be used while locating the nearest dealer. Dealer file definitions can also be displayed while on this screen. Displaying the entire definition may help determine which definition should be selected.

```
LLR060                               Your Company Name Here                9/07/04
LLR060D                               Z4 LAT/LON                            18:27:07

                               Work with Nearest Dealers

Select the Dealer File Definition to be used and press ENTER.
  1=Select   5=Display

----- File -----
Opt Library   Name       Member   # Description
-  ALOWORK    DMASTER   *FIRST    1 Dealer Master File
-  ALOWORK    DMASTER   *FIRST    2 Dealer Master File

                                           Bottom

F1=Help   F3=Exit   F12=Cancel

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```

### Field Definitions

**Option** – This field allows you to select a dealer file definition for processing. Valid values are “1” to select the dealer file definition to be used and “5” to select the dealer file definition to be displayed.

**File Library** – This field identifies the library in which the dealer file exists.

**File Name** – This field identifies the dealer file.

**File Member** – This field identifies the exact member of the dealer file that is used when the dealer file definition is selected.

**#** – This field identifies the definition number associated with the dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file.

*Description* – This field provides a text description for the dealer file definition.

**Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will also return you to the Z4 LAT/LON Main Menu.

After selecting a dealer file definition to be used (or if only one dealer file definition exists), the starting point Zip Code entry screen will be displayed. This screen allows you to enter a Zip Code that represents the starting point from which distances are calculated when determining the nearest dealers. If you do not know the entire nine-digit Zip Code for the starting point, you can enter a partial Zip Code.

A partial Zip Code can be the first three, five, or seven digits of the Zip Code. Fill the right-most positions with zeros. Using a partial Zip Code greatly reduces the accuracy of the distances calculated.

An example of the starting point Zip Code entry screen is shown below.

```
LLR040          Your Company Name Here          9/07/04
LLR040D        Z4 LAT/LON                      18:40:34
                Work with Nearest Dealers

Dealer file: ALOWORK/DMASTER      Mbr: *FIRST      Def#: 2
Description: Dealer Master File

Starting point
Zip Code.....: _____

F1=Help   F3=Exit   F12=Cancel

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```

### **Field Definitions**

**Dealer File Name** – This field identifies the actual file name associated with this dealer file definition.

**Dealer File Member** – This field identifies the exact member of the dealer file that is being used.

**Definition Number** – This field identifies the definition number associated with this dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file.

**Description** – This field provides a text description for this dealer file definition.

**Starting Point Zip Code** – This field allows you to enter the Zip Code for the starting point from which you wish to calculate distances when determining the nearest dealers. This is a required input field. Valid values are any three, five, seven, or nine-digit Zip Code. If a three, five, or seven-digit Zip Code is entered, you should fill the right-most positions with zeros. Using a partial Zip Code greatly reduces the accuracy of the distance calculated.

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will return you to the previous screen.



After entering a starting point Zip Code and pressing ENTER, the ten nearest dealers will be identified and displayed as a screen similar to the one below. This screen not only provides the ten nearest dealers, it also displays the distance from the starting point Zip Code to each dealer in statute miles, kilometers, and nautical miles.

All distances returned are as accurate as our Latitude / Longitude data allows. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

```

LLR040                               Your Company Name Here                9/07/04
LLR040D                               Z4 LAT/LON                            18:49:36
                                Work with Nearest Dealers

Dealer file: ALOWORK/DMASTER          Mbr: *FIRST          Def#: 2
Description: Dealer Master File

Starting point
Zip Code.....: 39110 9435

The ten nearest dealers are listed below:

Seq  Dealer                               Statute      Kilometers      Nautical
    Seq  Dealer                               Miles        Miles        Miles
01  Lenora Freeman                        80.27516     129.19035     69.75721
02  Lynn Outlaw                          82.08239     132.09880     71.32765
03  Lisa Williams                        92.50639     148.87461     80.38586
04  Leon Stewart                         131.17554    211.10657    113.98843
05  Mike Sanders                         157.53850    253.53364    136.89721
06  Tonia Thibodeaux                     165.16432    265.80621    143.52387
                                           More...

F1=Help  F3=Exit  F12=Cancel

```

**Field Definitions**

**Dealer File Name** – This field identifies the actual file name associated with this dealer file definition.

**Dealer File Member** – This field identifies the exact member of the dealer file that is being used.

**Definition Number** – This field identifies the definition number associated with this dealer file definition. Definition numbers allow multiple definitions to exist for a single dealer file.

**Description** – This field provides a text description for this dealer file definition.

**Starting Point Zip Code** – This field displays the Zip Code specified as the starting point from which distances were calculated when determining the nearest dealers.

**Sequence Number** – This field is a sequential number associated with each of the ten nearest dealers. The numbers are assigned so that sequence number 01 is associated with the nearest dealer and sequence number 10 is associated with the farthest of the ten dealers.

**Dealer** – This field displays the value found in your dealer file at the location identified as the “key field” within the Dealer File Definition. The key field defined in the Dealer File Definition is not necessarily the key field for the actual dealer file. This field is only intended to allow users to visually identify the dealers listed.

**Distance Statute Miles** – This field provides the actual distance (in Statute Miles) from the starting point Zip Code to the associated dealer.

**Distance Kilometers** – This field provides the actual distance (in Kilometers) from the starting point Zip Code to the associated dealer.

**Distance Nautical Miles** – This field provides the actual distance (in Nautical Miles) from the starting point Zip Code to the associated dealer.

### **Function Keys**

Pressing **F1** while on this screen will access the on-line help text associated with the area of the screen in which the cursor is currently located.

Pressing **F3** while on this screen will return you to the Z4 LAT/LON Main Menu.

Pressing **F12** while on this screen will return you to the previous screen where another starting point Zip Code may be entered.

## CALLABLE PROGRAMS

Z4 LAT/LON includes many callable programs.

A list of the callable programs provided with Z4 LAT/LON and their functions is provided below.

Current generation callable programs:

1. LLR20001 – Program to retrieve all available data for a specified Zip Code.
2. LLR260 – Program to retrieve basic data for a specified 9-digit Zip Code.
3. LLR265 – Program to retrieve extended data for a specified 9-digit Zip Code.
4. LLR270 – Program to retrieve basic data for a specified 7-digit Zip Code.
5. LLR275 – Program to retrieve extended data for a specified 7-digit Zip Code.
6. LLR280 – Program to retrieve basic data for a specified 5-digit Zip Code.
7. LLR28501 – Program to retrieve extended data for a specified 5-digit Zip Code.
8. LLR290 – Program to retrieve basic data for a specified 3-digit Zip Code.
9. LLR295 – Program to retrieve extended data for a specified 3-digit Zip Code.
10. LLR300 – Program to calculate the distance between two specified Zip Codes.
11. LLR310 – Program to calculate the distance between two specified latitude/longitude coordinates.
12. LLR320 – Program to convert a decimal latitude/longitude coordinate to its degrees, minutes, and seconds equivalent.
13. LLR330 – Program to convert a degrees, minutes, and seconds latitude/longitude coordinate to its decimal equivalent.
14. LLR350 – Program to return the 10 dealers nearest a specified Zip Code.

Previous generation callable programs:

1. LLR200 – Program to retrieve all available data for a specified Zip Code.
2. LLR285 – Program to retrieve extended data for a specified 5-digit Zip Code.

Previous generation callable programs remain functional to ensure compatibility with existing interfaces between user written applications and Z4 LAT/LON.

Sample source code is provided in the source file LTLNLIB/QSMPLSRC to demonstrate the use of each of the callable programs. The sample source code was written in a way that it might be copied into your applications programs with little modification. You must replace our DATA field with your field names.

Although the sample source code has been thoroughly tested by the author, its use within your applications must be carefully controlled and tested. This material is offered as a courtesy to users of Z4 LAT/LON on an "as is" basis without warranty either express or implied.

Each of the Z4 LAT/LON callable programs is explained in detail on the following pages.

## CALLABLE PROGRAM: LLR20001

**Purpose:** The purpose of LLR20001 is to return all available information at any and all levels (9-Digit, 7-Digit, 5-Digit, & 3-Digit) for the specified ZIP Code.

**Performance:** While this program does return all available information at all levels for a specified Zip Code, it is also the slowest performing of all the Z4 LAT/LON interfaces. If you only need information for a single level (i.e. 9-Digit or 7-Digit), you can increase performance by using one of the other Z4 LAT/LON callable programs.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR20001, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR20001. The sample source code can be found in member LLR200.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 4	Char	4	
03	Return 9-digit Zip Code level information	Char	1	
04	Return 7-digit Zip Code level information	Char	1	
05	Return 5-digit Zip Code level information	Char	1	
06	Return 3-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. For 3-digit Zip Codes, use the first three positions only. This is a required input field.

**Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code provided. For 3-digit and 5-digit Zip Codes, this field should be blank. For 7-digit Zip Codes, use the first two positions only. This field is required if you wish to receive information at the 7-digit or 9-Digit Zip Code level.

**Return 9-digit Zip Code level information** – This field indicates whether or not you wish to receive 9-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 9-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 9-Digit Zip Code level data set.

**Return 7-digit Zip Code level information** – This field indicates whether or not you wish to receive 7-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 7-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 7-Digit Zip Code level data set.

**Return 5-digit Zip Code level information** – This field indicates whether or not you wish to receive 5-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 5-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 5-Digit Zip Code level data set.

**Return 3-digit Zip Code level information** – This field indicates whether or not you wish to receive 3-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 3-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 3-Digit Zip Code level data set.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	9-Digit Zip Code – Information returned	Char	1	
02	9-Digit Zip Code – State and county FIPS code	Dec	5	0
03	9-Digit Zip Code – Zip + 4 record type	Char	1	
04	9-Digit Zip Code – Match quality	Dec	1	0
05	9-Digit Zip Code – Latitude	Dec	9	6
06	9-Digit Zip Code – Longitude	Dec	9	6
07	9-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
08	9-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
09	9-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
10	9-Digit Zip Code – Census Tract	Dec	6	2
11	9-Digit Zip Code – Census Block Group	Dec	1	0
12	9-Digit Zip Code – State Abbreviation	Char	2	
13	9-Digit Zip Code – County name	Char	25	
14	9-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
15	9-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
16	9-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
17	9-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
18	9-Digit Zip Code – Error ID	Char	7	
19	9-Digit Zip Code – Error Message	Char	50	
20	7-Digit Zip Code – Information returned	Char	1	
21	7-Digit Zip Code – State and county FIPS code	Dec	5	0
22	7-Digit Zip Code – Match quality	Dec	1	0
23	7-Digit Zip Code – Latitude	Dec	9	6
24	7-Digit Zip Code – Longitude	Dec	9	6
25	7-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
26	7-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
27	7-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
28	7-Digit Zip Code – Census Tract	Dec	6	2
29	7-Digit Zip Code – Census Block Group	Dec	1	0
30	7-Digit Zip Code – State Abbreviation	Char	2	
31	7-Digit Zip Code – County name	Char	25	
32	7-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
33	7-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
34	7-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0

Seq#	Field Description	Type	Len	Dec
35	7-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
36	7-Digit Zip Code – Error ID	Char	7	
37	7-Digit Zip Code – Error Message	Char	50	
38	5-Digit Zip Code – Information returned	Char	1	
39	5-Digit Zip Code – State and county FIPS code	Dec	5	0
40	5-Digit Zip Code – Match quality	Dec	1	0
41	5-Digit Zip Code – Latitude	Dec	9	6
42	5-Digit Zip Code – Longitude	Dec	9	6
43	5-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
44	5-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
45	5-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
46	5-Digit Zip Code – Census Tract	Dec	6	2
47	5-Digit Zip Code – Census Block Group	Dec	1	0
48	5-Digit Zip Code – Zip Code class	Char	1	
49	5-Digit Zip Code – Time zone	Char	1	
50	5-Digit Zip Code – Area code #01	Dec	3	0
51	5-Digit Zip Code – Area code #02	Dec	3	0
52	5-Digit Zip Code – Area code #03	Dec	3	0
53	5-Digit Zip Code – Area code #04	Dec	3	0
54	5-Digit Zip Code – Area code #05	Dec	3	0
55	5-Digit Zip Code – Area code #06	Dec	3	0
56	5-Digit Zip Code – State Abbreviation	Char	2	
57	5-Digit Zip Code – County name	Char	25	
58	5-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
59	5-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
60	5-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
61	5-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
62	5-Digit Zip Code – Error ID	Char	7	
63	5-Digit Zip Code – Error Message	Char	50	
64	3-Digit Zip Code – Information returned	Char	1	
65	3-Digit Zip Code – State and county FIPS code	Dec	5	0
66	3-Digit Zip Code – Match quality	Dec	1	0
67	3-Digit Zip Code – Latitude	Dec	9	6
68	3-Digit Zip Code – Longitude	Dec	9	6
69	3-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
70	3-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
71	3-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
72	3-Digit Zip Code – Census Tract	Dec	6	2
73	3-Digit Zip Code – Census Block Group	Dec	1	0
74	3-Digit Zip Code – State Abbreviation	Char	2	
75	3-Digit Zip Code – County name	Char	25	
76	3-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
77	3-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
78	3-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
79	3-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0

Seq#	Field Description	Type	Len	Dec
80	3-Digit Zip Code – Error ID	Char	7	
81	3-Digit Zip Code – Error Message	Char	50	

### Output field descriptions

**9-Digit Zip Code Information Returned** – This field indicates whether or not 9-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR20001, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**9-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 9-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. This field tells you the state and county in which the address is located.

**9-Digit Zip Code Zip + 4 Record Type** – This field indicates the USPS National ZIP + 4 record type used during geocoding of the 9-Digit Zip Code. Record types are assigned by the USPS.

The following is a complete list of valid record types:

- F – Firm record
- G – General Delivery record
- H – High Rise record
- P – PO Box
- R – Rural Route record
- S – Street record

**9-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 9-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**9-Digit Zip Code Latitude** – This field provides the latitude for the 9-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code Longitude** – This field provides the longitude for the 9-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 9-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes.

**9-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census CCD code. **\*\*\* MCD data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. **\*\*\* CDP data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 9-Digit Zip Code. Census tracts are small statistical subdivisions of a county.

**9-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 9-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract.

**9-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 9-Digit Zip Code is located.

**9-Digit Zip Code County Name** – This field provides the official County name for the county in which the 9-Digit Zip Code is located.

**9-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 9-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003.

**9-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 9-Digit Zip Code.

**9-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **9-Digit Zip Code Error ID** field.

**7-Digit Zip Code Information Returned** – This field indicates whether or not 7-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR20001, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**7-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 7-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 7-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 7-digit Zip Code.

**7-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 7-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 7-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area



- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**7-Digit Zip Code Latitude** – This field provides the latitude for the 7-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code Longitude** – This field provides the longitude for the 7-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 7-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 7-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 7-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 7-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 7-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 7-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 7-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 7-digit Zip Code.

**7-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 7-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 7-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 7-digit Zip Code.

**7-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 7-digit Zip Code.

**7-Digit Zip Code County Name** – This field provides the official County name for the county in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 7-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 7-digit Zip Code.

**7-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 7-digit Zip Code

**7-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 7-Digit Zip Code.

**7-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **7-Digit Zip Code Error ID** field.

**5-Digit Zip Code Information Returned** – This field indicates whether or not 5-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR20001, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**5-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 5-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 5-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 5-digit Zip Code.

**5-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**5-Digit Zip Code Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

**5-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 5-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 5-digit Zip Code.

**5-Digit Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- M – Military
- P – PO Boxes Only
- U – Unique (single organization)
- Blank – All others

**5-Digit Zip Code Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- E – Eastern US
- C – Central US
- M – Mountain US
- P – Pacific US
- A – Alaska AK
- H – Hawaii HI
- V – Puerto Rico PR / Virgin Islands VI
- G – Guam GU
- S – American Samoa AS
- U – Palau PU
- N – Marshal Islands MH

**5-Digit Zip Code Area Code #01** – This field provides the first of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #02** – This field provides the second of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #03** – This field provides the third of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #04** – This field provides the fourth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #05** – This field provides the fifth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #06** – This field provides the sixth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 5-digit Zip Code.

**5-Digit Zip Code County Name** – This field provides the official County name for the county in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 5-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 5-digit Zip Code.

**5-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 5-Digit Zip Code.

**5-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **5-Digit Zip Code Error ID** field.

**3-Digit Zip Code Information Returned** – This field indicates whether or not 3-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR20001, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**3-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 3-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 3-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 3-digit Zip Code.

**3-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 3-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 3-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 3-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 3-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area (\*\* Not possible for 3-Digit Zip Code)
- 5 – Centroid located at the midpoint of the associated incorporated city area (\*\* Not possible for 3-Digit Zip)
- 6 – Centroid located at the midpoint of the associated county area (\*\* Not possible for 3-Digit Zip Code)
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**3-Digit Zip Code Latitude** – This field provides the latitude for the 3-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code Longitude** – This field provides the longitude for the 3-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 3-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 3-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 3-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 3-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 3-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 3-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 3-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 3-digit Zip Code.

**3-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 3-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 3-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 3-digit Zip Code.

**3-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 3-digit Zip Code.

**3-Digit Zip Code County Name** – This field provides the official County name for the county in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 3-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 3-digit Zip Code.

**3-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 3-digit Zip Code.

**3-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 3-Digit Zip Code.

**3-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **3-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR260

**Purpose:** The purpose of LLR260 is to return only basic information for the specified 9-Digit ZIP Code. Basic information **does not** include the following:

- State Abbreviation
- County Name
- Current Metropolitan Statistical Area (MSA) code
- Current Micropolitan Statistical Area code
- Current Metropolitan Division code
- Consolidated Statistical Area code

This program returns only 9-Digit level information. If no data is available at the 9-Digit Zip Code level, an error message is returned.

**Performance:** All of the information returned by this program can also be retrieved by calling programs LLR20001 or LLR265. Calls to program LLR260 will always execute faster than calls to either of the other two programs (LLR20001 or LLR265).

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR260, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR260. The sample source code can be found in member LLR260.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 4	Char	4	
03	Return 9-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code provided. This field is also a required input field.

**Return 9-digit Zip Code level information** – This field indicates whether or not you wish to receive 9-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

## Output Fields:

Seq#	Field Description	Type	Len	Dec
01	9-Digit Zip Code – Information returned	Char	1	
02	9-Digit Zip Code – State and county FIPS code	Dec	5	0
03	9-Digit Zip Code – Zip + 4 record type	Char	1	
04	9-Digit Zip Code – Match quality	Dec	1	0
05	9-Digit Zip Code – Latitude	Dec	9	6
06	9-Digit Zip Code – Longitude	Dec	9	6
07	9-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
08	9-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
09	9-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
10	9-Digit Zip Code – Census Tract	Dec	6	2
11	9-Digit Zip Code – Census Block Group	Dec	1	0
12	9-Digit Zip Code – Error ID	Char	7	
13	9-Digit Zip Code – Error Message	Char	50	

### Output field descriptions

**9-Digit Zip Code Information Returned** – This field indicates whether or not 9-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR260, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**9-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 9-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. This field tells you the state and county in which the address is located.

**9-Digit Zip Code Zip + 4 Record Type** – This field indicates the USPS National ZIP + 4 record type used during geocoding of the 9-Digit Zip Code. Record types are assigned by the USPS.

The following is a complete list of valid record types:

- F – Firm record
- G – General Delivery record
- H – High Rise record
- P – PO Box
- R – Rural Route record
- S – Street record

**9-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 9-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area



**9-Digit Zip Code Latitude** – This field provides the latitude for the 9-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code Longitude** – This field provides the longitude for the 9-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 9-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes.

**9-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census CCD code. **\*\*\* MCD data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. **\*\*\* CDP data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 9-Digit Zip Code. Census tracts are small statistical subdivisions of a county.

**9-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 9-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract.

**9-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 9-Digit Zip Code.

**9-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **9-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR265

**Purpose:** The purpose of LLR265 is to return all information available for the specified 9-Digit ZIP Code.

This program returns only 9-Digit level information. If no data is available at the 9-Digit Zip Code level, an error message is returned.

**Performance:** Some of the information returned by this program can also be retrieved by calling LLR260. All of the information returned by this program can also be retrieved by calling LLR20001. Calls to program LLR265 will execute slightly slower than calls to program LLR260 and slightly faster than calls to program LLR20001.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR265, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR265. The sample source code can be found in member LLR265.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 4	Char	4	
03	Return 9-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code provided. This field is also a required input field.

**Return 9-digit Zip Code level information** – This field indicates whether or not you wish to receive 9-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	9-Digit Zip Code – Information returned	Char	1	
02	9-Digit Zip Code – State and county FIPS code	Dec	5	0
03	9-Digit Zip Code – Zip + 4 record type	Char	1	
04	9-Digit Zip Code – Match quality	Dec	1	0
05	9-Digit Zip Code – Latitude	Dec	9	6
06	9-Digit Zip Code – Longitude	Dec	9	6
07	9-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0

Seq#	Field Description	Type	Len	Dec
08	9-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
09	9-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
10	9-Digit Zip Code – Census Tract	Dec	6	2
11	9-Digit Zip Code – Census Block Group	Dec	1	0
12	9-Digit Zip Code – State Abbreviation	Char	2	
13	9-Digit Zip Code – County name	Char	25	
14	9-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
15	9-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
16	9-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
17	9-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
18	9-Digit Zip Code – Error ID	Char	7	
19	9-Digit Zip Code – Error Message	Char	50	

### Output field descriptions

**9-Digit Zip Code Information Returned** – This field indicates whether or not 9-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR265, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**9-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 9-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. This field tells you the state and county in which the address is located.

**9-Digit Zip Code Zip + 4 Record Type** – This field indicates the USPS National ZIP + 4 record type used during geocoding of the 9-Digit Zip Code. Record types are assigned by the USPS.

The following is a complete list of valid record types:

- F – Firm record
- G – General Delivery record
- H – High Rise record
- P – PO Box
- R – Rural Route record
- S – Street record

**9-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 9-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**9-Digit Zip Code Latitude** – This field provides the latitude for the 9-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code Longitude** – This field provides the longitude for the 9-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 9-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes.

**9-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census CCD code. **\*\*\* MCD data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. **\*\*\* CDP data is no longer available. The value of this field will always be zero.\*\*\***

**9-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 9-Digit Zip Code. Census tracts are small statistical subdivisions of a county.

**9-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 9-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract.

**9-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 9-Digit Zip Code is located.

**9-Digit Zip Code County Name** – This field provides the official County name for the county in which the 9-Digit Zip Code is located.

**9-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 9-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003.

**9-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 9-Digit Zip Code.

**9-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **9-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR270

**Purpose:** The purpose of LLR270 is to return only basic information for the specified 7-Digit ZIP Code. Basic information **does not** include the following:

- State Abbreviation
- County Name
- Metropolitan Statistical Area (MSA) code
- Micropolitan Statistical Area code
- Metropolitan Division code
- Consolidated Statistical Area code

This program returns only 7-Digit level information. If no data is available at the 7-Digit Zip Code level, an error message is returned.

**Performance:** All of the information returned by this program can also be retrieved by calling programs LLR20001 or LLR275. Calls to program LLR270 will always execute faster than calls to either of the other two programs (LLR20001 or LLR275).

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR270, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR270. The sample source code can be found in member LLR270.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 2	Char	2	
03	Return 7-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Zip + 2** – This is the ZIP + 2 that further qualifies the five-digit Zip Code provided. The ZIP + 2 is the first two digits of the ZIP + 4. This is also a required input field.

**Return 7-digit Zip Code level information** – This field indicates whether or not you wish to receive 7-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	7-Digit Zip Code – Information returned	Char	1	
02	7-Digit Zip Code – State and county FIPS code	Dec	5	0
03	7-Digit Zip Code – Match quality	Dec	1	0
04	7-Digit Zip Code – Latitude	Dec	9	6
05	7-Digit Zip Code – Longitude	Dec	9	6
06	7-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	7-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	7-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	7-Digit Zip Code – Census Tract	Dec	6	2
10	7-Digit Zip Code – Census Block Group	Dec	1	0
11	7-Digit Zip Code – Error ID	Char	7	
12	7-Digit Zip Code – Error Message	Char	50	

**Output field descriptions**

**7-Digit Zip Code Information Returned** – This field indicates whether or not 7-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR270, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**7-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 7-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 7-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 7-digit Zip Code.

**7-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 7-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 7-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**7-Digit Zip Code Latitude** – This field provides the latitude for the 7-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code Longitude** – This field provides the longitude for the 7-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 7-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 7-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 7-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 7-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 7-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 7-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 7-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 7-digit Zip Code.

**7-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 7-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 7-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 7-digit Zip Code.

**7-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 7-Digit Zip Code.

**7-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **7-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR275

**Purpose:** The purpose of LLR275 is to return all information available for the specified 7-Digit ZIP Code. This program returns only 7-Digit level information. If no data is available at the 7-Digit Zip Code level, an error message is returned.

**Performance:** Some of the information returned by this program can also be retrieved by calling LLR270. All of the information returned by this program can also be retrieved by calling LLR20001. Calls to program LLR275 will execute slightly slower than calls to program LLR270 and slightly faster than calls to program LLR20001.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR275, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR275. The sample source code can be found in member LLR275.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 2	Char	2	
03	Return 7-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. For 3-digit Zip Codes, use the first three positions only. This is a required input field.

**Zip + 2** – This is the ZIP + 2 that further qualifies the five-digit Zip Code provided. The ZIP + 2 is the first two digits of the ZIP + 4. This is also a required input field.

**Return 7-digit Zip Code level information** – This field indicates whether or not you wish to receive 7-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	7-Digit Zip Code – Information returned	Char	1	
02	7-Digit Zip Code – State and county FIPS code	Dec	5	0
03	7-Digit Zip Code – Match quality	Dec	1	0
04	7-Digit Zip Code – Latitude	Dec	9	6
05	7-Digit Zip Code – Longitude	Dec	9	6
06	7-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0



Seq#	Field Description	Type	Len	Dec
07	7-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	7-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	7-Digit Zip Code – Census Tract	Dec	6	2
10	7-Digit Zip Code – Census Block Group	Dec	1	0
11	7-Digit Zip Code – State Abbreviation	Char	2	
12	7-Digit Zip Code – County name	Char	25	
13	7-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
14	7-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
15	7-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
16	7-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
17	7-Digit Zip Code – Error ID	Char	7	
18	7-Digit Zip Code – Error Message	Char	50	

### Output field descriptions

**7-Digit Zip Code Information Returned** – This field indicates whether or not 7-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR275, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**7-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 7-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 7-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 7-digit Zip Code.

**7-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 7-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 7-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**7-Digit Zip Code Latitude** – This field provides the latitude for the 7-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code Longitude** – This field provides the longitude for the 7-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 7-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 7-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 7-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 7-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 7-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 7-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 7-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 7-digit Zip Code.

**7-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 7-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 7-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 7-digit Zip Code.

**7-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 7-digit Zip Code.

**7-Digit Zip Code County Name** – This field provides the official County name for the county in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 7-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 7-digit Zip Code.

**7-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 7-digit Zip Code.

**7-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 7-Digit Zip Code.

**7-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **7-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR280

**Purpose:** The purpose of LLR280 is to return only basic information for the specified 5-Digit ZIP Code. Basic information **does not** include the following:

- Zip Code Classification
- Time Zone
- Telephone Area Codes #01, #02, and #03
- State Abbreviation
- County Name
- Metropolitan Statistical Area (MSA) code
- Micropolitan Statistical Area code
- Metropolitan Division code
- Consolidated Statistical Area code

This program returns only 5-Digit level information. If no data is available at the 5-Digit Zip Code level, an error message is returned.

**Performance:** All of the information returned by this program can also be retrieved by calling programs LLR20001 or LLR28501. Calls to program LLR280 will always execute faster than calls to either of the other two programs (LLR20001 or LLR28501).

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR280, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR280. The sample source code can be found in member LLR280.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Return 5-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Return 5-digit Zip Code level information** – This field indicates whether or not you wish to receive 5-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	5-Digit Zip Code – Information returned	Char	1	
02	5-Digit Zip Code – State and county FIPS code	Dec	5	0
03	5-Digit Zip Code – Match quality	Dec	1	0
04	5-Digit Zip Code – Latitude	Dec	9	6
05	5-Digit Zip Code – Longitude	Dec	9	6
06	5-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	5-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	5-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	5-Digit Zip Code – Census Tract	Dec	6	2
10	5-Digit Zip Code – Census Block Group	Dec	1	0
11	5-Digit Zip Code – Error ID	Char	7	
12	5-Digit Zip Code – Error Message	Char	50	

**Output field descriptions**

**5-Digit Zip Code Information Returned** – This field indicates whether or not 5-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR280, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**5-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 5-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 5-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 5-digit Zip Code.

**5-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**5-Digit Zip Code Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

***5-Digit Zip Code 2000 Minor Civil Division (MCD) Code*** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

***5-Digit Zip Code 2010 Census Designated Place (CDP) Code*** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

***5-Digit Zip Code Census Tract*** – This field provides the 2010 Census tract associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

***5-Digit Zip Code Census Block Group*** – This field provides the 2010 Census block group associated with the 5-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 5-digit Zip Code.

***5-Digit Zip Code Error ID*** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 5-Digit Zip Code.

***5-Digit Zip Code Error Message*** – This field provides a text description for any error code returned in the ***5-Digit Zip Code Error ID*** field.

## CALLABLE PROGRAM: LLR28501

**Purpose:** The purpose of LLR28501 is to return all information available for the specified 5-Digit ZIP Code. This program returns only 5-Digit level information. If no data is available at the 5-Digit Zip Code level, an error message is returned.

**Performance:** Some of the information returned by this program can also be retrieved by calling LLR280. All of the information returned by this program can also be retrieved by calling LLR20001. Calls to program LLR28501 will execute slightly slower than calls to program LLR280 and slightly faster than calls to program LLR20001.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR28501, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR28501. The sample source code can be found in member LLR285.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Return 5-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Return 5-digit Zip Code level information** – This field indicates whether or not you wish to receive 5-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	5-Digit Zip Code – Information returned	Char	1	
02	5-Digit Zip Code – State and county FIPS code	Dec	5	0
03	5-Digit Zip Code – Match quality	Dec	1	0
04	5-Digit Zip Code – Latitude	Dec	9	6
05	5-Digit Zip Code – Longitude	Dec	9	6
06	5-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	5-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	5-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	5-Digit Zip Code – Census Tract	Dec	6	2
10	5-Digit Zip Code – Census Block Group	Dec	1	0

Seq#	Field Description	Type	Len	Dec
11	5-Digit Zip Code – Zip Code class	Char	1	
12	5-Digit Zip Code – Time zone	Char	1	
13	5-Digit Zip Code – Area code #01	Dec	3	0
14	5-Digit Zip Code – Area code #02	Dec	3	0
15	5-Digit Zip Code – Area code #03	Dec	3	0
16	5-Digit Zip Code – Area code #04	Dec	3	0
17	5-Digit Zip Code – Area code #05	Dec	3	0
18	5-Digit Zip Code – Area code #06	Dec	3	0
19	5-Digit Zip Code – State Abbreviation	Char	2	
20	5-Digit Zip Code – County name	Char	25	
21	5-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
22	5-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
23	5-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
24	5-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
25	5-Digit Zip Code – Error ID	Char	7	
26	5-Digit Zip Code – Error Message	Char	50	

### **Output field descriptions**

**5-Digit Zip Code Information Returned** – This field indicates whether or not 5-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR28501, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**5-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 5-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 5-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 5-digit Zip Code.

**5-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**5-Digit Zip Code Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit

Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

**5-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 5-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 5-digit Zip Code.

**5-Digit Zip Code Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- M – Military
- P – PO Boxes Only
- U – Unique (single organization)
- Blank – All others

**5-Digit Zip Code Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- E – Eastern US
- C – Central US
- M – Mountain US
- P – Pacific US
- A – Alaska AK
- H – Hawaii HI
- V – Puerto Rico PR / Virgin Islands VI
- G – Guam GU
- S – American Samoa AS
- U – Palau PU
- N – Marshal Islands MH

**5-Digit Zip Code Area Code #01** – This field provides the first of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #02** – This field provides the second of up to six possible telephone area codes associated with the 5-Digit Zip Code.



**5-Digit Zip Code Area Code #03** – This field provides the third of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #04** – This field provides the fourth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #05** – This field provides the fifth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #06** – This field provides the sixth of up to six possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 5-digit Zip Code.

**5-Digit Zip Code County Name** – This field provides the official County name for the county in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 5-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 5-digit Zip Code.

**5-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 5-Digit Zip Code.

**5-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **5-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR290

**Purpose:** The purpose of LLR290 is to return only basic information for the specified 3-Digit ZIP Code. Basic information **does not** include the following:

- State Abbreviation
- County Name
- Metropolitan Statistical Area (MSA) code
- Micropolitan Statistical Area code
- Metropolitan Division code
- Consolidated Statistical Area code

This program returns only 3-Digit level information. If no data is available at the 3-Digit Zip Code level, an error message is returned.

**Performance:** All of the information returned by this program can also be retrieved by calling programs LLR20001 or LLR295. Calls to program LLR290 will always execute faster than calls to either of the other two programs (LLR20001 or LLR295).

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR290, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR290. The sample source code can be found in member LLR290.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	3-Digit Zip Code	Char	3	
02	Return 3-digit Zip Code level information	Char	1	

### Input field descriptions

**3-Digit Zip Code** – This is the three-digit zip for which you are attempting to retrieve information. This is a required input field.

**Return 3-digit Zip Code level information** – This field indicates whether or not you wish to receive 3-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	3-Digit Zip Code – Information returned	Char	1	
02	3-Digit Zip Code – State and county FIPS code	Dec	5	0
03	3-Digit Zip Code – Match quality	Dec	1	0
04	3-Digit Zip Code – Latitude	Dec	9	6
05	3-Digit Zip Code – Longitude	Dec	9	6
06	3-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	3-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	3-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	3-Digit Zip Code – Census Tract	Dec	6	2
10	3-Digit Zip Code – Census Block Group	Dec	1	0
11	3-Digit Zip Code – Error ID	Char	7	
12	3-Digit Zip Code – Error Message	Char	50	

**Output field descriptions**

**3-Digit Zip Code Information Returned** – This field indicates whether or not 3-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR290, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**3-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 3-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 3-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 3-digit Zip Code.

**3-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 3-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 3-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 3-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 3-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area (\*\* Not possible for 3-Digit Zip Code)
- 5 – Centroid located at the midpoint of the associated incorporated city area (\*\* Not possible for 3-Digit Zip)
- 6 – Centroid located at the midpoint of the associated county area (\*\* Not possible for 3-Digit Zip Code)
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**3-Digit Zip Code Latitude** – This field provides the latitude for the 3-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code Longitude** – This field provides the longitude for the 3-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 3-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 3-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 3-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 3-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 3-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 3-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 3-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 3-digit Zip Code.

**3-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 3-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 3-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 3-digit Zip Code.

**3-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 3-Digit Zip Code.

**3-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **3-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR295

**Purpose:** The purpose of LLR295 is to return all information available for the specified 3-Digit ZIP Code. This program returns only 3-Digit level information. If no data is available at the 3-Digit Zip Code level, an error message is returned.

**Performance:** Some of the information returned by this program can also be retrieved by calling LLR290. All of the information returned by this program can also be retrieved by calling LLR20001. Calls to program LLR295 will execute slightly slower than calls to program LLR290 and slightly faster than calls to program LLR20001.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR295, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR295. The sample source code can be found in member LLR295.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	3-Digit Zip Code	Char	3	
02	Return 3-digit Zip Code level information	Char	1	

### Input field descriptions

**3-Digit Zip Code** – This is the three-digit zip for which you are attempting to retrieve information. This is a required input field.

**Return 3-digit Zip Code level information** – This field indicates whether or not you wish to receive 3-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	3-Digit Zip Code – Information returned	Char	1	
02	3-Digit Zip Code – State and county FIPS code	Dec	5	0
03	3-Digit Zip Code – Match quality	Dec	1	0
04	3-Digit Zip Code – Latitude	Dec	9	6
05	3-Digit Zip Code – Longitude	Dec	9	6
06	3-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	3-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	3-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	3-Digit Zip Code – Census Tract	Dec	6	2
10	3-Digit Zip Code – Census Block Group	Dec	1	0

Seq#	Field Description	Type	Len	Dec
11	3-Digit Zip Code – State Abbreviation	Char	2	
12	3-Digit Zip Code – County name	Char	25	
13	3-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
14	3-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
15	3-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
16	3-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
17	3-Digit Zip Code – Error ID	Char	7	
18	3-Digit Zip Code – Error Message	Char	50	

### **Output field descriptions**

**3-Digit Zip Code Information Returned** – This field indicates whether or not 3-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR295, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**3-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 3-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 3-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 3-digit Zip Code.

**3-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 3-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 3-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 3-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 3-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area (\*\* Not possible for 3-Digit Zip Code)
- 5 – Centroid located at the midpoint of the associated incorporated city area (\*\* Not possible for 3-Digit Zip)
- 6 – Centroid located at the midpoint of the associated county area (\*\* Not possible for 3-Digit Zip Code)
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**3-Digit Zip Code Latitude** – This field provides the latitude for the 3-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code Longitude** – This field provides the longitude for the 3-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 3-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 3-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 3-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 3-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 3-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**3-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 3-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 3-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 3-digit Zip Code.

**3-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 3-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 3-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 3-digit Zip Code.

**3-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 3-digit Zip Code.

**3-Digit Zip Code County Name** – This field provides the official County name for the county in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 3-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 3-digit Zip Code.

**3-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 3-digit Zip Code.

**3-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 3-Digit Zip Code.

**3-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **3-Digit Zip Code Error ID** field.

## CALLABLE PROGRAM: LLR300

**Purpose:** The purpose of LLR300 is to calculate the distance between any two Zip Codes. This program first obtains the best latitude and longitude available for each Zip Code and then calculates the distance between the two points.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR300, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR300. The sample source code can be found in member LLR300.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	From 5-Digit Zip Code	Char	5	
02	From Zip + 4	Char	4	
03	To 5-Digit Zip Code	Char	5	
04	To Zip + 4	Char	4	

### Input field descriptions

**From 5-Digit Zip Code** – This is the five-digit Zip Code for the starting point from which you wish to calculate a distance. This is a required input field.

**From Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code specified for the starting point. If the Zip + 4 is not known, this field can be left blank. However, leaving this field blank greatly reduces the accuracy of results returned.

**To 5-Digit Zip Code** – This is the five-digit Zip Code for the destination to which you wish to calculate a distance. This is a required input field.

**To Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code specified for the destination. If the Zip + 4 is not known, this field can be left blank. However, leaving this field blank greatly reduces the accuracy of results returned.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	From Zip Code – Latitude	Dec	9	6
02	From Zip Code – Longitude	Dec	9	6
03	From Zip Code – Match Quality	Dec	1	0
04	To Zip Code – Latitude	Dec	9	6
05	To Zip Code – Longitude	Dec	9	6
06	To Zip Code – Match Quality	Dec	1	0



Seq#	Field Description	Type	Len	Dec
07	Distance – Statute Miles	Dec	15	5
08	Distance – Kilometers	Dec	15	5
09	Distance – Nautical Miles	Dec	15	5
10	Error ID	Char	7	
11	Error Message	Char	50	

### Output field descriptions

**From Zip Code Latitude** – This field provides the best available latitude for the Zip Code specified as the starting point. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated in the field **From Zip Code Match Quality**.

**From Zip Code Longitude** – This field provides the best available longitude for the Zip Code specified as the starting point. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated in the field **From Zip Code Match Quality**.

**From Zip Code Match Quality** – This field indicates the Match Quality achieved during the geocoding of the Zip Code specified as the starting point. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**To Zip Code Latitude** – This field provides the best available latitude for the Zip Code specified as the destination. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated in the field **To Zip Code Match Quality**.

**To Zip Code Longitude** – This field provides the best available longitude for the Zip Code specified as the destination. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated in the field **To Zip Code Match Quality**.

**To Zip Code Match Quality** – This field indicates the Match Quality achieved during the geocoding of the Zip Code specified as the destination. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

*Distance Statute Miles* – This field provides the distance between the two Zip Codes in Statute Miles.

*Distance Kilometers* – This field provides the distance between the two Zip Codes in Kilometers.

*Distance Nautical Miles* – This field provides the distance between the two Zip Codes in Nautical Miles.

*Error ID* – This field provides an error code in the event that an error is encountered while attempting to calculate the distance between the two Zip Codes.

*Error Message* – This field provides a text description for any error code returned in the *Error ID* field.

## CALLABLE PROGRAM: LLR310

**Purpose:** The purpose of LLR310 is to calculate the distance between any two Latitude / Longitude coordinates.

**Accuracy:** All distances returned are as accurate as the Latitude / Longitude data provided. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

**Requirements:** Before calling LLR310, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR310. The sample source code can be found in member LLR310.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	From Latitude	Dec	9	6
02	From Longitude	Dec	9	6
03	To Latitude	Dec	9	6
04	To Longitude	Dec	9	6

### Input field descriptions

**From Latitude** – This is the Latitude for the starting point location from which you wish to calculate a distance. This is a required input field.

**From Longitude** – This is the Longitude for the starting point location from which you wish to calculate a distance. This is a required input field.

**To Latitude** – This is the Latitude for the destination location to which you wish to calculate a distance. This is a required input field.

**To Longitude** – This is the Longitude for the destination location to which you wish to calculate a distance. This is a required input field.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	Distance – Statute Miles	Dec	15	5
02	Distance – Kilometers	Dec	15	5
03	Distance – Nautical Miles	Dec	15	5
04	Error ID	Char	7	
05	Error Message	Char	50	

### **Output field descriptions**

***Distance Statute Miles*** – This field provides the distance between the two Latitude / Longitude Coordinates in Statute Miles.

***Distance Kilometers*** – This field provides the distance between the two Latitude / Longitude Coordinates in Kilometers.

***Distance Nautical Miles*** – This field provides the distance between the two Latitude / Longitude Coordinates in Nautical Miles.

***Error ID*** – This field provides an error code in the event that an error is encountered while attempting to calculate the distance between the two Latitude / Longitude Coordinates.

***Error Message*** – This field provides a text description for any error code returned in the ***Error ID*** field.

## CALLABLE PROGRAM: LLR320

**Purpose:** The purpose of LLR320 is to convert a decimal Latitude / Longitude coordinate to it's degrees, minutes, and seconds equivalent.

**Requirements:** Before calling LLR320, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR320. The sample source code can be found in member LLR320.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	Latitude (decimal format)	Dec	9	6
02	Longitude (decimal format)	Dec	9	6

### Input field descriptions

**Latitude (decimal format)** – This is the Latitude in decimal format. This field allows for a precision of up to six decimal positions. This is a required input field.

**Longitude (decimal format)** – This is the Longitude in decimal format. This field allows for a precision of up to six decimal positions. This is a required input field.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	Latitude – Degrees	Dec	3	0
02	Latitude – Minutes	Dec	2	0
03	Latitude – Seconds	Dec	6	4
04	Latitude – Directional Indicator	Char	1	
05	Longitude – Degrees	Dec	3	0
06	Longitude – Minutes	Dec	2	0
07	Longitude – Seconds	Dec	6	4
08	Longitude – Directional Indicator	Char	1	
09	Error ID	Char	7	
10	Error Message	Char	50	

### Output field descriptions

**Latitude (degrees)** – This field provides the degrees of Latitude. This field is calculated using the input (decimal format) Latitude.

**Latitude (minutes)** – This field provides the minutes of Latitude. This field is calculated using the input (decimal format) Latitude.

**Latitude (seconds)** – This field provides the seconds of Latitude. This field is calculated using the input (decimal format) Latitude.

**Latitude (directional indicator)** – This field provides the Latitude directional indicator for the degrees, minutes, and seconds returned. This field is derived from the sign of the input (decimal format) Latitude. If the input (decimal format) Latitude is positive, the directional is "N" for North. If the input (decimal format) Latitude is negative, the directional is "S" for South.

**Longitude (degrees)** – This field provides the degrees of Longitude. This field is calculated using the input (decimal format) Longitude.

**Longitude (minutes)** – This field provides the minutes of Longitude. This field is calculated using the input (decimal format) Longitude.

**Longitude (seconds)** – This field provides the seconds of Longitude. This field is calculated using the input (decimal format) Longitude.

**Longitude (directional indicator)** – This field provides the Longitude directional indicator for the degrees, minutes, and seconds returned. This field is derived from the sign of the input (decimal format) Longitude. If the input (decimal format) Longitude is positive, the directional is "E" for East. If the input (decimal format) Longitude is negative, the directional is "W" for West.

**Error ID** – This field provides an error code in the event that an error is encountered while attempting to convert the Latitude/Longitude coordinate from the decimal format to the degrees, minutes, and seconds format.

**Error Message** – This field provides a text description for any error code returned in the **Error ID** field.

## CALLABLE PROGRAM: LLR330

**Purpose:** The purpose of LLR330 is to convert a degrees, minutes, and seconds Latitude / Longitude coordinate to its decimal equivalent.

**Requirements:** Before calling LLR330, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR330. The sample source code can be found in member LLR330.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	Latitude – Degrees	Dec	3	0
02	Latitude – Minutes	Dec	2	0
03	Latitude – Seconds	Dec	6	4
04	Latitude – Directional Indicator	Char	1	
05	Longitude – Degrees	Dec	3	0
06	Longitude – Minutes	Dec	2	0
07	Longitude – Seconds	Dec	6	4
08	Longitude – Directional Indicator	Char	1	

### Input field descriptions

**Latitude (degrees)** – This is the degrees portion of the Latitude. This is a required input field.

**Latitude (minutes)** – This is the minutes portion of the Latitude. This is a required input field.

**Latitude (seconds)** – This is the seconds portion of the Latitude. This field allows for a precision of up to four decimal positions. This is a required input field.

**Latitude (directional indicator)** – This is the directional indicator for the Latitude. This is a required input field. This field must be either "N" for North or "S" for South. The value specified will be used to determine the sign of the decimal format Latitude calculated.

**Longitude (degrees)** – This is the degrees portion of the Longitude. This is a required input field.

**Longitude (minutes)** – This is the minutes portion of the Longitude. This is a required input field.

**Longitude (seconds)** – This is the seconds portion of the Longitude. This field allows for a precision of up to four decimal positions. This is a required input field.

**Longitude (directional indicator)** – This is the directional indicator for the Longitude. This is a required input field. This field must be either "E" for East or "W" for West. The value specified will be used to determine the sign of the decimal format Longitude calculated.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	Latitude (decimal format)	Dec	9	6
02	Longitude (decimal format)	Dec	9	6
03	Error ID	Char	7	
04	Error Message	Char	50	

**Output field descriptions**

**Latitude (decimal format)** – This field provides the Latitude in decimal format. If the input Latitude directional indicator was "N" for North, this value will be positive. If the input Latitude directional indicator was "S" for South, this value will be negative.

**Longitude (decimal format)** – This field provides the Longitude in decimal format. If the input Longitude directional indicator was "E" for East, this value will be positive. If the input Longitude directional indicator was "W" for West, this value will be negative.

**Error ID** – This field provides an error code in the event that an error is encountered while attempting to convert the Latitude/Longitude coordinate from the degrees, minutes, and seconds format to the decimal format.

**Error Message** – This field provides a text description for any error code returned in the **Error ID** field.



## CALLABLE PROGRAM: LLR350

**Purpose:** The purpose of LLR350 is to accept a starting point Zip Code and return the ten nearest dealers. Before using this program, you must first define your “dealer” file to Z4 LAT/LON. This is done using option 07 on the Z4 LAT/LON Main Menu.

**Usage Notes:** The dealer file information provided as input to this program must identically match a dealer file definition that has already been defined to Z4 LAT/LON. If there is no match, this program will not return a list of dealers.

This program returns the ten nearest dealers and their distances from the starting point Zip Code in four separate arrays. The dealer in array element number 01 is the closest to the starting point Zip Code and the dealer in array element number 10 is the farthest from the starting point Zip Code.

**Accuracy:** All distances returned are as accurate as our Latitude / Longitude data allows. Our distance calculations even take into account the curvature of the earth. However, please keep in mind that the distances returned are point to point distances. They are not driving distances.

**Requirements:** Before calling LLR350, you must make sure that both QTEMP and LTLNLIB libraries are in your job’s library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR350. The sample source code can be found in member LLR350.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 4	Char	4	
03	Dealer File – Library Name	Char	10	
04	Dealer File – File Name	Char	10	
05	Dealer File – Member Name	Char	10	
06	Dealer File – Definition Number	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit Zip Code for the starting point from which you are requesting the ten nearest dealers. This is a required input field.

**Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code provided as the starting point. This field is required if you wish to receive information accurate to the 7-digit or 9-digit Zip Code level.

**Dealer File Library Name** – This field identifies the library in which the dealer file exists. The value specified here must match identically the value specified in the Dealer File Definition. Dealer File Definitions are maintained using option 07 on the Z4 LAT/LON Main Menu.

**Dealer File Name** – This field identifies the name of the dealer file. The value specified here must match identically the value specified in the Dealer File Definition. Dealer File Definitions are maintained using option 07 on the Z4 LAT/LON Main Menu.

**Dealer File Member Name** – This field identifies the dealer file member name that is to be used. The value specified here must match identically the value specified in the Dealer File Definition. Dealer File Definitions are maintained using option 07 on the Z4 LAT/LON Main Menu.

**Dealer File Definition Number** – This field identifies the dealer file definition number that is to be used. The value specified here must match identically the value specified in the Dealer File Definition. Dealer File Definitions are maintained using option 07 on the Z4 LAT/LON Main Menu.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	Dealer Name (10 Element Array / Each Element 35 Characters)	Array	**	
02	Distance – Statute Miles (10 Element Array / Each Element 15 Digits with 5 decimal positions)	Array	**	**
03	Distance – Kilometers (10 Element Array / Each Element 15 Digits with 5 decimal positions)	Array	**	**
04	Distance – Nautical Miles (10 Element Array / Each Element 15 Digits with 5 decimal positions)	Array	**	**
05	Error ID	Char	7	
06	Error Message	Char	50	

**Output field descriptions**

**Dealer Name** – This field is a ten-element array. This array presents the ten nearest dealers, with the closest dealer presented in array element #01 and the farthest dealer presented in array element #10. Each element will contain the value found in your dealer file at the location identified as the “key field” within the Dealer File Definition.

**Distance Statute Miles** – This field is also a ten-element array. This array provides the actual distance (in Statute Miles) from the starting point Zip Code to each dealer presented in the **Dealer Name** array.

**Distance Kilometers** – This field is also a ten-element array. This array provides the actual distance (in Kilometers) from the starting point Zip Code to each dealer presented in the **Dealer Name** array.

**Distance Nautical Miles** – This field is also a ten-element array. This array provides the actual distance (in Nautical Miles) from the starting point Zip Code to each dealer presented in the **Dealer Name** array.

**Error ID** – This field provides an error code in the event that an error is encountered while attempting to locate the ten nearest dealers.

**Error Message** – This field provides a text description for any error code returned in the **Error ID** field.

## PREVIOUS GENERATION CALLABLE PROGRAM: LLR200

**Purpose:** The purpose of LLR200 is to return all available information at any and all levels (9-Digit, 7-Digit, 5-Digit, & 3-Digit) for the specified ZIP Code.

**Performance:** While this program does return all available information at all levels for a specified Zip Code, it is also the slowest performing of all the Z4 LAT/LON interfaces. If you only need information for a single level (i.e. 9-Digit or 7-Digit), you can increase performance by using one of the other Z4 LAT/LON callable programs.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR200, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR200. The sample source code can be found in member LLR200.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Zip + 4	Char	4	
03	Return 9-digit Zip Code level information	Char	1	
04	Return 7-digit Zip Code level information	Char	1	
05	Return 5-digit Zip Code level information	Char	1	
06	Return 3-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. For 3-digit Zip Codes, use the first three positions only. This is a required input field.

**Zip + 4** – This is the ZIP + 4 that further qualifies the five-digit Zip Code provided. For 3-digit and 5-digit Zip Codes, this field should be blank. For 7-digit Zip Codes, use the first two positions only. This field is required if you wish to receive information at the 7-digit or 9-Digit Zip Code level.

**Return 9-digit Zip Code level information** – This field indicates whether or not you wish to receive 9-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 9-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 9-Digit Zip Code level data set.

**Return 7-digit Zip Code level information** – This field indicates whether or not you wish to receive 7-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 7-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 7-Digit Zip Code level data set.

**Return 5-digit Zip Code level information** – This field indicates whether or not you wish to receive 5-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 5-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 5-Digit Zip Code level data set.

**Return 3-digit Zip Code level information** – This field indicates whether or not you wish to receive 3-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no. This field can affect performance. If you do not want 3-Digit Zip Code level information, setting this field to “N” will allow the program to run faster because it will not need to access the 3-Digit Zip Code level data set.

**Output Fields:**

Seq#	Field Description	Type	Len	Dec
01	9-Digit Zip Code – Information returned	Char	1	
02	9-Digit Zip Code – State and county FIPS code	Dec	5	0
03	9-Digit Zip Code – Zip + 4 record type	Char	1	
04	9-Digit Zip Code – Match quality	Dec	1	0
05	9-Digit Zip Code – Latitude	Dec	9	6
06	9-Digit Zip Code – Longitude	Dec	9	6
07	9-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
08	9-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
09	9-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
10	9-Digit Zip Code – Census Tract	Dec	6	2
11	9-Digit Zip Code – Census Block Group	Dec	1	0
12	9-Digit Zip Code – State Abbreviation	Char	2	
13	9-Digit Zip Code – County name	Char	25	
14	9-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
15	9-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
16	9-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
17	9-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
18	9-Digit Zip Code – Error ID	Char	7	
19	9-Digit Zip Code – Error Message	Char	50	
20	7-Digit Zip Code – Information returned	Char	1	
21	7-Digit Zip Code – State and county FIPS code	Dec	5	0
22	7-Digit Zip Code – Match quality	Dec	1	0
23	7-Digit Zip Code – Latitude	Dec	9	6
24	7-Digit Zip Code – Longitude	Dec	9	6
25	7-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
26	7-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
27	7-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
28	7-Digit Zip Code – Census Tract	Dec	6	2
29	7-Digit Zip Code – Census Block Group	Dec	1	0
30	7-Digit Zip Code – State Abbreviation	Char	2	
31	7-Digit Zip Code – County name	Char	25	
32	7-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
33	7-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
34	7-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0

Seq#	Field Description	Type	Len	Dec
35	7-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
36	7-Digit Zip Code – Error ID	Char	7	
37	7-Digit Zip Code – Error Message	Char	50	
38	5-Digit Zip Code – Information returned	Char	1	
39	5-Digit Zip Code – State and county FIPS code	Dec	5	0
40	5-Digit Zip Code – Match quality	Dec	1	0
41	5-Digit Zip Code – Latitude	Dec	9	6
42	5-Digit Zip Code – Longitude	Dec	9	6
43	5-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
44	5-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
45	5-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
46	5-Digit Zip Code – Census Tract	Dec	6	2
47	5-Digit Zip Code – Census Block Group	Dec	1	0
48	5-Digit Zip Code – Zip Code class	Char	1	
49	5-Digit Zip Code – Time zone	Char	1	
50	5-Digit Zip Code – Area code #01	Dec	3	0
51	5-Digit Zip Code – Area code #02	Dec	3	0
52	5-Digit Zip Code – Area code #03	Dec	3	0
53	5-Digit Zip Code – State Abbreviation	Char	2	
54	5-Digit Zip Code – County name	Char	25	
55	5-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
56	5-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
57	5-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
58	5-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
59	5-Digit Zip Code – Error ID	Char	7	
60	5-Digit Zip Code – Error Message	Char	50	
61	3-Digit Zip Code – Information returned	Char	1	
62	3-Digit Zip Code – State and county FIPS code	Dec	5	0
63	3-Digit Zip Code – Match quality	Dec	1	0
64	3-Digit Zip Code – Latitude	Dec	9	6
65	3-Digit Zip Code – Longitude	Dec	9	6
66	3-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
67	3-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
68	3-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
69	3-Digit Zip Code – Census Tract	Dec	6	2
70	3-Digit Zip Code – Census Block Group	Dec	1	0
71	3-Digit Zip Code – State Abbreviation	Char	2	
72	3-Digit Zip Code – County name	Char	25	
73	3-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
74	3-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
75	3-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
76	3-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
77	3-Digit Zip Code – Error ID	Char	7	
78	3-Digit Zip Code – Error Message	Char	50	

## Output field descriptions

**9-Digit Zip Code Information Returned** – This field indicates whether or not 9-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR200, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**9-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 9-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. This field tells you the state and county in which the address is located.

**9-Digit Zip Code Zip + 4 Record Type** – This field indicates the USPS National ZIP + 4 record type used during geocoding of the 9-Digit Zip Code. Record types are assigned by the USPS.

The following is a complete list of valid record types:

- F – Firm record
- G – General Delivery record
- H – High Rise record
- P – PO Box
- R – Rural Route record
- S – Street record

**9-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 9-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**9-Digit Zip Code Latitude** – This field provides the latitude for the 9-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code Longitude** – This field provides the longitude for the 9-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **9-Digit Zip Code Match Quality** field.

**9-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 9-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes.

**9-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census CCD code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**9-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 9-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**9-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 9-Digit Zip Code. Census tracts are small statistical subdivisions of a county.

**9-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 9-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract.

**9-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 9-Digit Zip Code is located.

**9-Digit Zip Code County Name** – This field provides the official County name for the county in which the 9-Digit Zip Code is located.

**9-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 9-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003.

**9-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 9-Digit Zip Code.

**9-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 9-Digit Zip Code.

**9-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **9-Digit Zip Code Error ID** field.

**7-Digit Zip Code Information Returned** – This field indicates whether or not 7-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR200, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**7-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 7-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 7-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 7-digit Zip Code.

**7-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 7-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 7-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area
- 3 – Centroid located at the midpoint of the Carrier Route
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**7-Digit Zip Code Latitude** – This field provides the latitude for the 7-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code Longitude** – This field provides the longitude for the 7-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **7-Digit Zip Code Match Quality** field.

**7-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 7-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 7-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 7-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 7-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 7-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 7-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**7-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 7-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 7-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 7-digit Zip Code.

**7-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 7-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 7-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 7-digit Zip Code.

**7-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 7-digit Zip Code.

**7-Digit Zip Code County Name** – This field provides the official County name for the county in which the 7-Digit Zip Code is located. As 7-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 7-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 7-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 7-digit Zip Code.

**7-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 7-digit Zip Code.

**7-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 7-Digit Zip Code. As 7-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 7-digit Zip Code.



**7-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 7-Digit Zip Code.

**7-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **7-Digit Zip Code Error ID** field.

**5-Digit Zip Code Information Returned** – This field indicates whether or not 5-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR200, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**5-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 5-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 5-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 5-digit Zip Code.

**5-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**5-Digit Zip Code Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

**5-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 5-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 5-digit Zip Code.

**5-Digit Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- M – Military
- P – PO Boxes Only
- U – Unique (single organization)
- Blank – All others

**5-Digit Zip Code Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- E – Eastern US
- C – Central US
- M – Mountain US
- P – Pacific US
- A – Alaska AK
- H – Hawaii HI
- V – Puerto Rico PR / Virgin Islands VI
- G – Guam GU
- S – American Samoa AS
- U – Palau PU
- N – Marshal Islands MH

**5-Digit Zip Code Area Code #01** – This field provides the first of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #02** – This field provides the second of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #03** – This field provides the third of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 5-digit Zip Code.

**5-Digit Zip Code County Name** – This field provides the official County name for the county in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 5-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 5-digit Zip Code.

**5-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 5-digit Zip Code

**5-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 5-Digit Zip Code.

**5-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **5-Digit Zip Code Error ID** field.

**3-Digit Zip Code Information Returned** – This field indicates whether or not 3-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR200, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**3-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 3-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 3-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 3-digit Zip Code.

**3-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 3-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 3-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 3-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 3-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area (\*\* Not possible for 3-Digit Zip Code)
- 5 – Centroid located at the midpoint of the associated incorporated city area (\*\* Not possible for 3-Digit Zip)
- 6 – Centroid located at the midpoint of the associated county area (\*\* Not possible for 3-Digit Zip Code)
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**3-Digit Zip Code Latitude** – This field provides the latitude for the 3-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code Longitude** – This field provides the longitude for the 3-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **3-Digit Zip Code Match Quality** field.

**3-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 3-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 3-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 3-digit Zip Code. \*\*\* **MCD data is no longer available. The value of this field will always be zero.** \*\*\*

**3-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 3-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 3-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 3-digit Zip Code. \*\*\* **CDP data is no longer available. The value of this field will always be zero.** \*\*\*

**3-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 3-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 3-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 3-digit Zip Code.

**3-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 3-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 3-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 3-digit Zip Code.

**3-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 3-digit Zip Code.

**3-Digit Zip Code County Name** – This field provides the official County name for the county in which the 3-Digit Zip Code is located. As 3-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 3-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 3-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 3-digit Zip Code.

**3-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 3-digit Zip Code.

**3-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 3-Digit Zip Code. As 3-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 3-digit Zip Code

**3-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 3-Digit Zip Code.

**3-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **3-Digit Zip Code Error ID** field.

## PREVIOUS GENERATION CALLABLE PROGRAM: LLR285

**Purpose:** The purpose of LLR285 is to return all information available for the specified 5-Digit ZIP Code. This program returns only 5-Digit level information. If no data is available at the 5-Digit Zip Code level, an error message is returned.

**Performance:** Some of the information returned by this program can also be retrieved by calling LLR280. All of the information returned by this program can also be retrieved by calling LLR200. Calls to program LLR285 will execute slightly slower than calls to program LLR280 and slightly faster than calls to program LLR200.

**Usage Notes:** Some values returned by this program are presented as codes. A detailed description for each output field including a list of possible codes and their meaning is provided below.

**Requirements:** Before calling LLR285, you must make sure that both QTEMP and LTLNLIB libraries are in your job's library list.

**Sample Code:** Sample RPG/400 source code is available to demonstrate the proper use of LLR285. The sample source code can be found in member LLR285.RPG in source file QSMPLSRC in library LTLNLIB. The sample source code is written in a way that it can be copied and used with little modification.

### Input Fields:

Seq#	Field	Type	Len	Dec
01	5-Digit Zip Code	Char	5	
02	Return 5-digit Zip Code level information	Char	1	

### Input field descriptions

**5-Digit Zip Code** – This is the five-digit zip for which you are attempting to retrieve information. This is a required input field.

**Return 5-digit Zip Code level information** – This field indicates whether or not you wish to receive 5-Digit Zip Code level information. Valid values are “Y” for yes and “N” for no.

### Output Fields:

Seq#	Field Description	Type	Len	Dec
01	5-Digit Zip Code – Information returned	Char	1	
02	5-Digit Zip Code – State and county FIPS code	Dec	5	0
03	5-Digit Zip Code – Match quality	Dec	1	0
04	5-Digit Zip Code – Latitude	Dec	9	6
05	5-Digit Zip Code – Longitude	Dec	9	6
06	5-Digit Zip Code – 2000 Metropolitan Statistical Area (MSA) Code	Dec	4	0
07	5-Digit Zip Code – 2000 Minor Civil Division (MCD) Code	Dec	5	0
08	5-Digit Zip Code – 2010 Census Designated Place (CDP) Code	Dec	5	0
09	5-Digit Zip Code – Census Tract	Dec	6	2
10	5-Digit Zip Code – Census Block Group	Dec	1	0

Seq#	Field Description	Type	Len	Dec
11	5-Digit Zip Code – Zip Code class	Char	1	
12	5-Digit Zip Code – Time zone	Char	1	
13	5-Digit Zip Code – Area code #01	Dec	3	0
14	5-Digit Zip Code – Area code #02	Dec	3	0
15	5-Digit Zip Code – Area code #03	Dec	3	0
16	5-Digit Zip Code – State Abbreviation	Char	2	
17	5-Digit Zip Code – County name	Char	25	
18	5-Digit Zip Code – Current Metropolitan Statistical Area (MSA) Code	Dec	5	0
19	5-Digit Zip Code – Current Micropolitan Statistical Area Code	Dec	5	0
20	5-Digit Zip Code – Current Metropolitan Division Code	Dec	5	0
21	5-Digit Zip Code – Current Consolidated Statistical Area	Dec	3	0
22	5-Digit Zip Code – Error ID	Char	7	
23	5-Digit Zip Code – Error Message	Char	50	

### Output field descriptions

**5-Digit Zip Code Information Returned** – This field indicates whether or not 5-Digit Zip Code level information was returned. The possible values are “Y” for yes and “N” for no. After calling program LLR285, you can test this field for a “Y” or “N” to determine if your request was processed successfully.

**5-Digit Zip Code State and County FIPS code** – This field provides the State and County FIPS (Federal Information Processing Standards) codes for the 5-Digit Zip Code. The first two digits are the State FIPS code and the last three digits are the county FIPS code. As 5-digit Zip Codes can span state and/or county lines, this field only identifies the most common state and county associated with the 5-digit Zip Code.

**5-Digit Zip Code Match Quality** – This field indicates the match quality achieved during the geocoding of the 5-Digit Zip Code. **This field provides important information regarding the precision of the associated Latitude and Longitude.**

The following is a complete list of the match quality codes:

- 1 – Centroid located at the midpoint of the Zip+4 area (\*\* Not possible for 5-Digit Zip Code)
- 2 – Centroid located at the midpoint of the Zip+2 area (\*\* Not possible for 5-Digit Zip Code)
- 3 – Centroid located at the midpoint of the Carrier Route (\*\* Not possible for 5-Digit Zip Code)
- 4 – Centroid located at the midpoint of the 5-digit Zip Code area
- 5 – Centroid located at the midpoint of the associated incorporated city area
- 6 – Centroid located at the midpoint of the associated county area
- 7 – Centroid located at the midpoint of the 3-digit Zip Code area

**5-Digit Zip Code Latitude** – This field provides the latitude for the 5-Digit Zip Code. The latitude is provided in the “WGS 84” format. The precision of the latitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code Longitude** – This field provides the longitude for the 5-Digit Zip Code. The longitude is provided in the “WGS 84” format. The precision of the longitude is indicated by the **5-Digit Zip Code Match Quality** field.

**5-Digit Zip Code 2000 Metropolitan Statistical Area (MSA) Code** – This field provides the MSA (Metropolitan Statistical Area) code associated with the 5-Digit Zip Code during the 2010 Census. MSA codes have changed from four digits to five digits since the 2010 Census. We provide this "old" MSA code for historical purposes. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code 2000 Minor Civil Division (MCD) Code** – This field provides the FIPS (Federal Information Processing Standards) Minor Civil Division (MCD) code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census CCD code. As 5-digit Zip Codes can span MCD boundaries, this field only identifies the most common MCD code associated with the 5-digit Zip Code. **\*\*\* MCD data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code 2010 Census Designated Place (CDP) Code** – This field provides the FIPS (Federal Information Processing Standards) place code associated with the 5-Digit Zip Code. This data is also used as the 2010 Census Designated Place (CDP) code. As 5-digit Zip Codes can span CDP boundaries, this field only identifies the most common CDP code associated with the 5-digit Zip Code. **\*\*\* CDP data is no longer available. The value of this field will always be zero. \*\*\***

**5-Digit Zip Code Census Tract** – This field provides the 2010 Census tract associated with the 5-Digit Zip Code. Census tracts are small statistical subdivisions of a county. As 5-digit Zip Codes can span Census tract boundaries, this field only identifies the most common Census tract associated with the 5-digit Zip Code.

**5-Digit Zip Code Census Block Group** – This field provides the 2010 Census block group associated with the 5-Digit Zip Code. Census block groups are small statistical subdivisions of a Census tract. As 5-digit Zip Codes can span Census block group boundaries, this field only identifies the most common Census block group associated with the 5-digit Zip Code.

**5-Digit Zip Code Zip Code Class** – This field provides the Zip Code classification for the 5-Digit Zip Code. The Zip Code classifications indicate the type of addresses that utilize the Zip Code and are assigned by the USPS.

The following is a complete list of Zip Code Classifications:

- M – Military
- P – PO Boxes Only
- U – Unique (single organization)
- Blank – All others

**5-Digit Zip Code Time Zone** – This field provides the Time Zone for the geographical area in which the 5-Digit Zip Code is located.

The following is a complete list of possible Time Zones:

- E – Eastern US
- C – Central US
- M – Mountain US
- P – Pacific US
- A – Alaska AK
- H – Hawaii HI
- V – Puerto Rico PR / Virgin Islands VI
- G – Guam GU
- S – American Samoa AS
- U – Palau PU
- N – Marshal Islands MH

**5-Digit Zip Code Area Code #01** – This field provides the first of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #02** – This field provides the second of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code Area Code #03** – This field provides the third of up to three possible telephone area codes associated with the 5-Digit Zip Code.

**5-Digit Zip Code State Abbreviation** – This field provides the official two-character State code for the state in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span state lines, this field only provides the abbreviation for the most common state associated with the 5-digit Zip Code.

**5-Digit Zip Code County Name** – This field provides the official County name for the county in which the 5-Digit Zip Code is located. As 5-digit Zip Codes can span county lines, this field only provides the name of the most common county associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Statistical Area (MSA) Code** – This field provides the current Metropolitan Statistical Area (MSA) code, if any, associated with the 5-Digit Zip Code. The current MSA codes were assigned by the federal Office of Management and Budget in December of 2003. As 5-digit Zip Codes can span MSA boundaries, this field only identifies the most common MSA code associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Micropolitan Statistical Area Code** – This field provides the Micropolitan Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Micropolitan Statistical Area boundaries, this field only identifies the most common Micropolitan Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Current Metropolitan Division Code** – This field provides the Metropolitan Division code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Metropolitan Division boundaries, this field only identifies the most common Metropolitan Division associated with the 5-digit Zip Code.

**5-Digit Zip Code Consolidated Statistical Area** – This field provides the Consolidated Statistical Area code, if any, associated with the 5-Digit Zip Code. As 5-digit Zip Codes can span Consolidated Statistical Area boundaries, this field only identifies the most common Consolidated Statistical Area associated with the 5-digit Zip Code.

**5-Digit Zip Code Error ID** – This field provides an error code in the event that an error is encountered while attempting to retrieve data for the 5-Digit Zip Code.

**5-Digit Zip Code Error Message** – This field provides a text description for any error code returned in the **5-Digit Zip Code Error ID** field.



## Z4 LAT/LON COMMANDS

In the following paragraphs, each command provided with Z4 LAT/LON is described in detail. The intended use for each command is also given.

### The STRZ4LL Command

The **STRZ4LL** command is the interactive user interface to Z4 LAT/LON. Executing this command causes the Z4 LAT/LON Main Menu to be displayed. The Z4 LAT/LON Main Menu provides access to all of Z4 LAT/LON's functions. These functions include:

- Assigning Z4 LAT/LON System Defaults
- Displaying all available data for a specific Zip Code
- Calculating distances between Zip Codes
- Setting up Dealer File Definitions
- Locating the Dealers nearest a Zip Code

*Parameters:*

*There are no parameters for this command.*

## TECHNICAL INFORMATION

Z4 LAT/LON Library Size (approx.) .....	2.0 Gigabytes
Menus Used .....	LTLNLIB/Z4LL
Permanent Physical Files Used .....	LTLNLIB/TLNDFD LTLNLIB/TLNUIM
Temporary Physical Files Used .....	LTLNLIB/ALCOBJPF LTLNLIB/DLCOBJPF LTLNLIB/MOVOBJPF
Message Files Used .....	LTLNLIB/Z4LLMSGF
Data Areas Used .....	LTLNLIB/SYSDFTLL
Commands .....	LTLNLIB/STRZ4LL
Display Files .....	14
ILE Programs .....	37
ILE Programming Languages Used .....	C CL RPG

Z4 LAT/LON uses an external message file containing over 70 messages. Most messages have second level text explaining in more detail what caused the message. Second level text may be read by placing the cursor on the message, and pressing the **HELP** key.

## **SPECIAL CONSIDERATIONS**

### **Database Copyright**

The database provided with Z4 LAT/LON is compiled from several sources, some of which are only available to WorksRight Software, Inc. through strict nonexclusive license agreements. For this reason, the database is copyright protected and should only be used in accordance with the Z4 LAT/LON Program License Agreement.

### **Latitude / Longitude Accuracy**

The latitude / longitude coordinates provided in the Z4 LAT/LON database are obtained primarily from NAVTEQ. We consider this data to be the most accurate available. However, due to the sheer volume of data involved and the number of Zip Code changes made by the U.S. Postal Service each month, there are some cases where the Zip +4 level latitude / longitude coordinate is missing. To get the most accurate results from Z4 LAT/LON, you should load your monthly product updates as soon as possible. Each monthly product update contains the latest and most complete data available to us at the time of the update.

The latitude / longitude coordinates provided by Z4 LAT/LON are for Zip Code centroids. This means that even when the best match quality is achieved during geocoding, the latitude / longitude coordinate returned is for a 9-digit Zip Code centroid. That is, the latitude / longitude coordinate will not place you at a specific house, but at a center point between the first house and the last house sharing the 9-digit Zip Code. For this reason, we do not encourage the use of this information for emergency related services.

### **Distance Accuracy**

Z4 LAT/LON uses a variation of the Haversine formula to calculate distances between two latitude / longitude coordinates. Use of this advanced formula allows Z4 LAT/LON to calculate an extremely accurate distance which even takes into account the curvature of the earth. However, it is important to keep in mind that all distances calculated by Z4 LAT/LON are point to point distances. They are not driving distances.

In almost all cases, Z4 LAT/LON will accept a 9-digit, 7-digit, 5-digit, or 3-digit Zip Code as input. The accuracy of the latitude / longitude coordinates used when calculating distances are directly affected by the completeness of the Zip Code(s) provided. To obtain the most accurate results possible, always provide Z4 LAT/LON the most complete Zip Code available.

### **One-to-Many Relationships**

Due to the one-to-many relationships encountered when geocoding to a Zip Code centroid, the more complete the Zip Code, the more accurate the returned information will be. An example of a one-to-many relationship would be where a 5-digit Zip Code crosses a county boundary and is thereby associated with more than one county.

Z4 LAT/LON handles one-to-many relationships by tabulating the occurrences of each possible value and selecting the most commonly used value. For example, the 5-digit Zip Code 39086 is used for delivery to addresses in both Claiborne county, MS (county FIPS code 021) and Copiah county, MS (county FIPS code 029). With further analysis of all 9-digit Zip Codes beginning with 39086, it can be determined that 78% of those addresses exist in Copiah county, MS. Therefore, the county FIPS code 029 (Copiah county) is assigned to the 5-digit Zip Code 39086. This same technique is used to resolve all one-to-many relationships within the Z4 LAT/LON data.



Z4 LAT/LON

License Transfer Request

P.O. Box 1156 • Madison, MS 39130-1156
Phone (601) 856-8337 • Fax (601) 856-9432

Company name \_\_\_\_\_

Address \_\_\_\_\_

Contact name \_\_\_\_\_ Telephone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Transfer: From CPU serial number \_\_\_\_\_

To CPU serial number \_\_\_\_\_

Instructions:

To transfer your Z4 LAT/LON license from one AS/400, iSeries, or i5 to a different AS/400, iSeries, or i5, simply complete a copy of this form and fax or mail it to WorksRight Software, Inc. WorksRight Software, Inc.'s fax number is (601) 856-9432.

Upon receipt of the completed form, WorksRight Software, Inc. will contact you with a permanent security code for the new system.

Terms:

Your Z4 LAT/LON license may be transferred from one AS/400, iSeries, or i5 to another AS/400, iSeries, or i5 under the following terms:

- Z4 LAT/LON must be removed from the original system within 30-days of the transfer request being honored.
• Both the original system and the new system must be owned by the company identified on the transfer request.
• The Z4 LAT/LON license may be transferred only once during any six-month period.
• All terms of the original Program License Agreement are transferred to the new system.

License transfer requests that do not meet the terms above may be subject to additional charges. You will be notified of any additional charges before the transfer request is honored.